50 ปีความสัมพันธ์ทางการทูตไทย - จีน
中泰建交50周年

STT51

The 51st International Congress on Science, Technology, and Technology-based Innovation

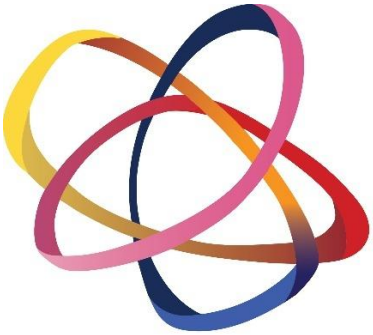
Collaboration Across Frontiers

From Quantum and Cosmos to Global Biodiversity

Program Book



ทรงพระเจริญ



STT51
Collaboration Across Frontiers
SCIENCE CHULALONGKORN
BANGKOK, THAILAND

PROGRAM BOOK

The 51st International Congress on Science, Technology and Technology-based Innovation (STT51)

Collaboration Across Frontiers:
From Quantum and Cosmos to Global Biodiversity

November 11th-13th, 2025

Chulalongkorn University, Bangkok, Thailand

Organized by:

The Science Society of Thailand under
the Patronage of His Majesty the King
in Association with
Faculty of Science, Chulalongkorn University and
The Information Technology Foundation
under the Initiative of Her Royal Highness Princess
Maha Chakri Sirindhorn

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WELCOME MESSAGE FROM THE PRESIDENT OF THE SCIENCE SOCIETY OF THAILAND UNDER THE PATRONAGE OF HIS MAJESTY THE KING



Dear Colleagues, Researchers, and Innovators,

It is with profound honor and keen anticipation that I extend a cordial invitation to all distinguished scholars, researchers, and scientific collaborators both within Thailand and across the international stage to participate in the 51st International Congress on Science, Technology, and Technology-based Innovation (STT51), held under the theme: "Collaboration Across Frontiers: From Cosmos and Quantum to Global Biodiversity," scheduled for November 11–13, 2025, at the Faculty of Science, Chulalongkorn University, Bangkok.

This landmark congress is proudly convened by the Science Society of Thailand under the Patronage of His Majesty the King, in close collaborations with the Faculty of Science, Chulalongkorn University and The Information Technology Foundation under the Initiative of Her Royal Highness Princess Maha Chakri Sirindhorn. Together, we reaffirm our shared commitment to cultivating meaningful, interdisciplinary partnerships that transcend traditional academic and institutional boundaries.

What distinguishes this year's symposium is not only its intellectual breadth, but also the historical significance of its occasion. It is held in honor of the 70th Birthday Anniversary of Her Royal Highness Princess Maha Chakri Sirindhorn, whose unwavering dedication to science, education, and humanitarian advancement continues to serve as a guiding light to scholars and citizens. Simultaneously, we commemorate the "Golden Year of Friendship", marking 50 years of diplomatic relations between the Kingdom of Thailand and the People's Republic of China with a moment of reflection, and a renewed impetus for scientific and cultural cooperations, and we celebrate 108 years since the founding of the Faculty of Science, Chulalongkorn University.

In the world confronting complex, interwoven crises involving climate change, biodiversity loss, and rapid technological transformation, collaboration is no longer optional, but it is essential. When physicists, biologists, conservationists, industrial experts, and policymakers engage in authentic, cross-sector dialogue, new synergies, frameworks, and solutions emerge.

As the President of the Science Society of Thailand, I am deeply proud to represent initiatives that bridge disciplines, sectors, and nations. I am confident that this congress will not only elevate scientific dialogue but also strengthen the foundations of enduring international cooperation. I warmly encourage your participation in what promises to be an intellectually enriching and historically resonant gathering at STT51.

With deepest respect and in shared pursuit of knowledge,

Associate Professor Thanuttkhul Mongkolaussavarat, Ph.D.

President of the Science Society of Thailand Under the Patronage of His Majesty the King

WELCOME MESSAGE FROM THE CHAIRPERSON OF THE 51ST INTERNATIONAL CONGRESS ON SCIENCE, TECHNOLOGY AND TECHNOLOGY–BASED INNOVATION



It is with great pleasure and earnest anticipation that I extend a cordial invitation to esteemed scholars, researchers, and industry experts to participate in the 51st International Congress on Science, Technology, and Technology-based Innovation (STT51), to be held from November 11–13, 2025, at the Faculty of Science, Chulalongkorn University, Bangkok.

This year's congress, convened under the theme "Collaboration Across Frontiers: From Cosmos and Quantum to Global Biodiversity," will bring together leading minds across scientific disciplines, technological domains, policy spheres, and industrial sectors. It is designed to serve as a fertile ground for cross-sector dialogue, interdisciplinary exchanges, and collaborative innovations.

The congress holds particular significance as it coincides with three auspicious occasions: the 70th Birthday Anniversary of Her Royal Highness Princess Maha Chakri Sirindhorn, whose enduring contributions to science, education, and humanitarian advancement continue to inspire; the Golden Year of Friendship, commemorating 50 years of diplomatic relations between the Kingdom of Thailand and the People's Republic of China; and the celebration of the 108 years since the founding of the Faculty of Science, Chulalongkorn University. These milestones imbue the congress with a spirit of celebration, reflection, and strengthened international engagement.

In an era defined by complex and interconnected global challenges in climate change, biodiversity loss, and the rapid evolution of technology, the imperative for interdisciplinary collaboration has never been more urgent and extremely important. STT51 aims to foster new synergies and frameworks by convening experts from quantum physics, molecular biology, conservation science, policy studies, and the private sectors, thereby bridging the divide between foundational research and practical application.

STT51 is greatly honored to have Her Royal Highness Princess Maha Chakri Sirindhorn as our Honorable Keynote Speaker. STT51 encompasses scientific sessions and symposia of a range of compelling themes, including science communication and science literacy.

We are pleased to announce that early bird registration is now open. Full details regarding abstract submission, program highlights, accommodation, and travel logistics are available on the official conference website.

I sincerely look forward to welcoming you to STT51, a gathering that promises to be both intellectually enriching and globally impactful.

With warmest regards,

Professor Suttichai Assabumrungrat, Ph.D.

Chairperson of STT51

WELCOME MESSAGE FROM THE HOST OF THE 51ST INTERNATIONAL CONGRESS ON SCIENCE, TECHNOLOGY AND TECHNOLOGY–BASED INNOVATION



Dear Esteemed Colleagues and Distinguished Guests,

It is with great honor and enthusiasm that I extend a warm invitation to STT51, co-hosted by Faculty of Science, Chulalongkorn University. This year's congress holds special significance as it coincides with several momentous celebrations.

The theme "Collaboration Across Frontiers" embodies our commitment to transcending boundaries in scientific research and innovation. In an era where global challenges necessitate unified solutions, fostering partnerships that span disciplines, cultures, and nations is imperative. STT51 aims to serve as a platform where scientists, researchers, and academicians from around the world can converge to share knowledge, exchange ideas, and forge collaborations that will drive scientific advancement and address pressing global issues.

This conference also provides an opportunity to honor the remarkable contributions of Her Royal Highness Princess Maha Chakri Sirindhorn to science and education, celebrate the enduring friendship and collaborative achievements between Thailand and China over the past five decades, and reflect on the rich history and academic excellence of our Faculty of Science over its 108-year journey. Furthermore, aligning with UNESCO's International Year of Quantum Science and Technology, STT51 will spotlight the transformative impact of quantum research and its potential to revolutionize various scientific domains.

I wholeheartedly invite you to join us in this celebration of science, collaboration, and shared progress. Together, let us transcend frontiers and pave the way for a future where scientific endeavors are boundless and inclusive.

We look forward to welcoming you to STT51 at Chulalongkorn University.

Warm regards,

Professor Pranut Potiyaraj, Ph.D., CText FTI

Dean, Faculty of Science, Chulalongkorn University

WELCOME MESSAGE FROM THE HOST OF THE 51ST INTERNATIONAL CONGRESS ON SCIENCE, TECHNOLOGY AND TECHNOLOGY–BASED INNOVATION



It is my great pleasure to welcome all of you to the 51st International Congress on Science, Technology, and Technology-based Innovation (STT51) organized by The Science Society of Thailand under the Patronage of His Majesty the King in collaboration with Faculty of Science, Chulalongkorn University and the Information Technology Foundation under the Initiative of HRH Princess Maha Chakri Sirindhorn.

2025 marks a significant occasion, as Her Royal Highness Princess Maha Chakri Sirindhorn's 70th Birthday Anniversary on April 2, 2025. It is also the 50th Anniversary of Thailand-China Diplomatic Relations. I together with executives of The Science Society of Thailand Under the Patronage of His Majesty the King and representatives from the Polar Science Consortium of Thailand, had an audience with Her Royal Highness on November 16, 2024, at Sra Pathum Palace to ask royal permission to organize celebratory events for both occasions. Her Royal Highness graciously granted permission for the organization of the following events:

1. The welcoming of the Chinese Icebreaking Research Vessel "Xue Long 2", on May 19–23, 2025, at Chuk Samet Port, Sattahip Port Authority, Sattahip District, Chonburi Province, Thailand.
2. The hosting of the academic conference "Thailand-China Science and Technology Collaborations under Her Royal Highness Princess Maha Chakri Sirindhorn's Initiative" as part of the 51st International Congress on Science, Technology, and Technology-based Innovation (STT51), on November 11–13, 2025, at the Faculty of Science, Chulalongkorn University, Thailand.

PSIT has reported these activities to the Ministry of Foreign Affairs, requesting that both events be included as part of the official celebrations of the 50th anniversary of Thailand–China diplomatic relations.

As we gather here under the gracious inspiration of Her Royal Highness Princess Maha Chakri Sirindhorn, may this congress serve as a distinguished platform for the exchange of knowledge, experiences, and innovations; for the promotion of scientific collaboration; and for the strengthening of friendship between both nations. Through such collective endeavors, we reaffirm our shared commitment to advancing science and technology for the sustainable progress and well-being of humanity.

Once again, I extend my warmest welcome to all distinguished guests, speakers, and participants. May your time at STT51 be both intellectually rewarding and personally inspiring. I am confident that the discussions and collaborations fostered here will contribute meaningfully to the advancement of science, technology, and innovation for the benefit of our nations and the global community.

With best regards,

Prof. Pairash Thajchayapong, Ph.D.

Secretary General,
The Information Technology Foundation
under the Initiative of Her Royal Highness Princess Maha Chakri Sirindhorn

HISTORY OF THE CONGRESS ON SCIENCE AND TECHNOLOGY OF THAILAND

International Congress on Science, Technology and Technology- based Innovation (STT), originally named "The Congress on Science and Technology of Thailand" with the same abbreviation of STT, is one of the most important scientific meetings in Thailand. It was firstly organized in 1971 by the Science Society of Thailand (SST) and Chulalongkorn University. Since then, the alternative Universities in Thailand have gone through the bidding for co-organizing the STT in the following years. It is the annual national congress for 45 years. To mark the 72nd Anniversary of the Science Society of Thailand in 2020, the congress has been changed to the international meeting.

The aim is to create scientific forum for national and international scientists and technologists as well as young Thai scientists from diversified fields of science and technology to meet and to provide them the opportunity to share and exchange their knowledge and experiences. It is our annual congress, which originally was the national meeting since 1971, but this year, it is its first time to be held as the international meeting.

Typically, the Congress Plenary Lecture is given by a Nobel Laureate in Science and Technology, followed by an honorable lecture of the Outstanding Scientist of Thailand in that particular year. During the Congress, lectures by several renowned invited speakers, panel discussions and hundreds of contributed papers from various areas of Science and Technology are presented orally or in the form of posters. In addition, the outstanding teacher awards, the young scientist awards, as well as the innovation awards and the national winners of high school student science projects are awarded in the Congress. An exhibition of advanced scientific and technological instruments and appliances from suppliers and enterprises are also the attractive event of the Congress.

ครั้งที่ ปี / วันที่ เดือน	ชื่อการประชุม	สถาบันเจ้าภาพร่วม	ประธาน (จำนวนผลงานวิจัย)	ประธานในพิธีเปิด
1. พ.ศ. 2514 26-27 พฤศจิกายน	การวิจัยทางวิทยาศาสตร์ กรุงเทพฯ 2514	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย	ศ.ดร.ประชุมสุข อาชวอำรุง (83 เรื่อง)	-
2. พ.ศ. 2516 30 พฤศจิกายน - 2 ธันวาคม	การวิจัยทางวิทยาศาสตร์ กรุงเทพฯ 2516	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย	ศ.ดร.ประชุมสุข อาชวอำรุง (219 เรื่อง)	-
3. พ.ศ. 2518 12-13 ธันวาคม	การวิจัยทางวิทยาศาสตร์ กรุงเทพฯ 2518	คณะวิทยาศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยมหิดล	ศ.ดร.กำจร มนูญปิจุ (249 เรื่อง)	-
4. พ.ศ. 2520 16-17 ธันวาคม	การวิจัยทางวิทยาศาสตร์ กรุงเทพฯ 2520	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย	รศ.ดร.กำจัด มงคลกุล (344 เรื่อง)	-
5. พ.ศ. 2521 22-24 ธันวาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาภาคเหนือ	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่	ศ.ดร.พรชัย มาตังคสมบัติ (232 เรื่อง)	-
6. พ.ศ. 2522 21-23 ธันวาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาประเทศ	คณะวิทยาศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ บางแสน	ศ.ดร.พรชัย มาตังคสมบัติ (232 เรื่อง)	-
7. พ.ศ. 2523 4-6 ธันวาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาประเทศ	คณะวิทยาศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยมหิดล	รศ.ดร.นัยพินิจ คชภักดี (233 เรื่อง)	สมเด็จพระเจ้าลูกเธอเจ้าฟ้าจุฬาภรณวลัยลักษณ์

ครั้งที่ ปี / วันที่ เดือน	ชื่อการประชุม	สถาบันเจ้าภาพร่วม	ประธาน (จำนวนผลงานวิจัย)	ประธานในพิธีเปิด
8. พ.ศ. 2525 28-30 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาประเทศ	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย	รศ.ดร.สัณห์ พณิชยกุล (245 เรื่อง)	-
9. พ.ศ. 2526 27-29 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาภาคตะวันออกเฉียงเหนือ	คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น	รศ.ดร.สัณห์ พณิชยกุล (174 เรื่อง)	รัฐมนตรีว่าการกระทรวงวิทยาศาสตร์ เทคโนโลยีและการพลังงาน (ฯพณฯ ดำรง ลัทธพิพัฒน์)
10. พ.ศ. 2527 25-27 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่	ศ.ดร.มนตรี จุฬาวัฒนทล (280 เรื่อง)	นายกรัฐมนตรี (พลเอก เปรม ติณสูลานนท์)
11. พ.ศ. 2528 24-26 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย	คณะวิทยาศาสตร์ มหาวิทยาลัยเกษตรศาสตร์	ศ.ดร.มนตรี จุฬาวัฒนทล (251 เรื่อง)	สมเด็จพระเจ้าลูกเธอเจ้าฟ้าจุฬาภรณวลัยลักษณ์
12. พ.ศ. 2529 20-22 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย	คณะวิทยาศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ ประสานมิตร	รศ.ดร.ภิญโญ พานิชพันธ์ (277 เรื่อง)	สมเด็จพระบรมโอรสาธิราชฯ สยามมกุฎราชกุมาร
13. พ.ศ. 2530 20-22 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย	คณะวิทยาศาสตร์ มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่	รศ.ดร.ภิญโญ พานิชพันธ์ (420 เรื่อง)	สมเด็จพระเจ้าลูกเธอเจ้าฟ้าจุฬาภรณวลัยลักษณ์
14. พ.ศ. 2531 19-21 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย	ศ.ดร.จริยา บรอคเคลแมน (259 เรื่อง)	นายกรัฐมนตรี (พลเอก ชาติชาย ชุณหะวัณ)
15. พ.ศ. 2532 18-20 ตุลาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาทรัพยากรภาคเหนือ	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่	ศ.ดร.จริยา บรอคเคลแมน (394 เรื่อง)	ผู้แทนสมเด็จพระเจ้าลูกเธอเจ้าฟ้าจุฬาภรณวลัยลักษณ์
16. พ.ศ. 2533 25-27 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาประเทศ	คณะวิทยาศาสตร์ สถาบันเทคโนโลยีพระจอมเกล้า เจ้าคุณทหารลาดกระบัง	ศ.ดร.วิชัย ริ้วตระกูล (369 เรื่อง)	-
17. พ.ศ. 2534 24-26 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาทรัพยากรภาคเหนือ	คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น	ศ.ดร.วิชัย ริ้วตระกูล (349 เรื่อง)	-
18. พ.ศ. 2535 27-29 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาประเทศ	คณะวิทยาศาสตร์ มหาวิทยาลัยเกษตรศาสตร์ ณ ศูนย์การประชุมแห่งชาติสิริกิติ์	ศ.ดร.สุชาติ อุปถัมภ์ (297 เรื่อง)	-
19. พ.ศ. 2536 27-29 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาชายฝั่ง	คณะวิทยาศาสตร์ มหาวิทยาลัยสงขลานครินทร์ ณ โรงแรมดุสิต เจ.บี.หาดใหญ่	ศ.ดร.สุชาติ อุปถัมภ์ (438 เรื่อง)	-
20. พ.ศ. 2537 19-21 ตุลาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาเศรษฐกิจ สังคม และสิ่งแวดล้อม	คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยธรรมศาสตร์ ณ เซ็นทรัลพลาซ่า	ศ.ดร.สมศักดิ์ พันธุวัฒนา (252 เรื่อง)	นายกรัฐมนตรี (นายชวน หลีกภัย)
21. พ.ศ. 2538 25-27 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาอุตสาหกรรม	คณะวิทยาศาสตร์ มหาวิทยาลัยบูรพา ณ โรงแรมแอมบาสซาเอร์ชิตี้ จอมเทียน ชลบุรี	ศ.ดร.สมศักดิ์ พันธุวัฒนา (354 เรื่อง)	นายกสภามหาวิทยาลัยบูรพา (นายเกษม จาติกวณิช)
22. พ.ศ. 2539 16-18 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อพัฒนาทรัพยากรมนุษย์	คณะวิทยาศาสตร์ มหาวิทยาลัยรามคำแหง ณ บางกอกคอนเวนชั่นเซ็นเตอร์ เซ็นทรัลพลาซา ลาดพร้าว	รศ.ดร.พิณทิพ รื่นวงษา (333 เรื่อง)	ผู้ว่าราชการกรุงเทพมหานคร (ดร.พิจิตต รัตตกุล)
23. พ.ศ. 2540 20-22 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อพัฒนาคุณภาพชีวิตในภูมิภาค	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่ ณ โรงแรมโลตัส ปางสวนแก้ว	รศ.ดร.พิณทิพ รื่นวงษา (495 เรื่อง)	รัฐมนตรีว่าการกระทรวงวิทยาศาสตร์ เทคโนโลยีและสิ่งแวดล้อม (นายยิ่งพันธ์ มนะสิการ)
24. พ.ศ. 2541 19-21 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาเศรษฐกิจที่มั่นคง	คณะวิทยาศาสตร์ มหาวิทยาลัยมหิดล ณ ศูนย์การประชุมแห่งชาติสิริกิติ์	ผศ.ดร.ทิพาพร ลิมปเสนีย์ (463 เรื่อง)	นายกรัฐมนตรี (นายชวน หลีกภัย)
25. พ.ศ. 2542 20-22 ตุลาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาทรัพยากรท้องถิ่น	คณะวิทยาศาสตร์ มหาวิทยาลัยนเรศวร ณ โรงแรมอมรินทร์ลากูน พิษณุโลก	ผศ.ดร.ทิพาพร ลิมปเสนีย์ (581 เรื่อง)	รัฐมนตรีว่าการกระทรวงวิทยาศาสตร์ เทคโนโลยีและสิ่งแวดล้อม (ดร.อาทิตย์ อุไรรัตน์)

ครั้งที่ ปี / วันที่ เดือน	ชื่อการประชุม	สถาบันเจ้าภาพร่วม	ประธาน (จำนวนผลงานวิจัย)	ประธานในพิธีเปิด
26. พ.ศ. 2543 18-20 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีสู่สหัสวรรษใหม่	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ณ ศูนย์การประชุมแห่งชาติสิริกิติ์	รศ.ดร.ศุภวรรณ ตันตยานนท์ (739 เรื่อง)	-
27. พ.ศ. 2544 16-18 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการฟื้นฟูเศรษฐกิจไทย	มหาวิทยาลัยสงขลานครินทร์ ณ โรงแรม ลี การ์เดนส์ พลาซ่า	รศ.ดร.ศุภวรรณ ตันตยานนท์ (921 เรื่อง)	ผู้ว่าราชการจังหวัดสงขลา
28. พ.ศ. 2545 24-26 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาเศรษฐกิจที่ยั่งยืน	คณะวิทยาศาสตร์ประยุกต์ สถาบันเทคโนโลยีพระจอมเกล้าพระนครเหนือ ณ ศูนย์การประชุมแห่งชาติสิริกิติ์	รศ.ดร.สุรินทร์ เหล่าสุขสถิตย์ (834 เรื่อง)	สมเด็จพระเจ้าพี่นางเธอ เจ้าฟ้ากัลยาณิวัฒนา กรมหลวงนราธิวาสราชนครินทร์
29. พ.ศ. 2546 20-22 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาท้องถิ่น	คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น ณ ศูนย์ประชุมอเนกประสงค์กาญจนาภิเษก	รศ.ดร.สุรินทร์ เหล่าสุขสถิตย์ (1039 เรื่อง)	รองนายกรัฐมนตรี (นายสุวิทย์ คุณกิตติ)
30. พ.ศ. 2547 19-21 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อสังคมและเศรษฐกิจฐานความรู้	คณะวิทยาศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ ณ ศูนย์แสดงสินค้าและการประชุมอิมแพ็ค เมืองทองธานี	รศ.ดร.สุรินทร์ เหล่าสุขสถิตย์ (854 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
31. พ.ศ. 2548 18-20 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาที่ยั่งยืน	เทคโนธานี มหาวิทยาลัยเทคโนโลยีสุรนารี	รศ.ดร.สุรินทร์ เหล่าสุขสถิตย์ (1021 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
32. พ.ศ. 2549 10-12 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการเศรษฐกิจพอเพียง เฉลิมฉลองการครองสิริราชสมบัติครบ 60 ปี ของพระบาทสมเด็จพระเจ้าอยู่หัว	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ณ ศูนย์การประชุมแห่งชาติสิริกิติ์	รศ.ดร.นภาวรรณ นพรัตนราภรณ์ (927 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
33. พ.ศ. 2550 18-20 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อโลกยั่งยืน เฉลิมฉลองมหามงคลเฉลิมพระชนมพรรษาครบ 80 พรรษาของพระบาทสมเด็จพระเจ้าอยู่หัว	มหาวิทยาลัยวลัยลักษณ์ จังหวัดนครศรีธรรมราช	รศ.ดร.นภาวรรณ นพรัตนราภรณ์ (802 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
34. พ.ศ. 2551 31 ตุลาคม - 2 พฤศจิกายน	วิทยาศาสตร์และเทคโนโลยีสำหรับโลกแห่งความท้าทาย	คณะวิทยาศาสตร์ สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง	รศ.ดร.นภาวรรณ นพรัตนราภรณ์ (777 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
35. พ.ศ. 2552 15-17 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่ออนาคตที่ดีขึ้น	คณะวิทยาศาสตร์ มหาวิทยาลัยบูรพา	รศ.ดร.นภาวรรณ นพรัตนราภรณ์ (854 เรื่อง)	ฯพณฯ องคมนตรี นายอำพล เสนาณรงค์
36. พ.ศ. 2553 26-28 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อสังคมที่ดีขึ้น	คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยธรรมศาสตร์	รศ.ดร.ธารารัตน์ ศุภศิริ (582 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
37. พ.ศ. 2554 10-12 ตุลาคม	วิทยาศาสตร์สร้างสรรค์ เพื่อสรรค์สร้างอนาคต	คณะวิทยาศาสตร์ มหาวิทยาลัยมหิดล	รศ.ดร.ธารารัตน์ ศุภศิริ (699 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
38. พ.ศ. 2555 17-19 ตุลาคม	วิทยาศาสตร์เพื่ออนาคตของมวลมนุษยชาติ	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่	รศ.ดร.ธารารัตน์ ศุภศิริ (690 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
39. พ.ศ. 2556 21-23 ตุลาคม	นวัตกรรมวิทยาศาสตร์ เพื่อชีวิตที่ดีขึ้น	คณะวิทยาศาสตร์ มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี	รศ.ดร.ธารารัตน์ ศุภศิริ (495 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
40. พ.ศ. 2557 2-4 ธันวาคม	วิทยาศาสตร์และเทคโนโลยีสู่วิถีพัฒนาอาเซียน	คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น	ศ.ดร. เปี่ยมสุข พงษ์สวัสดิ์ (543 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
41. พ.ศ. 2558 6-8 พฤศจิกายน	ประตูสู่อาเซียนด้วยวิทยาศาสตร์และเทคโนโลยี	มหาวิทยาลัยเทคโนโลยีสุรนารี	ศ.ดร. เปี่ยมสุข พงษ์สวัสดิ์ (384 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
42. พ.ศ. 2559 30 พฤศจิกายน – 2 ธันวาคม	ศาสตร์แห่งแผ่นดิน สู่นวัตกรรมเพื่ออนาคตที่ยั่งยืน	คณะวิทยาศาสตร์ มหาวิทยาลัยเกษตรศาสตร์ ณ เซ็นทาราแกรนด์ แอท เซ็นทรัลพลาซา ลาดพร้าว	ศ.ดร. เปี่ยมสุข พงษ์สวัสดิ์ (290 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี

ครั้งที่ ปี / วันที่ เดือน	ชื่อการประชุม	สถาบันเจ้าภาพร่วม	ประธาน (จำนวนผลงานวิจัย)	ประธานในพิธีเปิด
43. พ.ศ. 2560 17-19 ตุลาคม	เข้าใจวิทยาศาสตร์ เข้าถึงเทคโนโลยี สร้างนวัตกรรม นำสังคมยั่งยืน	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ณ อาคารจามจุรี 10 จุฬาลงกรณ์มหาวิทยาลัย	ศ.ดร. เปี่ยมสุข พงษ์สวัสดิ์ (327 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
44. พ.ศ. 2561 29-31 ตุลาคม	วิทยาศาสตร์ และเทคโนโลยีในยุคพลิกผัน	สมาคมวิทยาศาสตร์แห่งประเทศไทยในพระบรมราชูปถัมภ์ ณ ศูนย์นิทรรศการและการประชุมไบเทค	รศ.ดร.สายวรุฬ ชัยวานิชศิริ (270 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
45. พ.ศ. 2562 7-9 ตุลาคม	ต้นกล้านวัตกรรมสู่การพัฒนาที่ยั่งยืน	สำนักวิชาวิทยาศาสตร์ มหาวิทยาลัยแม่ฟ้าหลวง	รศ.ดร.สายวรุฬ ชัยวานิชศิริ (338 เรื่อง)	สมเด็จพระกนิษฐาธิราชเจ้า กรม สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
46. พ.ศ. 2563 5-7 ตุลาคม	Power of Science to Achieve SDGs	คณะวิทยาศาสตร์ มหาวิทยาลัยรามคำแหง	ศ.ดร.สมเกียรติ งามประเสริฐสิทธิ์ (426 เรื่อง)	สมเด็จพระกนิษฐาธิราชเจ้า กรม สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
47. พ.ศ. 2564 5-7 ตุลาคม	Sciences For SDGs: Challenges And Solutions	คณะศิลปศาสตร์และวิทยาศาสตร์ มหาวิทยาลัยเกษตรศาสตร์	ศ.ดร.สมเกียรติ งามประเสริฐสิทธิ์ (340 เรื่อง)	สมเด็จพระกนิษฐาธิราชเจ้า กรม สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
48. พ.ศ. 2565 29 พฤศจิกายน-1 ธันวาคม	Science and Technology for Advancing Towards SDGs	สำนักวิชาวิทยาศาสตร์ มหาวิทยาลัยวลัยลักษณ์	ศ.ดร.ประณัฐ โพธิยะราช (483 เรื่อง)	-
49. พ.ศ. 2567 23-25 มกราคม	SDGs for the Benefit of Mankind	คณะวิทยาศาสตร์ มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่	ศ.ดร.ประณัฐ โพธิยะราช (439 เรื่อง)	สมเด็จพระกนิษฐาธิราชเจ้า กรม สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
50. พ.ศ. 2567 25-27 พฤศจิกายน	Science x Creativity: Crafting the world	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่	ศ.ดร.ประณัฐ โพธิยะราช (626 เรื่อง)	สมเด็จพระกนิษฐาธิราชเจ้า กรม สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี

PROGRAM OVERVIEW

A program for STT51 Congress @ Chulalongkorn University / Montien Hotel Surawong Bangkok

Code	Session/Symposium	November 11th , 2025		November 12th , 2025		November 13th , 2025
		AM	PM	AM	PM	AM
GO	GRAND OPENING CEREMONY + KEYNOTE SPEAKER	CU AUDITORIUM				
PO	POSTER SESSION-SESSION / SYMPOSIUM / YRSS / JYRSS		SALA PHRA KIEO	SALA PHRA KIEO	SALA PHRA KIEO	
PN	PLENARY SPEAKER		M01 / M02 / 307 MHMK	M01 / M02 MHMK	M01 / 202 MHMK	
AC	AWARDING CEREMONY-BEST ORAL & POSTER PRESENTATIONS AWARDING CEREMONY-YRSS / JYRSS CLOSING CEREMONY					SALA PHRA KIEO
A	SESSION A-PHYSICS / APPLIED PHYSICS			306 MHMK		
B	SESSION B-BIOLOGICAL SCIENCES			M01 MHMK		
C	SESSION C-CHEMISTRY			304 MHMK		
D	SESSION D-MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI			201 MHMK		
E	SESSION E-ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY		201 - 202 MHMK	202 MHMK		
F	SESSION F-FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE				301 / 308 MHMK	
SP1	SP1-THAILAND-CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS PRINCESS MAHA CHAKRI SIRINDHORN'S INITIATIVE			205 / 207 MHMK		
SP2	SP2-FLAVOR AND FRAGRANCE WITHOUT BORDERS: FROM ORIGIN TO GLOBAL MARKET			308 MHMK		
SP3	SP3-NEXGEN ENERGY: STORAGE AND CONVERSION FOR SUSTAINABILITY			203 MHMK	M01 MHMK	
SP4	SP4-BIOREFINERY					203 MHMK
SP5	SP5-GENOME EDITING AND SYNTHETIC BIOLOGY					
SP6	SP6-NAVIGATING THE QUANTUM FRONTIER		305 MHMK	M02 MHMK		
SP7	SP7-COLOUR SCIENCE/TECHNOLOGY, LIGHT AND APPLICATIONS					
SP8	SP8-CULTURAL HERITAGE: TRADITIONAL/DIGITAL COLOR				M02 MHMK	
SP9	SP9-EXPLORING THE COSMOS: ADVANCES IN OBSERVATIONAL AND THEORETICAL ASTROPHYSICS			305 MHMK		
SP10	SP10-X-RAY CRYSTALLOGRAPHY			206 MHMK		
SP11	SP11-RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY				ENG	
SP12	SP12-THE 2nd INTERNATIONAL SYMPOSIUM OF SCIENCE COMMUNICATION AND PUBLIC SCIENCE LITERACY			302 MHMK		
SP13	SP13-NATURE BASED SOLUTIONS FOR CLIMATE MITIGATION			204 MHMK		
SP14	SP14-VALORIZATION OF BIOMASS-RELATED WASTES		308 MHMK			
SP15	SP15-EMPOWERING SCIENCE EDUCATORS FOR GLOBAL CHALLENGES			307 MHMK		
SP16	SP16-YOUNG RISING STARS OF SCIENCE 2025 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2025 (JYRSS)				309 MHMK	204-207 / 304-307 / 309 MHMK
SP17	SP17-SCIENCE POPULARIZATION FOR SUSTAINABLE COMMUNITY DEVELOPMENT				208 MHMK	
	MEETING OF THE SCIENCE DEANS	205 MAHA CHULALONGKORN BUILDING				
	ANNUAL MEETING OF THE SCISOC				MULTI-FUNCTIONAL ROOM TAB BLD	
	STT52 MEETING			MULTI-FUNCTIONAL ROOM TAB BLD		
	SCIENCE DEANS & CHAIR & KEYNOTE / PLENARY / INVITED SPEAKER RECEPTION	Montien Hotel Surawong Bangkok				
	STT51 CONGRESS BANQUET				SALA PHRA KIEO	

NOTE1 VIP / PARTICIPANT LUNCH ROOM > SALA PHRA KIEO
STAFF LUNCH ROOM > SCI SPACE, TAB BLD

NOTE2 SCISOC BOARDROOM > 309 MHMK

CHULALONGKORN UNIVERSITY









FACULTY OF SCIENCE



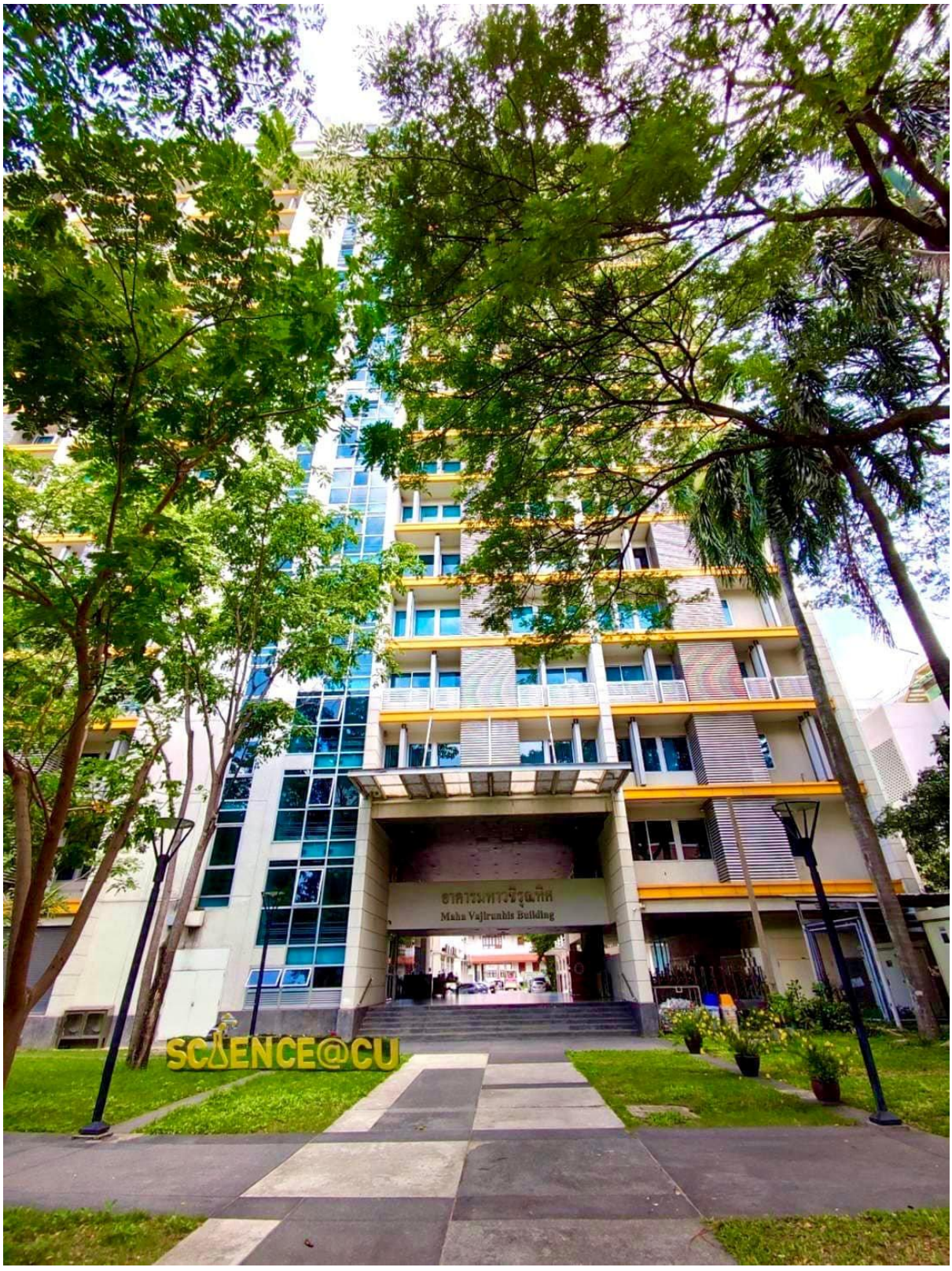





อาคารแถบ นีละนิธิ
TAB NILANIDHI BUILDING






อาคารมหาวชิรุณหิศ
Maha Vajiranhis Building
SCIENCE@CU


มหามกุฎ

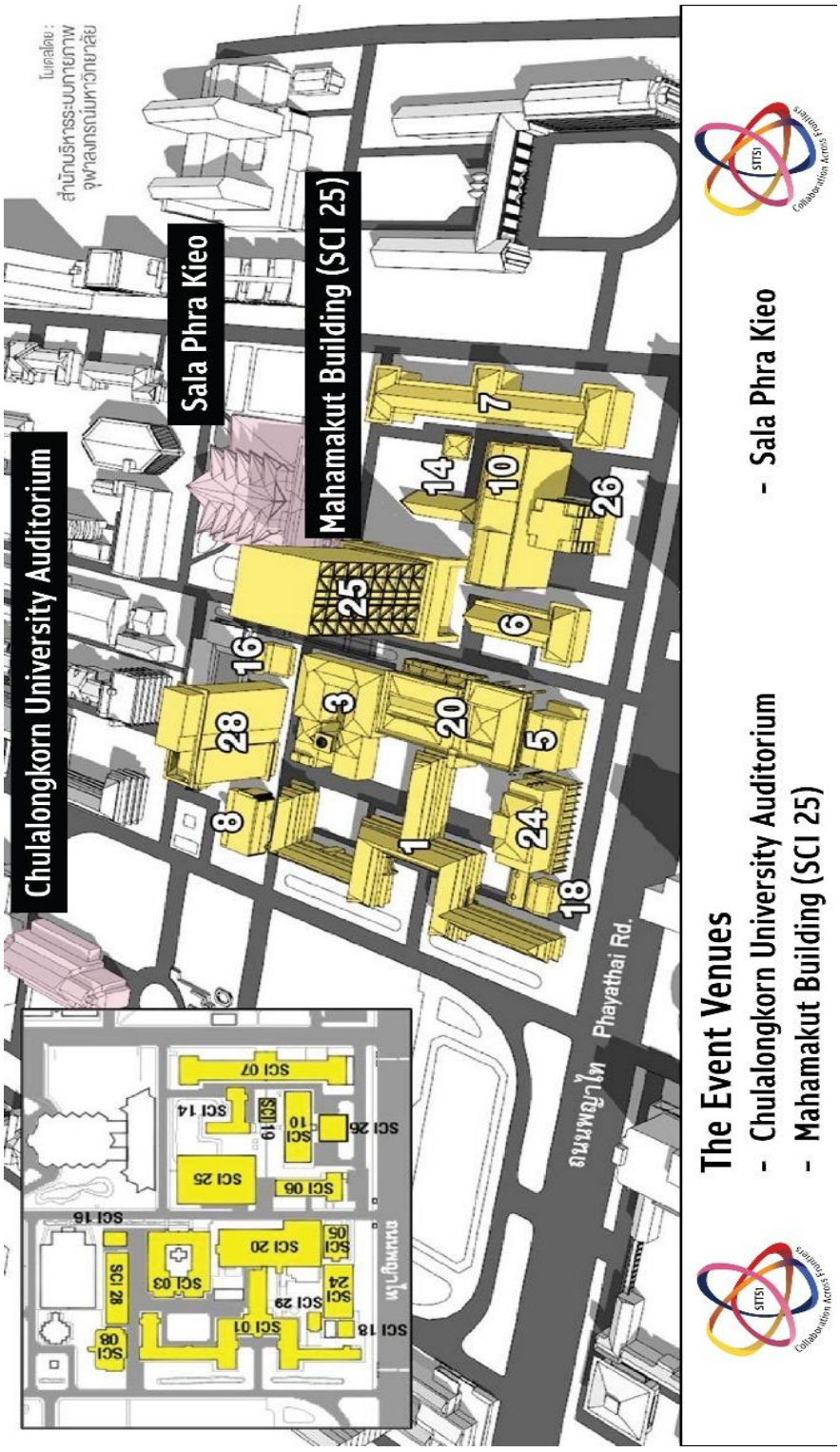



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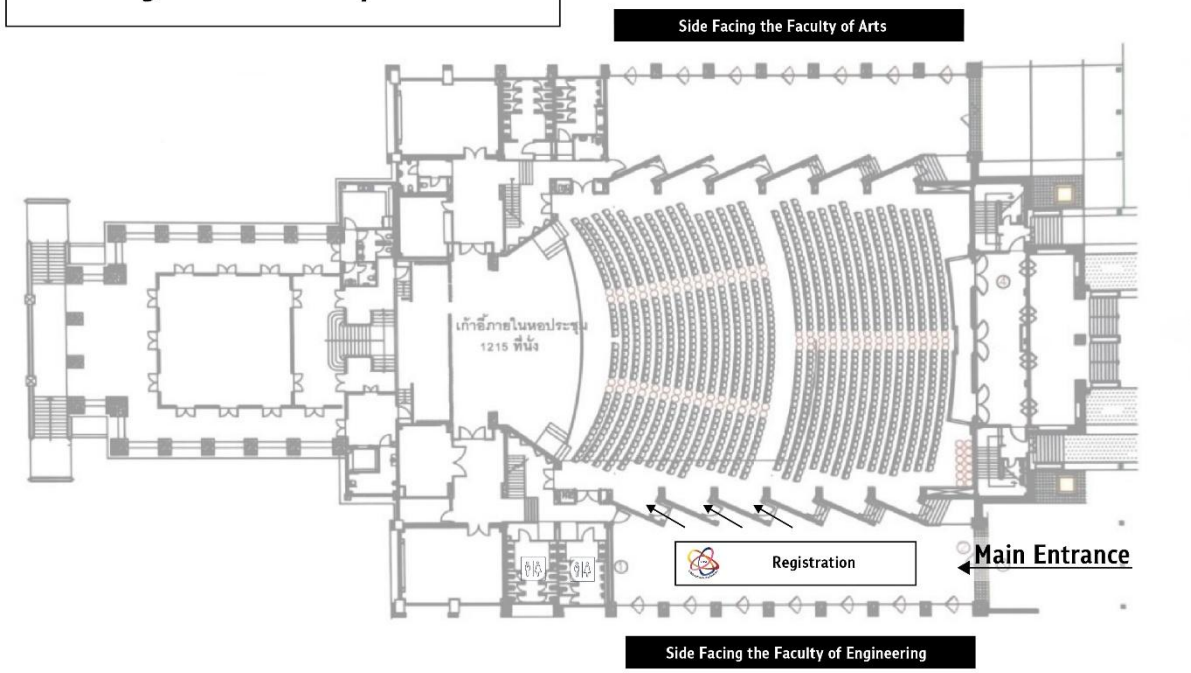




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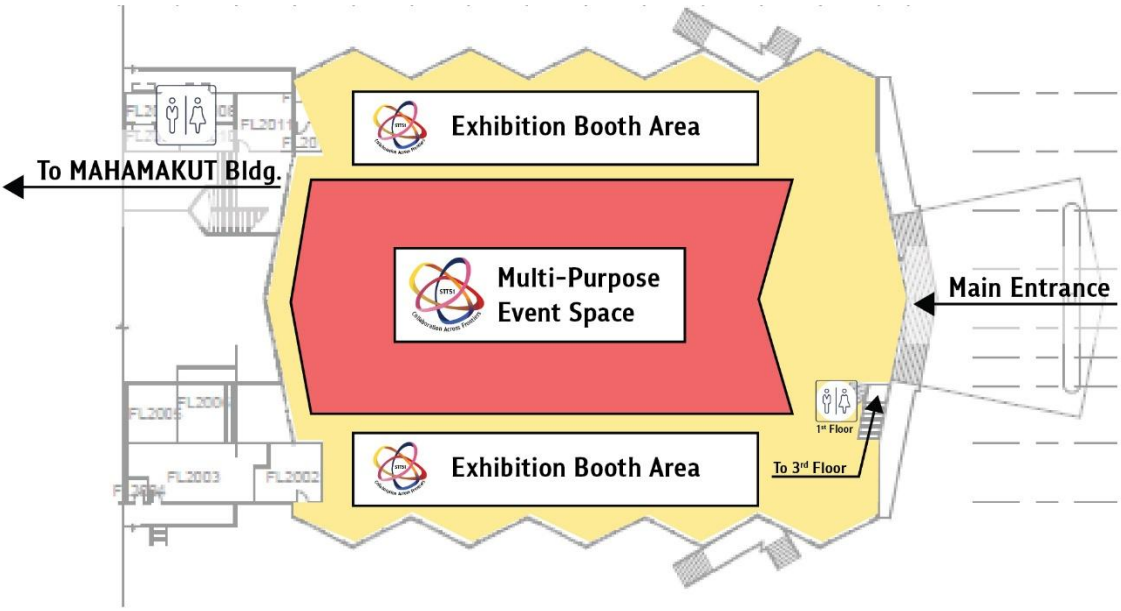


Chulalongkorn University Auditorium

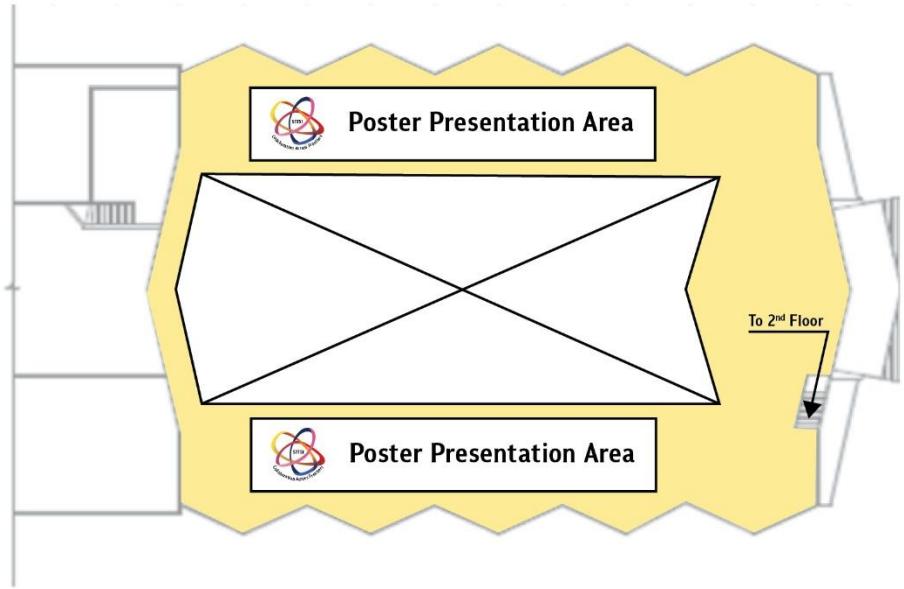




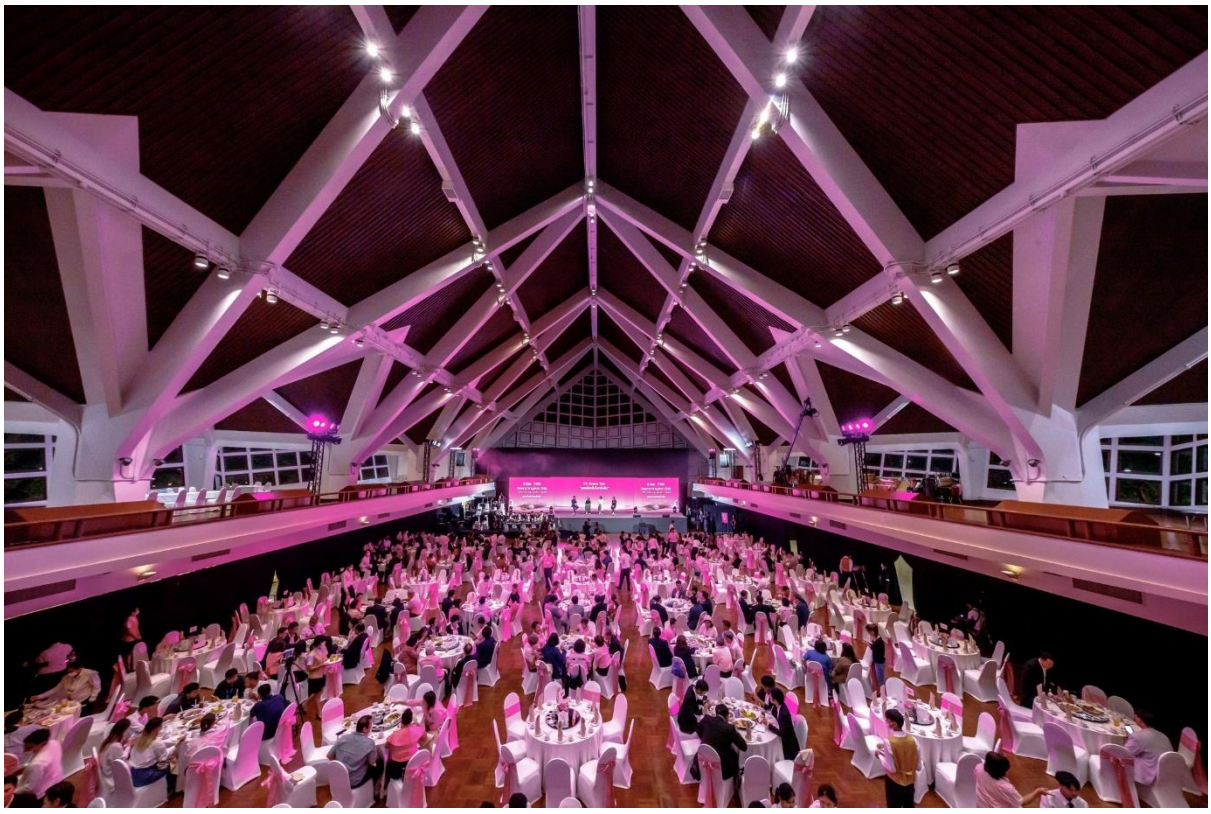
Sala Phra Kieo - 2nd Floor



Sala Phra Kieo - 3rd Floor







Mahamakut Building - 1st Floor



Mahamakut Building - M Floor



Mahamakut Building - 2nd Floor



Mahamakut Building - 3rd Floor







PROGRAM FOR GRAND OPENING CEREMONY OF STT51

November 11th, 2025

CHULALONGKORN UNIVERSITY AUDITORIUM, CHULALONGKORN UNIVERSITY, BANGKOK, THAILAND

Time	Events
6:30	Guests of honor arriving at Chulalongkorn University Auditorium
7:30	All guests are seated in the Chulalongkorn University Auditorium
9:00	- Arrival of **Her Royal Highness Princess Maha Chakri Sirindhorn** - Presentation of commemorative items and congress documents to Her Royal Highness - Address of appreciation by the President of the Chulalongkorn University Council - Welcome remarks and report on the objectives of the Congress by the President of the Science Society of Thailand - Royal address and declaration of the Congress open by HRH Princess Maha Chakri Sirindhorn
9:20	- Royal Keynote Speaker: "TWO DECADES OF STRATEGIC COOPERATION IN SCIENCE AND TECHNOLOGY BETWEEN THAILAND AND CHINA UNDER THE INITIATIVE OF HER ROYAL HIGHNESS PRINCESS MAHA CHAKRI SIRINDHORN" by **Her Royal Highness Princess Maha Chakri Sirindhorn**
9:50	- Keynote Lecture: "SINO-THAI COLLABORATION ON JUNO" by Professor Cao Jun, Director of Institute of High Energy Physics (iHEP), Chinese Academy of Sciences (CAS)
10:10	- Keynote Lecture: "HOW OBESITY LEADS TO COGNITIVE IMPAIRMENT AND BRAIN AGING: APPROACHES TO INTERVENTION" by Distinguished Prof. Dr. Siriporn Chatthipakorn, Outstanding Scientist of Thailand 2025.
10:30	- **Her Royal Highness Princess Maha Chakri Sirindhorn** proceeds to the Exhibition Hall to view special exhibitions, including: Scientific activities related to China under HRH Princess Maha Chakri Sirindhorn's initiatives, Academic achievements of the Faculty of Science, Chulalongkorn University, Contributions of the Science Society of Thailand under the Patronage of HM the King, and National award-winning science projects by high school students
12.30	- **Her Royal Highness Princess Maha Chakri Sirindhorn** presides at group photo sessions
12:45	**Her Royal Highness Princess Maha Chakri Sirindhorn** graciously departs Chulalongkorn University

ROYAL KEYNOTE SPEAKER:
H.R.H. PRINCESS MAHA CHAKRI SIRINDHORN



TWO DECADES OF STRATEGIC COOPERATION IN SCIENCE AND TECHNOLOGY BETWEEN THAILAND AND CHINA UNDER THE INITIATIVE OF HER ROYAL HIGHNESS PRINCESS MAHA CHAKRI SIRINDHORN

Her Royal Highness Princess Maha Chakri Sirindhorn

KEYNOTE SPEAKER: PROF. DR. CAO JUN

SINO-THAI COLLABORATION ON JUNO

Jun Cao*

Director of Institute of High Energy Physics (IHEP), Chinese Academy of Sciences (CAS)
*e-mail: caoj@ihep.ac.cn



Abstract:
Neutrinos are the most abundant matter particles in the universe, but incredibly difficult to detect. Many fundamental questions remain to be solved. The Jiangmen Underground Neutrino Observatory (JUNO) is one of the world-leading experiments to tackle these mysteries. It consists of a 20,000-ton liquid scintillator detector located 700 meters underground. The project is hosted by the Institute of High Energy Physics of Chinese Academy of Sciences, with contributions from 17 cooperating countries and regions. Three Thai universities contributed to the design and construction of the Earth Magnetic Coil system, which is designed to protect photomultipliers from the influence of the geomagnetic field on their detection efficiency, and to the performance test of the photomultipliers. Thailand is also working on the data analysis and theoretical researches. JUNO has completed construction. Data taking began in August 2025. It aims to answer fundamental questions such as: Which neutrino is the heaviest or lightest among the three types? How does neutrino drive the supernova explosion, solar evolution and the Earth's evolution? And even the ultimate question: can proton decay?

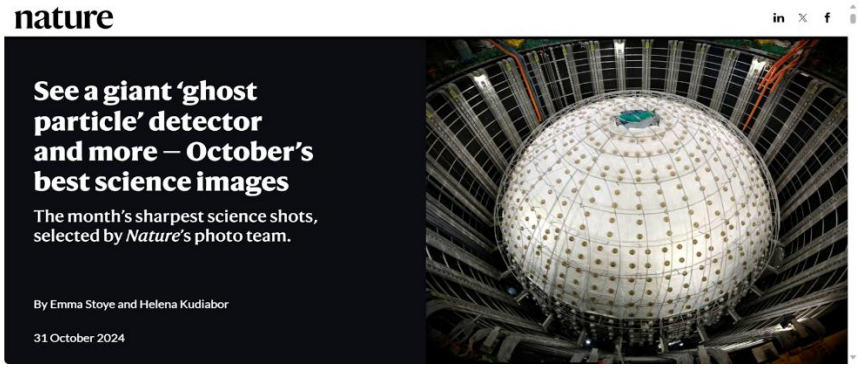


Figure 1. A photo of the nearly-complete JUNO detector selected as the month's best science images by *Nature* in October, 2024. Earth Magnetic Coils are clearly seen on the photo together with 20-inch photomultipliers.

Professor Jun Cao obtained his bachelor's degree from Wuhan University, China in 1993 and Ph.D. degree from the Institute of High Energy Physics (IHEP), China in 1998. Following postdoctoral fellowships at the Linear Accelerator Laboratory in France and the University of Michigan in USA, he has worked at IHEP since 2004. He led the antineutrino detector design and construction, liquid scintillator R&D, and data analysis of the Daya Bay Reactor Neutrino Experiment (Daya Bay), and has served as the co-spokesperson since 2013. He is an initiator of the Jiangmen Underground Neutrino Observatory (JUNO), and serves as the deputy spokesperson. He has been awarded the First Prize of the State Natural Science Award in 2016, the 2013's Outstanding Science and Technology Achievement Prize of CAS, and the C.N. Yang award of the Association of Asia-Pacific Physical Societies in 2013. He has been the director of IHEP since 2024.

KEYNOTE SPEAKER:
DISTINGUISHED PROF. DR. SIRIPORN C. CHATTIPAKORN

HOW OBESITY LEADS TO COGNITIVE IMPAIRMENT AND BRAIN AGING: APPROACHES TO INTERVENTION

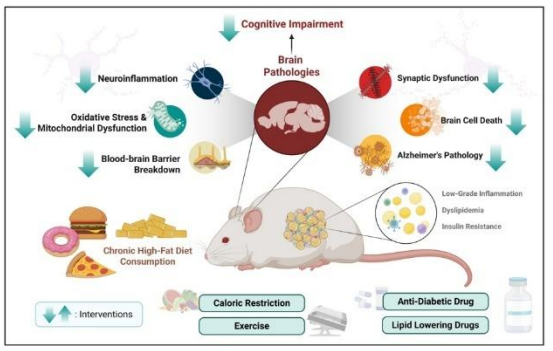


Patcharapong Pantiya,[1,2] Titikorn Chunchai,[1,2] Nattayaporn Apaijai,[1,2,3] Chanisa Thonusin,[1,2,3] Wasana Pratchayasakul,[1,2,3] Arintaya Phrommintikul,[4] Nipon Chattipakorn,[1,2,3,5] Siriporn C. Chattipakorn[1,2,6,*]

[1] Neurophysiology Unit, Cardiac Electrophysiology Research and Training Center, Faculty of Medicine, Chiang Mai University, Chiang Mai, 50200, Thailand
[2] Center of Excellence in Cardiac Electrophysiology Research, Chiang Mai University, Chiang Mai, 50200, Thailand
[3] Cardiac Electrophysiology Unit, Department of Physiology, Faculty of Medicine, Chiang Mai University, Chiang Mai, 50200, Thailand
[4] Department of Internal Medicine, Faculty of Medicine, Chiang Mai University, Chiang Mai, 50200, Thailand
[5] The Academy of Science, The Royal Society of Thailand, Bangkok, Thailand
[6] Department of Oral Biology and Diagnostic Sciences, Faculty of Dentistry, Chiang Mai University, Chiang Mai, 50200, Thailand
*e-mail: siriporn.c@cmu.ac.th; scchattipakorn@gmail.com (Thailand Outstanding Scientist Award 2025)

Abstract:
Obesity is increasingly recognized as a significant risk factor not only for metabolic and cardiovascular diseases but also for neurocognitive decline and accelerated brain aging. Our studies investigate the multifactorial mechanisms through which obesity impairs brain function, including chronic neuroinflammation, insulin resistance, oxidative stress, synaptic dysregulation, and mitochondrial dysfunction in the brain. These pathological processes contribute to structural brain changes, reduced cognitive performance, and an increased risk of neurodegenerative diseases such as Alzheimer's disease. Moreover, the obese brain exhibits characteristics commonly associated with aging. Intervention strategies—such as lifestyle modifications, including dietary changes and physical activity, as well as pharmacological treatments—have shown promise in mitigating these adverse effects. These findings suggest that early intervention targeting both metabolic and neurological pathways may help preserve cognitive health and delay brain aging in individuals with obesity, as summarized in the graphical figure.

Keywords: Obesity; Insulin Resistance; Brain; Cognition; Aging: Interventions



Professor Dr. Siriporn Chattipakorn was born in Phuket, Thailand, in 1967. She received her Bachelor's degree in Doctor of Dental Surgery (Honors) from the Faculty of Dentistry, Chiang Mai University, Thailand, in 1992. She earned her Doctor of Philosophy (Ph.D.) in Oral Biology, with a specialization in Neurobiology, in 1999 from the Dental Research Center, University of North Carolina at Chapel Hill, North Carolina, USA. She subsequently completed a Postdoctoral Fellowship in Neurophysiology from 1999 to 2001 at the Department of Physiology and Biophysics, University of Alabama at Birmingham, Birmingham, Alabama, USA. Since 2001, Professor Chattipakorn has been working at the Department of Oral Biology and Diagnostic Sciences, Faculty of Dentistry, and the Neurophysiology Unit, Cardiac Electrophysiology Research and Training Center (CERT), Faculty of Medicine, Chiang Mai University, Thailand. Her research focuses on the neuropathophysiology of cognition in metabolic syndrome, spanning *in vivo* studies to clinical research.

PLENARY SPEAKER: PROF. DR. JIN-SHI XU

FROM THE EPR PARADOX TO QUANTUM ENGINEERING: ADVANCING CHINA-THAILAND COLLABORATION IN QUANTUM RESEARCH

Jin-Shi Xu,[1,2,*] Chuan-Feng Li,[1,2] Guang-Can Guo[1,2]

[1] Laboratory of Quantum Information, University of Science and Technology of China, Hefei, Anhui 230026, China
[2] Anhui Province Key Laboratory of Quantum Network, University of Science and Technology of China, Hefei, Anhui 230026, China
*e-mail: jsxu@ustc.edu.cn



Abstract:

From the Einstein–Podolsky–Rosen (EPR) paradox proposed in 1935 to the rise of quantum engineering in the 21st century, quantum research has evolved from a philosophical inquiry into the foundation of transformative technologies. In this talk, I will briefly trace this evolution, highlighting how quantum principles now drive innovation in communication, computation, and precision measurement.

Globally, quantum engineering is reshaping industries through emerging quantum companies and national strategic initiatives. I will particularly introduce recent achievements in quantum research and engineering at the University of Science and Technology of China (USTC), including advances in photonic quantum information, solid-state spin defects, and large-scale quantum networks. I will then present the ongoing collaboration between USTC and Thailand-especially Chulalongkorn University (CU)-focusing on joint research efforts and plans to establish a China–Thailand Joint Laboratory for Quantum Research.

By connecting the philosophical origins of quantum mechanics to its engineering realization, this collaboration aims to forge tangible, visible, and globally influential frontiers for quantum technology between China and Thailand.

Professor Jin-Shi Xu was born in Fujian, China in 1982. He received his Ph.D. degree from the University of Science and Technology of China (USTC) in 2009 and won the National Excellent Doctoral Dissertation Award. He is currently a full professor and doctoral supervisor at USTC. His research focuses on experimental studies in quantum information and quantum physics based on optical and solid-state spin systems. He has been supported by the National Science Foundation of China for Outstanding Youth. Jin-Shi Xu's research has won the second prize of the National Natural Science Award. He has been elected as a Fellow of the Chinese Optical Society (COS). Currently, he holds the position of Secretary-General of the Optical Quantum Science and Technology Committee under COS.

PLENARY SPEAKER: PROF. DR. SOPIT WONGKHAM



CRACKING THE SUGAR CODE: CHALLENGES AND OPPORTUNITIES IN PRECISION MEDICINE FOR CHOLANGIOCARCINOMA

Atit Silsirivanit,[1] Chatchai Phoomak,[1,2] Marutpong Detarya,[1,3] Somsiri Indramanee,[1,4] Sopit Wongkham[1,*]

[1] Department of Biochemistry, Faculty of Medicine, Khon Kaen University, Thailand
[2] Department of Biology, Faculty of Science, Chulalongkorn University, Thailand
[3] Department of Radiation Oncology, Cancer Institute of New Jersey, USA
[4] Division of Biochemistry, Department of Preclinical Science, Faculty of Medicine, Thammasat University, Thailand
*e-mail: sopit@kku.ac.th

Abstract:
Thailand's national incidence of cholangiocarcinoma (CCA) is declining but remains significantly higher than the global average, underscoring the ongoing public health challenges and the urgent need for improved diagnostic and treatment strategies. Glycans influence tissue elasticity, protection, and integrity, protein folding, sorting, and secretion, cell–cell recognition and communication, etc. Aberrant glycosylation contributes significantly to tumor development and metastasis. This presentation highlights the importance of altered glycan modifications—specifically sialylation, fucosylation, O-GalNAcylation, and O-GlcNAcylation—in CCA progression, demonstrated both in human tissues and a hamster model. Targeted inhibition of these glycosylation pathways via siRNA or lectin blocking markedly reduces the aggressive behavior of CCA cells. Elevated O-GalNAcylation enhances EGF/EGFR binding and activation of EGFR signaling, which finally promotes tumor progression. Notably, intracellular O-GlcNAcylation can modulate extracellular glycan patterns on CCA cells, resulting in an increase in high-mannose-type N-glycans that correlates with the metastatic potential of CCA cells. Deciphering these “sugar codes” offers promising avenues for “Glyco-medicine” in identifying specific biomarkers for CCA diagnosis, prognosis, and targeted therapy. Personalized glycan profiling may revolutionize precision medicine by enabling accurate prediction of disease risk, progression, and treatment response for individual patients, ultimately improving clinical outcomes in CCA management.

Professor Sopit Wongkham earned her B.Sc. in Medical Technology with gold medal honors, followed by an M.Sc. and Ph.D. in Biochemistry from Mahidol University in 1983. She began her academic career as a lecturer in the Department of Biochemistry, Faculty of Medicine, Khon Kaen University, where she advanced to Professor and Emeritus Professor. Her research focuses on identifying tumor markers for diagnosis/prognosis and effective treatment of cholangiocarcinoma. Her work has established a comprehensive knowledge base, discovering promising molecules for tumor markers and targeted therapies of the disease. She has received multiple awards, including the 2013 Outstanding Scientist Award from the Foundation for the Promotion of Science and Technology under the Patronage of His Majesty the King.

PLENARY SPEAKER: PROF. DR. TANAPAT PALAGA



UNTAPPED POTENTIAL OF TISSUE MICROENVIRONMENT MACROPHAGES IN HEALTH AND CANCER

Pornlapat Keawvilai,[1,2] Suphanun Phuphanitcharoenkun,[1,2] Atsadang Boonmee,[3] Kittin Weerasophol,[1,2] Benjawan Sae-sue,[4] Tanapat Palaga[2,5,*]

[1] Graduate Program in Biotechnology, Faculty of Science, Chulalongkorn University, Bangkok, Thailand
[2] Center of Excellence in Immunology and Immune-mediated Diseases, Chulalongkorn University, Bangkok, Thailand
[3] Department of Microbiology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand
[4] Faculty of Veterinary Science, Mahasarakham University, Thailand
[5] Department of Microbiology, Faculty of Science, Chulalongkorn University, Bangkok, 10330, Thailand.
*e-mail: tanapat.p@chula.ac.th

Abstract:
Macrophages are innate immune cells essential for the first line of defense against infection through their pro-inflammatory functions. Beyond this role, accumulating evidence highlights their importance in maintaining tissue integrity by promoting homeostasis and facilitating resolution of inflammation. Conversely, macrophages can be co-opted by tumors to support cancer growth and metastasis, and they contribute to age-associated chronic inflammation, or inflammaging. These diverse functions underscore their therapeutic potential. Macrophages originate during embryogenesis, seed most adult tissues, and adapt to the local microenvironment; thus, strategies to manipulate them must consider tissue context. Compared with other immune cells, therapeutic interventions that specifically target macrophages remain limited. In this study, we investigated the molecular control of tissue macrophages using three-dimensional (3D) tissue culture systems and conditional gene deletion *in vivo*. In a 3D human skin model incorporating macrophages, we established an immunocompetent skin system suitable for studying responses to external stimuli, such as UV exposure. In a hepatocellular carcinoma spheroid model, co-culture with macrophages revealed tumor-promoting molecular signatures. Furthermore, targeted deletion of an epigenetic-modifying enzyme in macrophages in vivo accelerated tumor growth. Together, our findings highlight tissue microenvironment macrophages as critical regulators in both healthy and diseased states and demonstrate their potential as targets for immunotherapeutic interventions.

Professor Tanapat Palaga received his Bachelor's and Master's degrees in Bioengineering from the Tokyo Institute of Technology, Japan in 1994 and 1996, respectively, and his Ph.D. in Microbiology from the University of Massachusetts Amherst, USA in 2002. He is currently Head of the Department of Microbiology, Faculty of Science, Chulalongkorn University, and serves as Chair of the Immunology Academic Division of the Allergy, Asthma, and Immunology Association of Thailand.

PLENARY SPEAKER: PROF. DR. TAISUKE SASAKI

UNVEILING MICROSTRUCTURES OF METALLIC MATERIALS – FROM MICRON SCALE TO ATOMIC SCALE

Taisuke Sasaki*

National Institute for Materials Science (NIMS), 1-2-1 Sengen, Tsukuba, 305-0047 Japan
*e-mail: SASAKI.Taisuke@nims.go.jp



Abstract:

The microstructure is a determining factor in materials properties, in addition to materials' intrinsic properties. Since microstructures affecting properties lie over a wide range of length scales—from micro to atomic—various microscopy techniques are required to analyze them in detail. This presentation will showcase state-of-the-art 2D and 3D microstructure analyses using advanced electron microscopes and 3D atom probe (3DAP). One example is visualizing interactions between solute elements and defects in a lightweight magnesium alloy using correlative transmission electron microscopy (TEM)/APT analysis. A bright-field TEM image of a needle-shaped specimen for APT analysis reveals dislocations (Fig. a). Atomic-resolution HAADF-STEM imaging shows no significant elemental fluctuation (Fig. b). However, the 3D atom map obtained from the needle reveals the dispersion of nanoscale solute clusters and solute segregation to dislocations (Fig. c). These features, revealed for the first time by correlative TEM/APT analysis, explain the strength of the magnesium alloy presented here [1]. Furthermore, this presentation will showcase how understanding microstructure has been used to explain the origin of properties and develop high-performance materials such as structural materials, permanent magnets, and semiconductors.

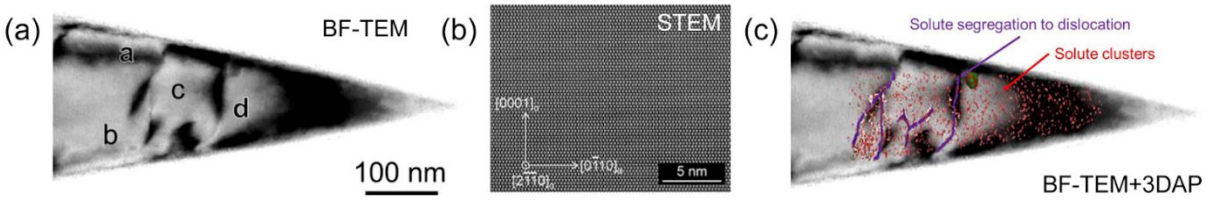


Figure 1. (a) A bright-field TEM image obtained from a magnesium alloy showing dislocations. (b) Atomic-resolution HAADF-STEM image showing no elemental fluctuation. (c) 3D atom map overlaid with a bright-field TEM image. The segregation of solute elements in defects can be clearly visualized through this method, which is difficult to visualize using TEM analysis [1].

[1] M.Z. Bian, T.T. Sasaki et al., Acta Mater. 150 (2018) 278.

Dr. Taisuke Sasaki, the Group Leader of Microstructure Analysis Group at the Research Center for Structural Materials in NIMS, was born in Osaka, Japan in 1980. He received the Doctorate in Engineering, in 2008 from University of Tsukuba, Japan. Following postdoctoral appointments at NIMS and the University of Alabama, USA, he started working as a tenured researcher at NIMS, Japan in 2011. His research interests include microstructural analysis using electron microscopes, such as SEM and TEM, and 3DAP, as well as the development of high-performance metallic materials. He is a professor of subprogram in Materials Science and Engineering, University of Tsukuba-NIMS joint graduate school.

PLENARY SPEAKER: PROF. DR. XIAOGUANG LEI

OPPORTUNITIES FOR MERGING CHEMICAL AND BIOLOGICAL SYNTHESIS

Xiaoguang Lei*

College of Chemistry and Molecular Engineering, Peking-Tsinghua Center for Life Sciences, Peking University, Beijing 100871, China
*e-mail: xglei@pku.edu.cn



Abstract:
Natural products and their derivatives have long been utilized as medicinal agents, and they continue to comprise a significant portion of clinically approved drugs. Natural product synthesis offers a rich and unparalleled opportunity to develop new synthetic transformations, conceive novel and general strategies for accessing complex structures, and study the mechanisms of action of bioactive targets. This lecture will illustrate the opportunities at this interface between synthetic organic chemistry and chemical biology by describing a series of examples we are actively working on in our laboratory at Peking University. We draw inspiration from Mother Nature to investigate the biosynthesis of plant-derived natural products, with the goal of elucidating new enzymatic mechanisms. By applying the chemoenzymatic approach, we aim to prepare complex natural products and their derivatives. Moreover, we further use bioactive natural products to explore new biology and develop novel drug candidates for human diseases.

Prof. Xiaoguang Lei obtained a BS in chemistry from Peking University in 2001 and a Ph.D. in organic synthesis from Boston University under the supervision of Prof. John Porco in 2006. He then conducted postdoctoral work in bioorganic chemistry with Prof. Samuel Danishefsky at Columbia University from 2006 to 2008. In early 2009, he returned to China. He started his independent career as a Principal Investigator and Director of the Chemistry Center at the National Institute of Biological Sciences (NIBS) in Beijing. In early 2014, he received a tenured full professorship at Peking University and moved to the College of Chemistry. Now, he is the Boya Distinguished Professor of Chemistry and Chemical Biology and a senior PI of the Peking-Tsinghua Center for Life Sciences. His primary research areas include chemical biology, natural product synthesis, biocatalysis, and drug discovery. He has published more than 180 original research papers, including those in Science (5), Cell (2), and Nature (2), among others, and has obtained 30 granted patents for new drug discoveries. He has developed four “first-in-class” drug candidates, one of which has started Phase II clinical trials in the USA and China since 2022. He has received many prestigious awards, including the 2023 Sackler Chair Award in Israel, the 2022 Molecules Tu Youyou Award, the 2022 Xplore Prize, the 2021 Boehringer-Ingelheim Senior Investigator Award, the 2020 Bayer Investigator Award, the 2018 David Ginsburg Award in Israel, the 2017 Tetrahedron Young Investigator Award, the 2017 Swiss Chemical Society Distinguished Lectureship Award, the 2015 Chemical Society of Japan Distinguished Lectureship Award, the 2014 Roche Young Investigator Award, the 2013 International Chemical Biology Society (ICBS) Young Chemical Biologist Award, and the 2010 IUPAC Young Chemist Award, etc. He is currently an Associate Editor for JACS Au.

PLENARY SPEAKER: DR. PICHAET WIRIYACHITRA

WORLD's FIRST 100 CASES OF HIV CURE WITH STEM CELLS STIMULATED BY FORTIFIED MANGOSTEEN EXTRACT

Pichaet Wiriyachitra*

CEO, Asian Phytoceuticals Public Company Limited
*e-mail: pw@apco.co.th, pwapco@gmail.com



Abstract:

Since the identification of Human Immunodeficiency Virus (HIV) in 1981, antiretroviral therapy (ART) has remained the primary means of disease control, effectively suppressing viral replication but causing cumulative side effects during long-term use. Despite extensive global efforts, a definitive cure for HIV has yet to be achieved. After more than two decades of research on Thai edible plant extracts, a fortified mangosteen extract—comprising mangosteen (Garcinia mangostana), soy, sesame, guava, and Centella asiatica—has demonstrated potential as an effective HIV cure.

This formulation has been found to stimulate endogenous stem cell production and activate their differentiation into immune effector cells, including $CD4^+$ (Th1 and Th17) and $CD8^+$ (cytotoxic T) lymphocytes. These immune cells selectively target and eliminate HIV-infected cells.

To date, 100 HIV-positive individuals treated with this fortified extract have shown complete viral eradication with no observable side effects. Furthermore, participants exhibited markers of telomere elongation, suggesting potential anti-aging benefits. The first recorded case of HIV eradication occurred in 2015, and the patient has since maintained good health with undetectable viral load.

References:

1. ByeByeHIV with Thai Innovation: https://www.scivisionpub.com/abstract-display.php?id=3167 (Clinical Immunology & Research)
2. ByeByeHIV with Plant-Based Immunotherapy: Progress Update on 40 Cases without the Use of ARV Drugs (Group A): https://www.scivisionpub.com/abstract-display.php?id=3769 (Clinical Immunology & Research)
3. ByeByeHIV with Plant-Based Immunotherapy: Progress Update on 40 Cases with Prior Use of ARV Drugs (Group B): https://www.scivisionpub.com/abstract-display.php?id=3770 (Clinical Immunology & Research)
4. 100 Cases of ByeByeHIV with Stem Cell Stimulated by Fortified Mangosteen Extract: (Clinical Immunology & Research). In press

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Professor Pichaet Wiriyachitra is the CEO of Asian Phytoceuticals Public Company Limited, a company listed in Stock Exchange of Thailand, to engage in research, development and commercialization of health products derived from natural extracts. Dr.Pichaet received the BSc.Hons (Organic Chemistry) from University of Western Australia in 1970 and Ph.D. (Organic Chemistry) from University of Tasmania in 1972. He was a NIH Post-doctoral Fellow at University of Connecticut, America in 1974 and a NSF Post-doctoral Fellow at University of Pennsylvania, America in 1976. His research interests in the Prince of Songkla University and Chiang Mai University in Thailand include the development of Balancing Immunity (BIM) products for autoimmune symptoms and immune-deficient symptoms.

PLENARY SPEAKER: DR. RAFFAEL OSEN

FROM BIODIVERSITY TO BIOAVAILABILITY: ENHANCING NUTRITION IN FUTURE FOODS FOR ASIAN CONSUMERS

Raffael Osen,* Melanie Weingarten, Jie Hong Chiang

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Abstract:

Consumer dietary habits are evolving rapidly in response to growing concerns about health, environmental sustainability, and ethical values. A rising number of consumers are seeking to complement animal-based products with alternative protein-based alternatives.

While such future foods have already entered the market, perceived gaps in taste and nutrition remain key barriers to broader adoption. Simultaneously, increasing public discourse around ultra-processed foods—particularly within the future foods sector—is generating confusion, often blurring the lines between technological innovation and perceived healthfulness.

To address these challenges, it is essential to understand how the structuring and processing of alternative proteins influence consumer acceptance and nutritional performance, especially within the diverse cultural and dietary contexts of Asia.

This presentation will examine how protein sources derived from plants and microorganisms can be processed for diverse food applications. It will also explore the impact of how processing techniques affect the nutritional, sensory, and functional characteristics of these proteins, highlighting opportunities to enhance bioavailability and overall quality of future foods for Asian consumers.

Dr. Raffael Osen is Deputy Head of the Food & Sensory Science Division at ASTAR's Singapore Institute of Food and Biotech Innovation (SIFBI). He holds a PhD in Food Technology from the Technical University of Munich and has over 15 years of experience leading multidisciplinary teams in sustainable food innovation. At SIFBI, he co-leads the Food Processing Joint Lab at Nurasa's Food Tech Innovation Center, where he supports the scale-up and commercialization of future foods. Prior to joining ASTAR, he was in charge of the Food Process Development department at Fraunhofer in Germany, where his team pioneered high-moisture extrusion for plant-based meat and co-initiated the spin-off Endori, now a leading producer of plant-based foods in Europe. Dr. Osen has published over 20 peer-reviewed articles, filed several patents, and licensed technologies for commercial use.

PROGRAM FOR SESSIONS, SYMPOSIA AND MEETINGS

NOVEMBER 11th, 2025

AFTERNOON PROGRAM

Session:	PLENARY SPEAKER		
Room:	M01 MHMK BUILDING		
Chairperson:	Prof. Dr. Tavan Janvilisri		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
13:00-13:45	-	Sopit Wongkam	CRACKING THE SUGAR CODE: CHALLENGES AND OPPORTUNITIES IN PRECISION MEDICINE FOR CHOLANGIOCARCINOMA

Session:	PLENARY SPEAKER		
Room:	M02 MHMK BUILDING		
Chairperson:	Pawatsawan Niyomkaew		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
13:00-13:45	-	Pichaet Wiriyachitra	WORLD's FIRST 100 CASES OF HIV CURE WITH STEM CELLS STIMULATED BY FORTIFIED MANGOSTEEN EXTRACT

Session:	PLENARY SPEAKER		
Room:	207 MHMK BUILDING		
Chairperson:	Asst. Prof. Dr. Wiwittawin Sukmas		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
13:00-13:30	-	Jin-Shi Xu	FROM THE EPR PARADOX TO QUANTUM ENGINEERING: ADVANCING CHINA-THAILAND COLLABORATION IN QUANTUM RESEARCH

Session:	A – PHYSICS / APPLIED PHYSICS		
Room:	306 MHMK BUILDING		
Chairperson:	Asst. Prof. Dr. Pawin Ittisamai Co-Chair: Dr. Vicharit Yingcharoenrat		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
15:30-16:00	A_INV01	Apimook Watcharangkool	CORE COLLAPSE SUPERNOVAE AND BEYOND STANDARD MODEL FROM MULTI-MESSENGER DETECTIONS
16:00-16:15	A_001	Kitisak Boonkham / Thanyanan Somnam	A COMPARATIVE STUDY OF LINEAR EXPANSION COEFFICIENTS OF DIFFERENT METALS USING AN INDUCTION HEATING SYSTEM
16:15-16:30	A_002	Subsirirach Maharatanawong	EFFECT OF ANGULAR VARIATION IN DETACHED BREAKWATER STRUCTURE ON THE COASTAL MORPHOLOGY
16:30-16:45	A_003	Jatuporn Puntree	ENTROPY AND LEARNING EFFICIENCY IN SPECIAL RELATIVITY: AN INFORMATION-THEORETIC LENS ON ASSESSMENT DESIGN

Session:	B - BIOLOGICAL SCIENCES		
Room:	M01 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Kunlaya Somboonwiwat		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
14:00-14:30	B_INV01	Ikuo Hirono	UNRAVELING THE MYSTERY OF THE MECHANISM BY WHICH FEEDING BENEFICIAL MICROORGANISMS REDUCES MORTALITY FROM MICROBIAL INFECTIONS IN SHRIMP
14:30-14:45	B_001	Suphaporn Paenkaew	RAPID DNA EXTRACTION FOR DETECTING *Babesia* spp. USING RPA-CRISPR-CAS12A FOR POINT-OF-CARE TESTING
14:45-15:00	B_002	Suchada Panjan	COMPARATIVE ANALYSIS OF GUT MICROBIOME COMPOSITION AMONG THREE POPULATIONS OF STONE-TOOL-USING LONG-TAILED MACAQUES (*Macaca fascicularis*)
COFFEE BREAK			
15:15-15:45	B_INV02	Saroj Ruchisansakun	PROGRESS IN GINGER FAMILY RESEARCH IN THAILAND: DIVERSITY, EVOLUTION, AND CONTRIBUTIONS TO ECOSYSTEM SERVICES
15:45-16:00	B_003	Neera Shrestha	RISK OF SEQUENTIAL INVASIONS: INFLUENCE OF *Ageratina adenophora* ON GROWTH AND DEVELOPMENT OF *Bidens pilosa.*
16:00-16:15	B_004	Lela Yaya	SUPPRESSION OF BANANA FUSARIUM WILT *Fusarium oxysporum* f.sp. *cubense* BY FROG SKIN-ASSOCIATED BACTERIA
16:15-16:30	B_005	Samita Phothong	METABOLOMIC PROFILING OF THAI *Centella asiatica* (L.) Urb. ACCESSIONS REVEALS VARIATION IN LPS-ACTIVATED NITRIC OXIDE IN RAW264.7 CELLS
16:30-16:45	B_006	Jittakan Pangthong	AMYLASE ACTIVITY IN *Oryzaephilus mercator*: BIOCHEMICAL INSIGHTS AND METAL ION EFFECTS ANALYZED BY ZYMOGRAPHY AND SPECTROPHOTOMETRY
16:45-17:00	B_007	Jiraporn kamsarn	ISOLATION AND CHARACTERIZATION OF *Wolffia globosa*-DERIVED EXOSOMES WITH ANTIOXIDANT POTENTIAL

Session:	C - CHEMISTRY C(1)A: INORGANIC & SUPRAMOLECULAR CHEMISTRY C(1)B : LABORATORY AUTOMATION, PROCESS OPTIMIZATION		
Room:	304 MHMK BUILDING		
Chairperson:	Prof. Dr. Thawatchai Tuntulani Co-Chair: Dr. Andrew W. King		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
14:00-14:30	C_INV01	Thanthapatra Bunchuay	SUPRAMOLECULAR ARCHITECTURES FOR ADVANCED MOLECULAR RECOGNITION AND SUSTAINABLE DEVELOPMENT
14:30-14:45	C_001	Gulzaib Basharat	CYCLODEXTRIN-BASED INCLUSION COMPLEXATION ENHANCES SOLUBILITY AND STABILITY OF A PSORALEN DERIVATIVE: IN SILICO AND IN VITRO STUDY
14:45-15:00	C_002	Papangkorn Phongchamnaphai	MECHANISTIC INVESTIGATION OF ZnO/Ag SYSTEMS VIA DIRECT MODULATION OF ANTIMICROBIAL ACTIVITY USING STACKED Ag–ZnO NANOCUBE “NANOAPARTMENTS” AND NANOWIRE "NANOCONDOMINIUMS”
COFFEE BREAK			
15:15-15:45	C_INV02	Kwanwoo Shin	ROBOT-ARM BASED CHEMISTRY LAB-AUTOMATION
15:45-16:15	C_INV03	Nopmaneerat Leelawiwat	WTE - BRUKER MS – GERSTEL FROM MOLECULES TO MEANING: BUILDING A FUTURE OF PURPOSE-DRIVEN ONE HEALTH ANALYSIS
16:15-16:30	C_003	Banpot Klinpratoom	OPTIMIZATION OF ULTRASONIC-ASSISTED GREEN EXTRACTION OF HEAVY METALS FROM GALANGAL USING RESPONSE SURFACE METHODOLOGY

Session:	E: ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY		
Room:	201 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Prasert Reubroycharoen Co-Chair: Dr. Mati Horprathum		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
14:00-14:30	E_INV01	Limin Guo	Ln_2O_3 BASED CATALYSTS FOR CO_2 HYDROGENATION TO METHANOL
14:30-14:45	E_001	Bryle Matthew Bacatan	UPCYCLING PLASTIC WASTE INTO BIMETALLIC METAL ORGANIC FRAMEWORK
14:45-15:00	E_002	Goodwill Ragui	MECHANICAL AND PHYSICAL PROPERTIES OF *Pleurotus ostreatus* MYCELIUM-BASED COMPOSITES FOR SUSTAINABLE WALL PANELS
COFFEE BREAK			
15:15-15:30	E_003	Yu Jono	TERNARY AND QUATERNARY AMORPHOUS OXIDE NANOPARTICLES FOR SELECTIVE ACETONE GAS DETECTION
15:30-15:45	E_004	Mana Yamaguchi	SOLID ELECTROLYTE-TYPE ELECTROCHEMICAL GAS SENSORS WITH MOF-BASED ELECTRODE CATALYSTS FOR N_2O AND CO DETECTION
15:45-16:00	E_005	Sopida Kaewsuk	SURFACE MODIFICATION OF ACTIVATED CARBON FROM RICE HUSK VIA PHYSICAL AND CHEMICAL PRETREATMENTS FOR CATALYTIC APPLICATION IN SOLKETAL PRODUCTION
16:00-16:15	E_006	Paparwalin Wayupa / Nonpawit Koheng	OPTIMIZATION OF WATER CONTENT IN $CH_3NH_3PBI_3$ AND MICROPIPETTE-ASSISTED FABRICATION FOR HIGH-PERFORMANCE PEROVSKITE SOLAR CELLS
16:15-16:30	E_007	Sukrit Sarati	SYNTHESIS OF HYDROXYAPATITE FROM FLUE GAS DESULFURIZATION GYPSUM FOR ADSORPTION OF Cd^2 AND Pb^{2+}
16:30-16:45	E_008	Withdraw	-
16:45-17:00	E_009	Prasit Khositpanich	CO_2-BASED POLYMERS FROM 4-VINYL-1-CYCLOHEXENE 1,2 EPOXIDE, AND PROPYLENE EPOXIDE (PO) FOR HIGH-PERFORMANCE APPLICATIONS

Session:	E: ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY		
Room:	202 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Pasicha Chaikaew Co-Chair: Assoc. Prof. Dr. Suwadee Kongparakul		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
14:00-14:30	E_INV02	Feng Wang	CATALYTIC CONVERSION OF BIOMASS
14:30-14:45	E_010	Nguyen Ngoc Diep	ASSESSMENT OF WATER QUALITY FLUCTUATION TRENDS IN INNER-CITY CANALS IN CONDITION OF CLIMATE CHANGE AND SEA LEVEL RAISE
14:45-15:00	E_011	Soravit Sukchuay / Ploypitcha Pattarapongpetch	POST-TREATMENT OF PALM OIL MILL EFFLUENT USING IMMOBILIZED *Chlorella vulgaris*
COFFEE BREAK			
15:15-15:30	E_012	Chayachon Jiemwetwittayaporn / Warinthip Suwanratsamee	AN INTEGRATED BIOREMEDIATION SYSTEM COMBINING BIOCOMPOSITE-ZEOLITE ADSORPTION BEADS AND AGRICULTURAL WASTE-ENHANCED MICROBIAL DEGRADATION FOR INDUSTRIAL DYE WASTEWATER TREATMENT
15:30-15:45	E_013	Lukman Abdullahi	BIMETALLIC MIL-101(Fe,Cu) METAL ORGANIC FRAMEWORK FOR PHOTOCATALYTIC DEGRADATION OF REACTIVE RED 239 DYE WASTEWATER.
15:45-16:00	E_014	Jia Zhu	NOVEL FLEXIBLE ELECTROCHEMICAL SENSORS FOR VISUALIZED CLINICS
16:00-16:15	E_015	Shuhan Dong	COFFEE GROUND-MEDIATED GREEN SYNTHESIS OF COPPER-DOPED ZINC OXIDE / MAGNESIUM OXIDE NANOPARTICLES: ANTIBACTERIAL ACTIVITY AND PHOTOCATALYTIC DEGRADATION OF METHYL RED
16:15-16:30	E_016	Patcharawarin Sathapornwajana	ENHANCING SUPERHYDROPHOBICITY OF PAPER VIA GAS-PHASE SILYLATION USING HEXADECYLTRIMETHOXYSILANE AND TITANIUM (IV) ISOPROPOXIDE
16:30-16:45	E_017	Poowarin Sakrungrueang	OPTIMIZING LIQUID-TO-SOLID RATIO AND PRESSING PRESSURE FOR HIGH-PERFORMANCE GEOPOLYMER-CORNCOB COMPOSITES
16:45-17:00	E_018	Pisipong Meunprasertdee	HEAVY METAL RISK ASSESSMENT AND SPATIOTEMPORAL DISTRIBUTION IN SURFACE WATER OF THE NA THAP RIVER, SONGKHLA, THAILAND

Symposium:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE		
Room:	205 MHMK BUILDING		
Chairperson:	-		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
13:00-13:00	-	-	-
NETWORKING BREAK / PREPARE FOR BREAKOUT ROOM			
Session:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE - JUNO/PARTICLE PHYSICS > THAILAND-CHINA COLLABORATION ON JUNO/PARTICLE PHYSICS		
Room:	205 MHMK BUILDING		
Chairperson:	Assoc. Prof. Boonrucksar Soonthornthum		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
14:00-15:00	SP1_INV01	Changgen Yang	SCIENCE AND TECHNOLOGY DEVELOPMENT FOR JUNO
	SP1_INV02	Narumon Suwonjandee / Khanchai Khosonthongkee	THAI-JUNO COLLABORATION
	SP1_INV03	Hai-Bo Li	PHYSICS HIGHLIGHTS FROM THE BESIII EXPERIMENT
	SP1_INV04	Ayut Limphirat	THAI-BESIII RESEARCH AND ACTIVITIES
COFFEE BREAK			
Symposium:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE - GEOINFORMATICS RESEARCH AND NANOTECHNOLOGY		
Chairperson:	Dr. Uracha Ruktanonchai		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
15:15-16:00	SP1_INV05	Panu Nueangjumnong	GEOSPATIAL APPLICATIONS FOR RICE MONITORING IN CAMBODIA, LAO PDR, AND MYANMAR COUNTRIES
	SP1_INV06	Deanpen Japrung	DEVELOPMENT OF NANOSENSORS FOR MINIMALLY INVASIVE SCREENING OF NON-COMMUNICABLE DISEASES
	SP1_INV07	Pan Hailian	NANOSCALE BIOMEDICAL ENGINEERING FOR PHARMACEUTICAL DEVELOPMENT

Symposium:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE		
Room:	207 MHMK BUILDING		
Chairperson:	-		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
13:00-13:00	-	-	-
Session:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE - SPACE AND ASTRONOMY > THAILAND-CHINA COLLABORATION ON SPACE AND ASTRONOMY		
Room:	207 MHMK BUILDING		
Chairperson:	Dr. Saran Poshyachinda		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
14:00-15:00	SP1_INV08	Zhiqiang Shen	BRIDGING SKIES AND BORDERS: THE SINO-THAI VLBI COLLABORATION
	SP1_INV09	David Ruffolo	SINO-THAI HIGH-ENERGY ASTROPHYSICS AND COSMIC RAYS
	SP1_INV10	Wiphu Rujopakarn	DEVELOPMENT OF PAYLOADS AND SATELLITES FOR LUNAR EXPLORATION
	SP1_INV11	A-Li Luo	SINO-THAI BIG DATA AND COLLABORATION
COFFEE BREAK			
Symposium:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE - S&T HUMAN RESOURCES DEVELOPMENT AND SCHOLARSHIPS > THAILAND-CHINA COLLABORATION ON SCIENCE AND TECHNOLOGY HUMAN RESOURCES DEVELOPMENT		
Chairperson:	Alinee Thanawatsuggasari		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
15:15-16:00	SP1_INV12	Chadamas Thuvasethakul	OVERVIEW OF THAILAND-CHINA COLLABORATION ON SCIENCE AND TECHNOLOGY HUMAN RESOURCES DEVELOPMENT UNDER THE INITIATIVE OF HRH PRINCESS MAHA CHAKRI SIRINDHORN
	SP1_INV13	Dingcheng Huang / Thee Chowwanonthapunya	OCSC-UCAS SCHOLARSHIP
	SP1_INV14	Ditchaphong Phoomikiattisak	SIRINDHORN CENTER FOR GEO-INFORMATICS (SCGI) MASTER PROGRAM
	SP1_INV15	Chayanit Asawatangtrakuldee	BRIDGING THAILAND AND CHINA THROUGH EDUCATION: THE HER ROYAL HIGHNESS PRINCESS MAHA CHAKRI SIRINDHORN's SCHOLARSHIP

Symposium:	SP3 - NEXGEN ENERGY: STORAGE AND CONVERSION FOR SUSTAINABILITY		
Room:	203 MHMK BUILDING		
Chairperson:	Assoc. Prof. Rojana Pornprasertsuk Co-Chair: Asst. Prof. Dr. Manaswee Suttipong		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
14:00-14:25	SP3_INV01	Liqiang Xie	STUDY ON SURFACES AND INTERFACES OF PEROVSKITE SOLAR CELLS
14:25-14:50	SP3_INV02	Yanfen Wan	MICRO-NANO ENERGY CONVERSION APPLIED IN FLEXIBLE ELECTRONICS AND SOLAR WATER PURIFICATION
14:50-15:15	SP3_001	Jia Zhu	NOVEL FLEXIBLE ELECTROCHEMICAL SENSORS FOR VISUALIZED CLINICS
COFFEE BREAK			
15:30-15:55	SP3_INV03	Chiaki Terashima	SYNERGISTIC PHOTOCATALYSIS AND IN-LIQUID PLASMA FOR EFFICIENT CO_2 CONVERSION
15:55-16:20	SP3_INV04	Limin Guo	In_2O_3 BASED CATALYSTS FOR CO_2 HYDROGENATION TO METHANOL
16:20-16:45	SP3_INV05	Pawin Iamprasertkun	UNRAVELING ELECTROCHEMICAL COMPLEXITY OF 2D MATERIALS: A JOURNEY TO THE CENTER OF TUNGSTEN DISELENIDE (WSe_2)
16:45-17:00	SP3_002	Tanat Srikhota	DEVELOPING SUPPORTER FOR MANGANESE-SODIUM CATALYSTS IN THE OXIDATIVE COUPLING OF METHANE TO HIGHER HYDROCARBONS

Symposium:	SP6 - NAVIGATING THE QUANTUM FRONTIER		
Room:	305 MHMK BUILDING		
Chairperson:	Asst. Prof. Dr. Thiparat Chotibut Co-Chair: Dr. Supanut Thanasilp		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
14:00-14:30	SP6_INV01	Worawat Meewasana	EXPLORATION OF ELECTRONIC STATES IN QUANTUM MATERIALS
14:30-15:00	SP6_INV02	Pruet Kalasuwan	RESEARCH ACTIVITIES ON QUANTUM COMMUNICATION IN THAILAND
15:00-15:30	SP6_INV03	Poompong Chaiwongkhot	QUANTUM SECURED COMMUNICATIONS
COFFEE BREAK			
15:45-16:15	SP6_INV04	Sorawis Sangtawesin	VECTOR MAGNETOMETRY WITH NITROGEN-VACANCY CENTERS IN DIAMOND
16:15-16:45	SP6_INV05	Nithiwadee Thaicharoen	QUANTUM SIMULATION AND SENSING WITH RYDBERG ATOMS
16:45-17:15	SP6_INV06	Phatthamon Kongkhambut	TORUS BIFURCATION OF A TIME CRYSTAL IN AN ATOM-CAVITY SYSTEM

Symposium:	SP10 - X-RAY CRYSTALLOGRAPHY		
Room:	206 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Kuakarun Krusong Co-Chair: Asst. Prof. Dr. Kittikhun Wangkanont		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
14:00-15:00	-	-	CRYSTALLOGRAPHY WORKSHOP 1: STRUCTURE REPRESENTATIONS, MEASUREMENTS
COFFEE BREAK			
15:15-17:00	-	-	CRYSTALLOGRAPHY WORKSHOP 2: DISPLAYING LIGANDS AND MAPS, STRUCTURE SUPERPOSITION, RAY TRACING, FIGURE RESOLUTION

Symposium:	SP14 - VALORIZATION OF BIOMASS-RELATED WASTES		
Room:	308 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Kanokwan Ngaosuwan Co-Chair: Prof. Dr. Tetsuya Kida Co-Chair: Assoc. Prof. Dr. Weerinda Mens		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
13:30-13:45	SP14_001	Nuttida Rosmontri	MODIFIED SOLUBILITY MODELLING FOR PREDICTING BIOACTIVE COMPOUND EXTRACTION IN SUPERCRITICAL CARBON DIOXIDE SYSTEM WITH CO-SOLVENT
13:45-14:00	SP14_002	Ami Takase	DEUTERIUM LABELING OF AMINES USING A PROTON-CONDUCTIVE GRAPHENE OXIDE MEMBRANE REACTOR
14:00-14:30	SP14_INV01	Armando T. Quitain	INSIGHTS AND PERSPECTIVES ON MICROWAVE-CO_2-H_2O SYNERGY FOR BIOMASS VALORIZATION
14:30-15:00	SP14_INV02	Insik In	SURFACE-FUNCTIONALIZATION OF MXENE WITH CATECHOL LIGANDS: GREENER PREPARATION AND VARIOUS APPLICATIONS.
COFFEE BREAK			
15:15-15:45	SP14_INV03	Noppon Weeranoppanant	UTILIZING BIO-BASED FEEDSTOCKS IN A MODULAR CONTINUOUS FLOW SYNTHESIS SYSTEM
15:45-16:15	SP14_INV04	Rattana Muangrat	SUPERCRITICAL CO_2 EXTRACTION OF OILS FROM OIL BIOMASS SOURCES: A SUSTAINABLE VALORIZATION APPROACH
16:15-16:45	SP14_INV05	Siti Zullaikah	A SUSTAINABLE SYMPHONY OF VALORIZING AGRO-INDUSTRIAL WASTE: THE CIRCULAR BIOECONOMY
16:45-17:00	SP14_003	Kanokorn Sae-Ueng	FIBERBOARD FROM OIL PALM EMPTY FRUIT BUNCH USING BIOBASED ADHESIVE FROM WASTE OIL PALM TRUNK: MECHANICAL AND ENVIRONMENTAL ASSESSMENTS

Session:	MEETING OF THE SCIENCE DEANS		
Room:	205 MAHA CHULALONGKORN BUILDING		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
14:00-16:00	-	-	MEETING OF THE SCIENCE DEANS

Session:	POSTER PRESENTATION – SESSION		
Room:	SALA PHRA KIEO		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
15:00-18:00	-	-	POSTER PRESENTATION (SESSION D E F'S COMMITTEE)
16:30-18:00	-	-	POSTER PRESENTATION (SESSION A B C'S COMMITTEE)

Session:	SCIENCE DEANS & CHAIR & KEYNOTE / PLENARY / INVITED SPEAKER RECEPTION		
Room:	MONTIEN HOTEL SURAWONG BANGKOK		
Date:	November 11th, 2025		
Time	ID	Speaker	Title
17:30-19:00	-	-	RECEPTION

NOVEMBER 12th, 2025

MORNING PROGRAM

Session:	PLENARY SPEAKER		
Room:	M01 MHMK BUILDING		
Chairperson:	Assoc. Prof. Chaleeda Borompichaichartkul		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
8:30-9:15	-	Raffael Osen	FROM BIODIVERSITY TO BIOAVAILABILITY: ENHANCING NUTRITION IN FUTURE FOODS FOR ASIAN CONSUMERS

Session:	PLENARY SPEAKER		
Room:	M02 MHMK BUILDING		
Chairperson:	Dr. Warakorn Yanwachirakul Co-chair: Assoc. Prof. Dr. Udomsilp Pinsook		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
8:30-9:15	-	Taisuke Sasaki	UNVEILING MICROSTRUCTURES OF METALLIC MATERIALS – FROM MICRON SCALE TO ATOMIC SCALE

Session:	A – PHYSICS / APPLIED PHYSICS		
Room:	306 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Auttakit Chatrabhuti Co-Chair: Asst. Prof. Dr. Sakhorn Rimjaem		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:00	A_INV02	Chinorat Kobdaj	DEVELOPMENT OF THE PROTON COMPUTED TOMOGRAPHY PROTOTYPE IN THAILAND
10:00-10:30	A_INV03	Apiwat Wisitsorasak	RECENT PROGRESS ON THE FAST ION STUDY IN THAILAND TOKAMAK-1
COFFEE BREAK			
10:45-11:00	A_004	Kasidit Piekbut	AN ANALYTICAL FRAMEWORK FOR PROCESSING AND INTERPRETING EXPERIMENTAL DATA FROM THAILAND TOKAMAK-1 (TT-1)
11:00-11:15	A_005	Faneel Nontree	PLASMA TEMPERATURES AND DENSITY PROFILES SIMULATIONS OF THAILAND TOKAMAK 1 USING CRONOS CODE
11:15-11:30	A_006	Withdraw	-
11:30-11:45	A_007	Thiti Aungcharoen	THE ONE-DIMENSIONAL MODEL OF STATE TRANSITION IN MAGNETIZED PLASMA BASED ON BIFURCATION ANALYSIS

Session:	B - BIOLOGICAL SCIENCES		
Room:	M01 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Sittiporn Pattaradilokrat		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:00	B_INV03	Wibhu Kutanan	GENETIC ORIGIN OF THE SEA NOMADS FROM THAILAND
10:00-10:15	B_008	Dhammawit Haemanwichian	MATERNAL GENETIC HISTORY OF LOLOISH SPEAKING HILL-TRIBES IN NORTHERN THAILAND
10:15-10:30	B_009	Piyathida Suebwonglee	A PILOT STUDY ON DEVELOPING A DNA METHYLATION-BASED MODEL FOR AGE ESTIMATION IN BONE: A STUDY IN THE THAI POPULATION
COFFEE BREAK			
10:45-11:00	B_INV04	Pongchai Dumrongrojwatthana	GAMING AND SIMULATIONS TO SUPPORT ACTIVE LEARNING, BIODIVERSITY CONSERVATION, AND SUSTAINABLE DEVELOPMENT
11:00-11:15	B_010	Watchara Thepsupa	THE EFFECT OF SECRETORY LEUKOCYTE PROTEASE INHIBITOR (SLPI)- DERIVED SMALL PEPTIDE (SDSPs) COATED TITANIUM ON HUMAN OSTEOBLAST ADHESION
11:15-11:30	B_011	Philomena Oga	ANTIBACTERIAL ACTIVITY OF CHITOSANS AGAINST BIOFILM OF *Streptococcus mutans.*
11:30-11:45	B_012	Meghamouli Rana	DEVELOPMENT OF A PH AND THERMO-RESPONSIVE INJECTABLE HYDROGELS FOR CANCER THERAPY
11:45-12:00	B_013	Sereysonita Keo	INVESTIGATION OF ANTIOXIDANT PROPERTIES AND CYTOTOXIC EFFECTS OF CERIUM OXIDE NANOPARTICLES ON HUMAN BREAST CANCER CELLS

Session:	C - CHEMISTRY C(2): MATERIALS FOR ENERGY, ENVIRONMENT, AND SENSOR APPLICATIONS		
Room:	304 MHMK BUILDING		
Chairperson:	Prof. Dr. Thawatchai Tuntulani Co-Chair: Asst. Prof. Dr. Nadnudda Rodthongkum		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
09:30-10:00	C_INV04	He Zhang	BIOCHAR: A KEY MATERIAL BRIDGING WASTE VALORIZATION AND ENVIRONMENTAL SUSTAINABILITY
10:00-10:30	C_INV05	Xin Wang	HYDROPHILICITY-TUNED POLYMER FOR STABLE AQUEOUS BATTERY ELECTROLYTE
COFFEE BREAK			
10:45-11:00	C_004	Ekasith Somsook	PET-DERIVED CARBON MATERIALS FOR FLUORESCENT SENSORS AND MICROPLASTIC REMOVAL
11:00-11:15	C_005	Muhammad Utama	A NOVEL FLUORESCENT PROBE BASED ON ZINC-COPPER BIMETALLIC NANOCLUSTERS FOR ANALYSIS OF IODIDE IN FOOD ADDITIVES
11:15-11:30	C_006	Sukanya Thisan	CHALCONE–LEUCINE–NORBORNENE CONJUGATE: SYNTHESIS, FLUORESCENCE PROPERTIES, AND POTENTIAL APPLICATION FOR Fe^{3+} DETECTION IN BIOLOGICAL FLUIDS

Session:	D - MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI		
Room:	201 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Chartchai Leenawong Co-Chair: Dr. Witchaya Rattanametawee		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:00	D_INV01	Orawich Kumphon	WHEN STATISTICS MEETS RESEARCH: LESSONS FROM HANDS-ON INTEGRATION
10:00-10:15	D_001	Kittimasak Naijit	TIME SERIES FORECASTING OF NET BUSINESS GROWTH IN THAILAND: AN ARIMA-BASED INTERACTIVE DASHBOARD APPROACH
10:00-10:30	D_002	Sathit Prasomphan	AUTOMATED VIDEO SCREENING SYSTEM FOR YOUTH-APPROPRIATE CONTENT
COFFEE BREAK			
Chairperson:	Assoc. Prof. Dr. Chartchai Leenawong Co-Chair: Asst. Prof. Dr. Nawinda Chutsagulprom		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
10:45-11:15	D_INV02	Udomsak Rakwongwan	MAKING MONEY WITH MATHEMATICS: CASE STUDIES
11:15-11:30	D_003	Chinnapong Angsuchotmetee	PERFORMANCE TRADE-OFFS: AN ANALYSIS OF MODEL SIZE VERSUS SPEED AND INTELLIGENCE IN LARGE LANGUAGE MODELS
11:30-11:45	D_004	Chinnapong Angsuchotmetee	RUST PDF GUARD: A WASM-BASED LIBRARY FOR PDF FILE UPLOAD PRESCREENING IN ZERO-TRUST ENVIRONMENTS
11:45-12:00	D_005	Supanat Jumpalek	A NONSTANDARD PROOF OF MICHAEL's SELECTION THEOREM

Session:	E: ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY		
Room:	202 MHMK BUILDING		
Chairperson:	Prof. Dr. Pitsanupong Kanjanapayont Co-Chair: Asst. Prof. Dr. Chatchalerm Ketwetsuriya		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:00	E_INV03	Prayath Nantasin	PARTICIPATION OF THAI GEOLOGISTS ON ANTARCTIC RESEARCH
10:00-10:30	E_019	Kuntapon Kongtago	ENHANCING SEISMIC AMPLIFICATION PREDICTION IN JAPAN USING MULTI-LAYER PERCEPTRON MODELS WITH GEOTECHNICAL, GEOLOGICAL, AND GEOPHYSICAL FEATURES
COFFEE BREAK			
10:45-11:00	E_020	A-lin Suksawat	CHARACTERISTICS OF CLAY MINERALS RELATED TO ION-ADSORPTION RARE EARTH ELEMENT DEPOSIT FROM GRANITIC ROCKS IN PHANG NGA AREA, SOUTHERN THAILAND, SE ASIA TIN BELT
11:00-11:15	E_021	Sermsak Thamasa	DELINEATION OF GEOLOGICAL LAYERS AND GROUNDWATER AQUIFERS USING 2D ELECTRICAL RESISTIVITY TOMOGRAPHY AND 2D INDUCED POLARIZATION: A CASE STUDY FROM GRAVEL HILL, SAWATI SUBDISTRICT, MUEANG DISTRICT, KHON KAEN PROVINCE
11:15-11:30	E_022	Zing Par	ESTIMATING GROUND-LEVEL NO_2 IN THAILAND USING TROPOMI SATELLITE DATA AND GEOS-CHEM MODEL
11:30-11:45	E_023	Hazlamee Benjawong	SPATIAL DISTRIBUTION OF RAINFALL AND TEMPERATURE ANOMALIES IN THAILAND ASSOCIATED WITH ENSO
11:45-12:00	E_024	Yunn Myak Thwe	TOPOLOGICAL VARIABILITY OF POLYGONAL FAULT SYSTEMS IN THE EXMOUTH SUB-BASIN, NORTH-WEST SHELF OF AUSTRALIA

Symposium:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE		
Room:	205 MHMK BUILDING		
Chairperson:	-		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
8:30-9:00	-	-	-
NETWORKING BREAK / PREPARE FOR BREAKOUT ROOM			
Session:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE - NUCLEAR AND CLIMATE SCIENCES		
Room:	205 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Thawatchai Onjun		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:30	SP1_INV16	Somsak Dangtip	THAILAND TOKAMAK-1 AT A GLANCE
	SP1_INV17	Peng Xuebing	CURRENT STATUS AND PROGRESS OF BEST TOKAMAK PROJECT
	SP1_INV18	Zhaohui Lin	EARTH SYSTEM MODEL DEVELOPMENT FOR CLIMATE STUDIES
	SP1_INV19	Siwatt Pongpiachan	SIZE-SEGREGATED ANALYSIS OF PAHs IN URBAN AIR: SOURCE APPORTIONMENT AND HEALTH RISK ASSESSMENT IN AN URBAN CANAL-ADJACENT ENVIRONMENT
COFFEE BREAK			
Chairperson:	Dr. Kampanart Silva		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
10:45-11:30	SP1_INV20	Thawatchai Onjun / Siriwat Chedsi / Mao Yawei	PANEL: FROM CHINA TO THAILAND: SMR – A MAJOR LEAP FORWARD FOR GLOBAL CLEAN ENERGY

Symposium:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE		
Room:	207 MHMK BUILDING		
Chairperson:	Chatchawan Mansaithong		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
8:30-9:00	SP1_PLS1	Lu Kun	FUSION: A PROMISING ENERGY SOLUTION FOR OUR FUTURE
Session:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE - PARTICLE ACCELERATOR TECHNOLOGIES		
Room:	207 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Saroj Rujirawat		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:30	SP1_INV21	Wencheng Fang	R&D ON PROTON AND HELIUM-ION THERAPY FACILITIES AT SSRF/SARI
	SP1_INV22	Somjai Chunjarean	A THAI LINEAR ACCELERATOR FOR PRODUCT IRRADIATION: ADVANCING SUSTAINABLE AGRICULTURE AND ECONOMIC SELF-RELIANCE
	SP1_INV23	Prayoon Songsiriritthigul	PRESENT STATUS OF THAILAND AMS RADIOCARBON DATING PROJECT
	SP1_INV24	Apichat Leckngam	SEM's DESIGN AND DEVELOPMENT
COFFEE BREAK			
Chairperson:	Dr. Jitti Mungkalasiri		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
10:45-11:30	SP1_INV25	Chonlakiet Khorprasert / Chomporn Sitathanee / Ekkasit Tharavichitkul	PANEL: CLINICAL APPLICATIONS OF PROTON THERAPY IN THAILAND

Symposium:	SP2 - FLAVOR AND FRAGRANCE WITHOUT BORDERS: FROM ORIGIN TO GLOBAL MARKET		
Room:	308 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Sittiwat Lertsiri		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:30	SP2_INV01	Thitipat Suppattranont / Bangon Kietthanakorn / Sittiwat Lertsiri	GLOBAL MARKET INSIGHT: THAI FLAVOR & FRAGRANCE
COFFEE BREAK			
10:45-12:00	SP2_INV02	Bangon Kietthanakorn / Udomlak Sukatta	PRODUCTION AND QUALITY CONTROL OF ESSENTIAL OILS IN FLAVOR & FRAGRANCE

Symposium:	SP3 - NEXGEN ENERGY: STORAGE AND CONVERSION FOR SUSTAINABILITY		
Room:	203 MHMK BUILDING		
Chairperson:	Dr. Priew Eiamlamai Co-Chair: Asst. Prof. Dr. Jiaqian Qin		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-9:55	SP3_INV06	Suk Won Cha	EVALUATION OF PEMWE CORROSION CONDITIONS AND ADVANCED COATINGS FOR BIPOLAR PLATE
9:55-10:20	SP3_INV07	Rapee Utke	HYDROGEN-BASED ENERGY STORAGES
COFFEE BREAK			
10:40-11:05	SP3_INV08	Ruiqin Zhang,	UREA-DRIVEN UNIFORM Sn DEPOSITION FOR LONG-LIFE Sn-I FLOW BATTERIES
11:05-11:30	SP3_INV09	Hongyi Gao	REGULATION OF ACTIVE SITE MICROENVIRONMENT IN METAL-LOADED RE-MOFs FOR ENHANCED CATALYTIC HYDROGENATION PERFORMANCE
11:30-11:45	SP3_003	Wathanyu Kao-ian	HIGHLY STABLE CATHODE DERIVED FROM MANGANESE-ALUMINIUM LAYERED DOUBLE HYDROXIDE FOR WET NONAQUEOUS ZINC-ION BATTERY
11:45-12:00	SP3_004	Suparada Kamchompoo	COMPARATIVE STUDY OF IONIC PUMPING AT MXENE AND CARBON-COATED MXENE INTERFACES FOR STABLE LITHIUM-ION BATTERIES AT LOW TEMPERATURES

Symposium:	SP7 - COLOUR SCIENCE/TECHNOLOGY, LIGHT AND APPLICATIONS		
Room:	M02 MHMK BUILDING		
Chairperson:	Prof. Dr. Shigeki Nakauchi Co-Chair: Assoc. Prof. Dr. Pichayada Katemake		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:15	SP7_INV01	Steve Paolini	PROGRAMMABLE MULTICHANNEL LIGHTING FOR ACCURATE SPECTRAL CONTROL AND DAYLIGHT EMULATION
10:15-10-30	SP7_001	Duantemdoung Dethsuphar	WAVELENGTH-DEPENDENT DEGRADATION OF RED PIGMENTS UNDER NARROW-BAND LED ILLUMINATION
COFFEE BREAK			
10:45-11.25	SP7_INV02	Vineetha Kalavally	PERSONAL LIGHT DOSIMETRY—CHALLENGES, OPPORTUNITIES, AND EMERGING AI APPLICATIONS
11:25-11:40	SP7_002	Pakorn Prajuabwan	ON THE DESIGN OF CIRCULAR SHAPE LIGHT GUIDE PLATE AS ARTIFICIAL LIGHTING FOR WOLFFIA ILLUMINATION TO INVESTIGATE THE EFFECT OF BLUE LIGHT AND RED LIGHT ON WOLFFIA BUDDING
11:40-11:55	SP7_003	Phuttharaksa Lanoi	THE IMPACT OF SIMULATED LOW VISION ON THAI FONT LEGIBILITY: A STUDY OF FOVEA AND PARAFOVEA VISION
11:55-12:10	SP7_004	Krittin Assawaphom	THERMAL AND LIGHT STABILITY OF PIGMENTS AND BINDERS USED IN PAINTING UNDER XENON AND MIXED WHITE LED ILLUMINATION

Symposium:	SP9 - EXPLORING THE COSMOS: ADVANCES IN OBSERVATIONAL AND THEORETICAL ASTROPHYSICS		
Room:	305 MHMK BUILDING		
Chairperson:	Dr. Taweewat Somboonpanyakul Co-Chair: Dr. Nicha Leethochawalit		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:00	SP9_INV01	Yuhiko Aoyama	HYDROGEN LINE EMISSION FROM ACCRETION SHOCK ON FORMING GAS-GIANT PLANETS
10:00-10:30	SP9_INV02	David Ruffolo	COSMIC RAYS: WHERE THEY COME FROM AND HOW THEY GET HERE
COFFEE BREAK			
10:45-11:15	SP9_INV03	Samaporn Tinyanont	LIVES AND EXPLOSIVE DEATHS OF MASSIVE STARS: HOW WE ARE MADE OF STARDUST
11:15-11:30	SP9_001	Anas Yamalae	DISCOVERY OF SPIRAL BRIGHTEST CLUSTER GALAXIES AT Z = 0.1-1.2
11:30-11:45	SP9_002	Nutchapak Konjaisue / Nisawara Piyaratanaphiphat	A STUDY OF SINGLE PULSE FLUENCE DISTRIBUTION OF PSR J2048-1616 FOR COMMISIONING THE THAI NATIONAL RADIO TELESCOPE (TNRT)
11:45-12:00	SP9_003	Ekkawee Tangsailertkul	DARK MATTER DISTRIBUTION AND ITS IMPACT ON GALAXY CLUSTER PROPERTIES: A WEAK LENSING APPROACH

Symposium:	SP10 - X-RAY CRYSTALLOGRAPHY		
Room:	206 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Kuakarun Krusong Co-Chair: Assoc. Prof. Dr. Kittipong Chainok		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:00	SP10_INV01	Chun-Hung Lin	STRUCTURAL INSIGHT INTO THE CATALYTIC MECHANISM AND INHIBITOR DEVELOPMENT OF L-FUCOSE-RELATED ENZYMES
10:00-10:30	SP10_INV02	Numpon Insin	MULTIFUNCTIONAL MAGNETIC MATERIALS AS PHOTOCATALYSTS, FROM COMPOSITE MATERIALS TO HIGH ENTROPY MATERIALS
COFFEE BREAK			
10:45-11:15	SP10_INV03	Tatchamapan Yoskamtorn	DECODING STRUCTURES AND DYNAMICS IN FUNCTIONAL FRAMEWORK MATERIALS FOR A NET-ZERO FUTURE
11:15-11:45	SP10_INV04	Prathapa Siriyara Jagannatha	REDEFINING LABORATORY CRYSTALLOGRAPHY: HIGH-INTENSITY SILVER RADIATION AND ADVANCED DETECTION FOR PRECISION STRUCTURAL ANALYSIS
11:45-12:00	SP10_001	Natcha Suparangkul	CRYSTALLIZATION OF A-L-RHAMNOSIDASE FROM *Pediococcus acidilactici*

Symposium:	SP12 - THE 2ND INTERNATIONAL SYMPOSIUM OF SCIENCE COMMUNICATION AND PUBLIC SCIENCE LITERACY		
Room:	302 MHMK BUILDING		
Chairperson:	Dr. Ganigar Chen		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-10:15	SP12_INV01	Julia Rizzo	"TRUST ME, I'M A SCIENTIST." WHY SCIENCE COMMUNICATION MATTERS
COFFEE BREAK			
10:30-12:00	SP12_INV02	Saran Poshyachinda	ASTRONOMY AS A TOOL FOR SCIENCE COMMUNICATION: THE NARIT MODEL
	SP12_INV03	Fung Hon Ngen (Kenneth)	EVALUATING IMPACT IN SCIENCE ENCULTURATION IN MALAYSIA
	SP12_INV04	Mark Ivan Coronado Roblas	PROMOTING PUBLIC ENGAGEMENT IN FRONTIER SCIENCE THROUGH SCIENCE COMMUNICATION RESEARCH AND DEVELOPMENT: THE PHILIPPINE EXPERIENCE

Symposium:	SP13 - NATURE-BASED SOLUTIONS FOR CLIMATE MITIGATION Session 1: NbS for Climate Mitigation and Driving NbS in Thailand and Internationally		
Room:	204 MHMK BUILDING		
Chairperson:	Prof. Dr. Anchana Prathep Co-Chair: Asst. Prof. Dr. Tassanee Jiaphasuanan Co-Chair: Dr. Milica Stankovic		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:00-9:20	SP13_INV01	Andreas A. Hutahaean	THE CONCEPT OF NATURE-BASED SOLUTIONS (NbS) AND THEIR IMPLEMENTATION AT THE INTERNATIONAL LEVEL
9:20-9:40	SP13_INV02	Pakkasem Tongchai	THE CONCEPT OF NATURE-BASED SOLUTIONS (NbS) AND THEIR IMPLEMENTATION AT THE REGIONAL LEVEL
9:40-10:00	SP13_INV03	Wongkot Wongsapai	THE IMPLEMENTATION OF NbS IN NATIONAL POLICY
10:00-10:30	-	Anchana Prathep / Tassanee Jiaphasuanan / Milica Stankovic	Q&A
COFFEE BREAK			
Symposium:	SP13 - NATURE-BASED SOLUTIONS FOR CLIMATE MITIGATION Session 2: NbS Technology for Climate Mitigation		
Chairperson:	Prof. Dr. Anchana Prathep Co-Chair: Asst. Prof. Dr. Tassanee Jiaphasuanan Co-Chair: Dr. Milica Stankovic		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
10:45-11:00	SP13_INV04	Jeark Principe	NbS TECHNOLOGY FOR CLIMATE MITIGATION
11:00-11:15		Nuntikorn Kitratporn	
11:15-11:30		Atthaphon Ariyarit	
11:30-11:45		Sirilak Chumkiew	
11:45-12:00	-	Anchana Prathep / Tassanee Jiaphasuanan / Milica Stankovic	Q&A

Symposium:	SP15 - EMPOWERING SCIENCE EDUCATORS FOR GLOBAL CHALLENGES (SESSION IN THAI LANGUAGE)		
Room:	307 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Punnama Siriphannon		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-9:35	-	Thanuttkhul Mongkolaussavarat (President of The Science Society of Thailand Under the Patronage of His Majesty the King)	OPENING REMARKS
9:35-10:15	SP15_001	Senior Scientist of the Year 2025 • Pichai Sonchaeng	KEYNOTE SPEECH: IGNITING MINDS: TRANSFORM CRISIS TO OPPORTUNITY BY SCIENCE AND TECHNOLOGY
SHOWCASE INSPIRING INNOVATION: EMPOWERING STUDENTS THROUGH AWARD-WINNING SCIENCE TEACHING			
10:15-10:45	SP15_002	Outstanding Science Teacher (Primary Level), 2025 • Suwit Sida • Orathai Mungkalad	INSPIRING LITTLE EXPLORERS: SCIENCE BEYOND TEXTBOOK
10:45-11:15	SP15_003	Outstanding Science Teacher (Secondary Level), 2025 • Sakda Chanklan • Wannapa Thuwawit,	FROM LOCAL PROBLEMS TO GLOBAL THINKERS: SCIENCE PROJECTS WITH REAL-WORLD IMPACT
11:15-11.30	SP15_004	Outstanding Science Teacher (Vocational Education Level), 2025 • Suwat Netcharoen	HANDS-ON, MINDS-ON: VOCATIONAL INNOVATIONS FOR A SUSTAINABLE FUTURE
11.30-11:45	SP15_005	Outstanding Science Teacher (Higher Education Level), 2025 • Chaiwat Lertwiriyanuntakul	FROM LAB TO SOCIETY: NURTURING GRADUATE RESEARCHERS FOR GLOBAL CHANGE
11:45-11:55	-	-	Q&A
11:55-12:00	-	-	CLOSING REMARKS

Session:	STT52 MEETING		
Room:	MULTI-FUNCTIONAL ROOM TAB BLD		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
9:30-11:30	-	-	STT52 MEETING

Session:	ANNUAL MEETING OF THE SCISOC		
Room:	MULTI-FUNCTIONAL ROOM TAB BLD		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
12:00-13:30	-	-	ANNUAL MEETING OF THE SCISOC

AFTERNOON PROGRAM

Session:	PLENARY SPEAKER		
Room:	M01 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Sittiporn Pattaradilokrat		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
13:00-13:45	-	Tanapat Palaga	UNTAPPED POTENTIAL OF TISSUE MICROENVIRONMENT MACROPHAGES IN HEALTH AND CANCER

Session:	PLENARY SPEAKER		
Room:	202 MHMK BUILDING		
Chairperson:	Dr. Chanat Aonbangkhen		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
13:00-13:45	-	Xiaoguang Lei	OPPORTUNITIES FOR MERGING CHEMICAL AND BIOLOGICAL SYNTHESIS

Session:	A – PHYSICS / APPLIED PHYSICS		
Room:	306 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr..Udomsilp Pinsook Co-Chair: Dr. Warakorn Yanwachirakul		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:30	A_INV04	Dr. Noppadon Nuntawong	ADVANCING MEDICAL DIAGNOSTICS WITH SERS: FROM SUBSTRATE ENGINEERING TO CLINICAL APPLICATIONS
14:30-14:45	A_008	Punphum Jarunyakorn / Mathus Manedam / Kriangkamon Sawangsri	INVESTIGATION OF VIBRATION EFFECTS ON FRICTION COEFFICIENTS BETWEEN SURFACES: EXPERIMENTAL MEASUREMENT AND ANALYSIS
14:45-15:00	A_009	Pinthudit Klinkajorn	ANALYSIS OF ERROR IN THE PHOTOELECTRIC EXPERIMENT USING A LIGHT FILTER: A CASE STUDY
COFFEE BREAK			

Session:	C - CHEMISTRY C(3): ORGANIC AND MEDICINAL CHEMISTRY, NATURAL PRODUCTS, CHEMICAL BIOLOGY		
Room:	304 MHMK BUILDING		
Chairperson:	Prof. Dr. Vatcharin Rukachaisirikul Co-Chair: Dr. Chanat Aonbangkhen		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:30	C_INV06	Rungnapha Saeeng	STRUCTURAL MODIFICATION OF NATURAL PRODUCTS TO UNLOCK BIOACTIVITY
14:30-14:45	C_007	Reza Setiawan	α-GLUCOSIDASE INHIBITORS FROM CANNABINOL DERIVATIVES
14:45-15:00	C_008	Muhammad Raffi Zakaria	COMPARISON BETWEEN FRESH AND DRIED *Phyllanthus emblica* FRUIT EXTRACTS AGAINST BREAST CANCER CELLS
COFFEE BREAK			
15:15-15:45	C_INV07	Tanatorn Khotavivattana	RATIONAL APPROACHES TO DRUG DISCOVERY: TARGETING VIRAL PROTEASE AND CANCER TUBULIN PATHWAYS
15:45-16:00	C_009	Yazdaniyar Halimi	IN SILICO SCREENING OF IN-HOUSE LIBRARY REVEALS XANTHONE DERIVATIVES AS PROMISING INHIBITORS OF WILD-TYPE AND MUTANT EGFR-TKS
16:00-16:15	C_010	Ade Sally	ESTER AND SULFONYL HYDRAZONE DERIVATIVES OF ALOE-EMODIN AS NEW α-GLUCOSIDASE INHIBITORS

Session:	D - MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI		
Room:	201 MHMK BUILDING		
Chairperson:	Asst. Prof. Dr. Jiraphan Suntornchost Co-Chair: Asst. Prof. Dr. Areena Hazanee		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:30	D_INV03	Varayu Boonpogkrong	THE HENSTOCK–KURZWEIL INTEGRAL: A MODERN PERSPECTIVE AND APPLICATIONS
14:30-14:45	D_006	Siripatana Tikamma	EXISTENCE, UNIQUENESS AND QUENCHING FOR A PARABOLIC EQUATION WITH A CONCENTRATED NONLINEAR SOURCE ON A SEMI-INFINITE INTERVAL UNDER A NEUMANN BOUNDARY CONDITION
14:45-15:00	D_007	Thandar Maung Maung	TOWARD A SUSTAINABLE DATA LAKE: MEASURING AND FORECASTING ENERGY USAGE OF CRUD OPERATIONS
COFFEE BREAK			
Chairperson:	Assoc. Prof. Dr. Athipat Thamrongthanyalak Co-Chair: Assoc. Prof. Dr. Suphakant Phimoltares		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
15:15-15:45	D_INV04	Dittaya Wanvarie	LLM IN LANGUAGE LEARNING
15:45-16:00	D_008	Jirateep Mahasuweerachai	SideOffNet: ENHANCED MACHINE LEARNING FRAMEWORK BASED ON OFF-TARGET-AWARE NETWORKS FOR PREDICTING DRUG SIDE EFFECTS
16:00-16:15	D_009	Natthanicha Trisirirat / Akkarapong Kiatcharoensiri	ASSESSMENT OF STUDENTS' ATTENTION WHILE LEARNING USING ARTIFICIAL INTELLIGENCE MODEL
16:15-16:30	D_010	Natnicha Rakbumrung	THE GEOMETRY OF RANDERS CYLINDERS OF REVOLUTION WITH NON-CONSTANT NAVIGATION DATA ALONG MERIDIANS
16:30-16:45	D_011	Chanon Bampeng	A STUDY OF MINIMUM SECURE DOMINATING SETS IN CYCLE AND PATH GRAPH

Session:	E: ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY		
Room:	202 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Pakorn Opaprakasit Co-Chair: Assoc. Prof. Dr. Chanatip Samart		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:30	E_INV04	Ning Yan	FUTURE FUELS: FROM BIOMASS TO HYDROGEN
14:30-14:45	E_025	Pimpet Sratong-on	SPENT COFFEE GROUND/RICE HUSK AND RECYCLED PAPER-BASED MYCELIUM BIOCOMPOSITES FOR SUSTAINABLE ROAD GUIDEPOSTS
14:45-15:00	E_026	Pheeranat Leangthanarerx	DEVELOPMENT OF A MULTILAYERED ALUMINA-SIC CERAMIC COMPOSITE FOR ENHANCED FRACTURE RESISTANCE IN ARMOR APPLICATIONS
COFFEE BREAK			
15:15-15:30	E_027	Chananchida Sukchaiya / Miyuki Sato	MULTIFUNCTIONAL NANOCAPSULE-INTEGRATED POLYESTER AND MICRO-POLYESTER TEXTILES ENHANCED WITH CHITOSAN AND SILVER PARTICLES FOR ANTIBACTERIAL ACTIVITY AND SUSTAINED FRAGRANCE RELEASE
15:30-15:45	E_028	Thanyathorn Lohabunditwong	BIOCOMPOSITE FROM DURIAN RIND AND ORANGE PEEL AS A NATURAL POLYMER MATRIX FOR ADVANCED WOUND DRESSING
15:45-16:00	E_029	Thanakorn Teekasung	ZINC GLYCEROLATE SYNTHESIZED VIA MICROWAVE AND METHANOL-ASSISTED REFLUX METHODS: COMPARATIVE CHARACTERIZATION AND THERMAL STABILIZATION IN PVC
16:00-16:15	E_030	Pawarisa Ngamroj / Natthakit Phophuttharaksa	MODULATION OF ANTIMICROBIAL EFFECT ON VANADIUM-PROMOTED CASSAVA/CHITOSAN BIOPOLYMER FILMS USING WHITE-LIGHT IRRADIATION
16:15-16:30	E_031	Methakriat Sirival	MICROENCAPSULATION OF *Zingiber cassumunar* ROXB. ESSENTIAL OIL USING POLY-L-LACTIC ACID FOR ENHANCED STABILITY
16:30-16:45	E_032	Shehbaz Ameer	CONTROLLED RELEASE OF HOLY BASIL ESSENTIAL OIL NANOEMULSION ENCAPSULATED IN GELATIN/CARBOXYMETHYL CELLULOSE HYDROGEL FOR WOUND CARE
16:45-17:00	E_033	Le Hanh Trang Ho	TRIPLE-SHAPE MEMORY POLYMER: INTERPENETRATING POLYMER NETWORKS FROM BIO-BASED EPOXY AND BENZOXAZINE

Session:	F: FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE		
Room:	308 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Siwaret Arikit		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:30	F_INV01	Rui Xia	TBTOOLS: AN INTEGRATED AND MULTIFUNCTIONAL BIOINFORMATICS TOOLKIT FOR THE BIG DATA ERA
14:30-15:00	F_INV02	Poonpipope Kasemsap	FROM QUANTUM AND SATELLITE TO CARBON FARMING: MAKING NET ZERO MISSION POSSIBLE
COFFEE BREAK			
15:15-15:30	F_001	Moe Moe Kyi Win	QTL-SEQ IDENTIFIES KEY GENES IMPORTANT FOR BACTERIAL LEAF STREAK (*Xanthomonas oryzae* pv. *oryzicola*) RESISTANCE IN RICE
15:30-15:45	F_002	Natawat Jantong	ENHANCING CULTIVATION EFFICIENCY AND NUTRITIONAL VALUE OF SUNFLOWER SPROUTS USING ULTRASONIC WAVES AND SUCROSE FOR FUTURE FOOD PRODUCTION
15:45-16:00	F_003	Suparad Klinsawang	IDENTIFICATION OF ROOT RESPONSIVE GENES UNDERLYING PENETRATION ABILITY IN COMPACTED SOIL USING QTL-SEQ IN RICE (*Oryza sativa* L.)
16:00-16:15	F_004	Papapin Prasertsil	TARGETED AROMA VOLATILE COMPOUNDS ASSOCIATED WITH CONSUMER PREFERENCES IN CHILLI
16:15-16:30	F_005	Watchara Phetluan	IDENTIFICATION OF GENETIC LOCI ASSOCIATED WITH STOMATAL DENSITY IN RICE (*Oryza sativa* L.) THROUGH GENOME-WIDE ASSOCIATION STUDIES
16:30-16:45	F_006	Piyamongkol Mangkalasane	GENOME-WIDE ASSOCIATION STUDY (GWAS) REVEALS ENDOSPERM-SPECIFIC GENES (OsEnS) AND Wx GENE REGULATING SEED STORAGE PROTEIN (SSP) IN RICE GRAIN (*Oryza sativa* L.)

Session:	F: FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE		
Room:	301 MHMK BUILDING		
Chairperson:	Asst. Prof. Dr. Nattida Chotechuang		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:30	F_INV03	Hisayuki Uneyama	KOKU AND UMAMI: ASIAN TASTE INNOVATIONS FOR HEALTH AND PLANETARY WELL-BEING
14:30-15:00	F_INV04	Nathdanai Harnkarnsujarit	MODERN FOOD TECHNOLOGY FOR SUSTAINABILITY AND GLOBAL COMPETITIVENESS
COFFEE BREAK			
15:15-15:30	F_007	Panitta Boonsrirat	BIOCONVERSION OF MEALWORM (*Tenebrio molitor*) FRASS BY BLACK SOLDIER FLY LARVAE (*Hermetia illucens*) SIGNIFICANTLY IMPROVED QUANTITY AND QUALITY OF AQUAFEED PROTEIN
15:30-15:45	F_008	Apichaya Feepakpro	EFFECT OF ALKALIZATION PROCESS ON COCOA NIBS AND POWDER QUALITIES
15:45-16:00	F_009	Endy Triyannanto	THE EFFECT OF X-RAY RADIATION DOSE ON THE QUALITY AND SHELF LIFE OF BEEF MEATBALLS STORED AT REFRIGERATION TEMPERATURE
16:00-16:15	F_010	Piyaorn Likhitrattanakon	UV-C TECHNOLOGY FOR MICROBIAL CONTROL AND QUALITY RETENTION IN 'PATTAVIA' PINEAPPLE JUICE
16:15-16:30	F_011	Thanakorn Wongprasert	SCREENING OF AROMA CHANGES BY ROASTING PROCESS IN THAI FORASTERO HYBRID STRAIN CACAO NIBS (*Theobroma Cacao*)
16:30-16:45	F_012	Aung Myint Myat	DEVELOPMENT OF PROTEIN- AND FIBER-ENRICHED GLUTEN-FREE PASTA INCORPORATING WITH DEFATTED RICE BRAN AND LUPIN FLOUR

Symposium:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE		
Room:	205 MHMK BUILDING		
Chairperson:	-		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
13:30-14:00	-	-	-
NETWORKING BREAK / PREPARE FOR BREAKOUT ROOM			
Session:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE - ARTIFICIAL INTELLIGENCE, LARGE LANGUAGE MODEL AND GENERATIVE AI > NEXT STEP OF GENERATIVE AI AND LLMS		
Room:	205 MHMK BUILDING		
Chairperson:	Dr. Thepchai Supniti		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-15:00	SP1_INV26	Chengqing Zong	RESEARCH ON LARGE LANGUAGE MODELS AND BEYOND
	SP1_INV27	Yang Feng	CHINA'S PROGRESS IN LARGE LANGUAGE MODELS
	SP1_INV28	Chai Wutiwiwatchai	THAILAND LOCAL LARGE LANGUAGE MODEL: THE ThaiLLM
	SP1_INV29	Thatpong Pongthawornkamol	BUSINESS TRANSFORMATION THROUGH AGENTIC AI
COFFEE BREAK			

Symposium:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE		
Room:	207 MHMK BUILDING		
Chairperson:	Dr. Thepchai Supniti		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
13:00-13:00	SP1_PLS02	Wang Peng	AI/GENERATIVE AI IN CHINA
Session:	SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE - POLAR RESEARCH > SYNERGY IN POLAR RESEARCH: BRIDGING THAILAND AND CHINA FOR SUSTAINABLE SOLUTIONS		
Room:	207 MHMK BUILDING		
Chairperson:	Prof. Dr. Voranop Viyakarn		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-15:00	SP1_INV30	Xueyuan Tang	CHINA's AIRBORNE GEOPHYSICAL SURVEY IN EAST ANTARCTICA
	SP1_INV31	Jiang Peng	CHINA's POLAR VISION: A JOURNEY OF DISCOVERY AND GLOBAL RESPONSIBILITY
	SP1_INV32	Suchana Chavanich	THAILAND AND POLAR RESEARCH: A DIALOGUE ON HISTORY, COLLABORATION, AND THE FUTURE
COFFEE BREAK			

Symposium:	SP3 - NEXGEN ENERGY: STORAGE AND CONVERSION FOR SUSTAINABILITY		
Room:	203 MHMK BUILDING		
Chairperson:	Asst. Prof. Dr. Jitti Kasemchainan Co-Chair: Dr. Pinit Kidkhuntod		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:25	SP3_INV10	Liping Wang	PYRITES CATHODES AS HIGH ENERGY DENSITY LITHIUM METAL BATTERY
14:25-14:50	SP3_INV11	Pimpa Limthongkul	DEVELOPMENT OF NEXT GENERATION ENERGY STORAGE TOWARDS SUSTAINABLE, HIGH ENERGY AND SAFE BATTERY SYSTEM
COFFEE BREAK			
15:05-15:30	SP3_INV12	Athaweena Krittayavathananon	CONCEPTUAL DESIGN OF A SOLID-STATE ELECTROLYTE FOR ENHANCED SAFETY IN LITHIUM-BASED BATTERIES
15:30-15:55	SP3_INV13	Fuda Yu	SUPERSTRUCTURE DESIGN FOR OXYGEN REDOX IN Li-RICH CATHODES
15:55-16:20	SP3_005	Guangmin Zhou	REPAIRING AND UPCYCLING OF ELECTRODE MATERIALS FROM SPENT LITHIUM ION BATTERIES
16:20-16:45	SP3_006	Pei-Chen Su	SURFACE MODIFICATION OF SOLID OXIDE FUEL CELL ELECTRODES FOR PERFORMANCE AND STABILITY
16:45-17:00	SP3_007	Pakawan Sereerattanakorn	A DUAL–FUNCTION LITHIUM BORATE GLASS CERAMICS–COPOLYMER COMPOSITE INTERLAYER FOR LITHIUM–SULFUR BATTERIES

Symposium:	SP4 - BIOREFINERY		
Room:	M01 MHMK BUILDING		
Chairperson:	Prof. Dr. Chawalit Ngamcharussrivichai		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:05	-	-	OPENING SPEECH
14:05-15:05	-	Representatives from government agencies, the private sector/industry, and universities	THE PANEL DISCUSSION > BIOREFINERY INNOVATION FOR THAILAND'S BIOECONOMY: FROM AGRICULTURAL WASTE TO HIGH-VALUE CHEMICALS FOR SUSTAINABLE DEVELOPMENT
15:10-15:30	SP4_INV01	Duangamol Tungasmita	VALORIZATION OF AGRICULTURAL RESIDUES INTO BIO-BASED CHEMICALS THROUGH GREEN CATALYTIC TRANSFORMATION
15:30-15:50	SP4_INV02	Nuttapat Thiensuwan	DESIGNING ADVANCED CATALYSTS FOR A MULTI-FEEDSTOCK BIOREFINERY: CONVERTING BIOMASS AND BIO-DERIVED FEEDSTOCKS INTO BIOCHEMICALS
15:50-16:10	SP4_INV03	Warodom Hunsiri	FACILE AND COST-EFFECTIVE Ni-BASED CATALYSTS FOR HYDROCONVERSION OF PALM OIL DERIVATIVES TO BIO-JET FUELS
16:10-16:30	SP4_INV04	Lalita Attanatho	TRANSFORMING AGRICULTURAL FEEDSTOCKS INTO BIOFUELS AND BIOCHEMICALS THROUGH CHEMICAL PATHWAY IN THE BIOREFINERY FRAMEWORK
16:30-16:40	-	-	SYMPOSIUM SUMMARY AND CONCLUDING REMARK
COFFEE BREAK			

Symposium:	SP8 - CULTURAL HERITAGE: TRADITIONAL/DIGITAL COLOR		
Room:	M02 MHMK BUILDING		
Chairperson:	Prof. Dr. Shigeki Nakauchi Co-Chair: Assoc.Prof. Dr. Pichayada Katemake		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
13:10-14:00	SP8_INV01	Shigeki Nakauchi	UNIVERSALITY AND DIVERSITY IN COLOR PREFERENCE FOR ART PAINTINGS
14:00-14:15	SP8_001	Nattawan Worawannotai	X-RAY FLUORESCENCE ANALYSIS OF PIGMENTS IN THE MURAL PAINTINGS AT WAT DON KRABUEANG, RATCHABURI, THAILAND
14:15-14:30	SP8_002	Atikarn Kraichok	SAFE REMOVAL OF AGED POLYVINYL ACETATE ADHESIVES FROM CANVAS USING NANOCELLULOSE AEROGEL: PRESERVING ORIGINAL COLOR OF ARTWORKS
14:30-15:00	-	-	WORKSHOP: SP8: COLOUR IN CULTURAL HERITAGE: BRIDGING TRADITION AND INNOVATION THE SMILE OF THE CENTURY: SCIENCE BEHIND THE MONA LISA. DISCOVER THE HIDDEN SECRETS OF A WORLD-RENOWNED MASTERPIECE THROUGH THE LENS OF BOTH SCIENCE AND ART.
COFFEE BREAK			
15:15-17.00	-	-	WORKSHOP: SP8: COLOUR IN CULTURAL HERITAGE: BRIDGING TRADITION AND INNOVATION THE SMILE OF THE CENTURY: SCIENCE BEHIND THE MONA LISA. DISCOVER THE HIDDEN SECRETS OF A WORLD-RENOWNED MASTERPIECE THROUGH THE LENS OF BOTH SCIENCE AND ART. DEMONSTRATION OF MICRO-XRF, PORTABLE RAMAN, X-RAY, HYPERSPECTRAL CAMERA, AND TECHNICAL PHOTOGRAPHY FOR THE CONSERVATION OF ART.

Symposium:	SP9 - EXPLORING THE COSMOS: ADVANCES IN OBSERVATIONAL AND THEORETICAL ASTROPHYSICS		
Room:	305 MHMK BUILDING		
Chairperson:	Dr. Krittapas Chanchaiworawit		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:30	SP9_INV04	Waraporn Nuntiyakul	THAI–CHINESE COLLABORATION ON COSMIC RAY SURVEYS AND DEEP-SEA NEUTRINO TELESCOPES
14:30-15:00	SP9_INV05	Teeraparb Chantavat	THE EXTREME OBJECTS AT HIGH REDSHIFTS
COFFEE BREAK			

Symposium:	SP10 - X-RAY CRYSTALLOGRAPHY		
Room:	206 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Kuakarun Krusong Co-Chair: Assoc. Prof. Dr. Kittipong Chainok Co-Chair: Asst. Prof. Dr. Nanthawat Wannarit		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-15:00	SP10_INV05	Santi Pailoplee / Kittikhun Wangkanont / Puey Ounjai	TALKS ABOUT CRYSTALLOGRAPHY I
COFFEE BREAK			
15:15-16:15	SP10_INV05	Santi Pailoplee / Kittikhun Wangkanont / Puey Ounjai	TALKS ABOUT CRYSTALLOGRAPHY II

Symposium:	SP11 - RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY		
Room:	ENG BUILDING		
Room:	DEPARTMENT OF NUCLEAR ENGINEERING, FACULTY OF ENGINEERING, CHULALONGKORN UNIVERSITY		
Chairperson:	Dr. Yutthana Tumnoi Co-Chair: Dr. Wipada Ngansom		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:30	SP11_001	Dumrongsak Rodphothong	COMPUTATIONAL FLUID DYNAMICS INVESTIGATION OF INDOOR RADON DISTRIBUTION AT HAT YAI HOT SPRING SPA IN RANONG PROVINCE, THAILAND
14:30-15:00	SP11_002	Saroh Niyomdecha	INVESTIGATION OF RADON CONCENTRATION (Rn-222) IN GEOTHERMAL SPRINGS, THE SOUTHERN PART OF THAILAND
COFFEE BREAK			

Symposium:	SP12 - THE 2ND INTERNATIONAL SYMPOSIUM OF SCIENCE COMMUNICATION AND PUBLIC SCIENCE LITERACY		
Room:	302 MHMK BUILDING		
Chairperson:	Dr. Ganigar Chen		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
13:00-14:45 (Sharing Session 1: *Bridging the Frontiers: Innovative Tools for Science Communication*)	SP12_001	Natdanai Nirutmeteekul	A PROACTIVE APPROACH TO MISINFORMATION: LEVERAGING QFT TO CULTIVATE CRITICAL ANALYSIS AND EVALUATION SKILLS FOR THE AI ERA
	SP12_002	Wan Wiriya	EMPOWERING NORTHERN YOUTH FOR ACTION ON THE SMOKE HAZE CRISIS THROUGH A HANDS-ON SCIENCE COMMUNICATION MODEL
	SP12_003	Kanchanaphan Poonudom	WHERE SCIENCE MEETS ART: TRANSFORMING MEDICAL EDUCATION THROUGH CREATIVE MEDIA DESIGN
	SP12_004	Namkang Sriwattanarotha	BEYOND THE TEXTBOOK: DESIGNING FOR CURIOSITY AND DISCOVERY IN STEM
	SP12_005	Nutthapol Orpipath	WHAT INSPIRES ME TO DEVELOP BOARD GAMES AS LEARNING TOOLS
14.45 – 16.15 (Sharing Session 2: *From Research to Relevance: Connecting Science with Society*)	SP12_006	Kitipong Soontrapa	A JAPANESE HEALTH TV PROGRAM: EFFECTIVE COMMUNICATION OF MEDICAL SCIENCE FOR PROMOTING PUBLIC HEALTH
	SP12_007	Unchalisa Taetragool	TRAVEL LINK: CONNECTING DATA, DECISIONS, AND UNDERSTANDING
	SP12_008	Sarayut Tunmee	ENHANCING PUBLIC UNDERSTANDING OF SYNCHROTRON TECHNOLOGY THROUGH TARGETED SCIENCE COMMUNICATION
	SP12_009	Sukhum Ruangchai	BRIDGING MINDS, SHARING SCIENCE: THE THAI-TAIWAN EXCHANGE STORY
16:15-17:00 (5-minute Poster Sharing)	SP12_001_P	Kuan-Chun Wang	EFFECTIVENESS OF THAILAND SCIENCE CARAVAN: A CASE STUDY OF NST FAIR 2025 IN CHIANG MAI
	SP12_002_P	Pimonrat Tiansawat	SEED BANKING INITIATIVES IN NORTHERN THAILAND
	SP12_003_P	Pranee Disrattakit	INNOVATIVE STEM CHALLENGE ACTIVITY THROUGH BIOMIMICRY-INSPIRED ENGINEERING: A STRATEGY FOR ENHANCING SCIENTIFIC COMPETENCIES IN SECONDARY STUDENTS FOR SUSTAINABLE COMMUNITY
	SP12_004_P	Siraya Janasak	HERBAL INNOVATION AND MULTI-STAKEHOLDER INTEGRATION FOR SUSTAINABLE AREA-BASED DEVELOPMENT: POLICY RECOMMENDATIONS FROM THE MAEMOK HERBAL VALUE CHAIN, LAMPANG PROVINCE

Symposium:	SP13 - NATURE-BASED SOLUTIONS FOR CLIMATE MITIGATION Session 3: High Performance Researchers in Carbon Verifiers Through Nature Based Solution for Carbon Net Zero		
Room:	204 MHMK BUILDING		
Chairperson:	Prof. Dr. Anchana Prathep Co-Chair: Asst. Prof. Dr. Tassanee Jiaphasuanan Co-Chair: Dr. Milica Stankovic		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
13:00-13:10	-	Anchana Prathep	INTRODUCTION FOR NbS PROJECT
13:10-13:25	SP13_INV05	Prateep Duengkae	NbS PROJECT IMPLEMENTATION IN FOREST ECOSYSTEM
13:25-13:40	SP13_INV06	Pannawee Mekwichai	NbS PROJECT IMPLEMENTATION IN FRESHWATER ECOSYSTEM
13:40-13:55	SP13_INV07	Vanyarat Kongsap	NbS PROJECT IMPLEMENTATION IN MARINE AND COASTAL ECOSYSTEM
13:55-14:10	-	Anchana Prathep / Tassanee Jiaphasuanan / Milica Stankovic	Q&A
COFFEE BREAK			
Symposium:	SP13 - NATURE-BASED SOLUTIONS FOR CLIMATE MITIGATION Session 4: Brain Power Driving NbS in Thailand		
Chairperson:	Prof. Dr. Anchana Prathep Co-Chair: Dr. Milica Stankovic Co-Chair: Kanyanat Kaewutai		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:30-14:42	SP13_001	Chanunchida Polpakdee	SPATIO-TEMPORAL TRENDS IN SEAGRASS DISTRIBUTION AND ABUNDANCE AND THE ROLE OF ENVIRONMENTAL FORCING
14:45-14:57	SP13_002	Grissanee Suwanpahu	ASSESSMENT OF THE CARBON SEQUESTRATION CAPACITY OF MANGROVE FOREST PLANTATION: CASE STUDY OF RAYONG, PROVINCE, THAILAND
15:00-15:12	SP13_003	Kanokorn Sae-Ueng	EXPLORATION OF CARBON SEQUESTRATION POTENTIAL IN DURIAN ORCHARDS WITH VARIOUS MANAGEMENT PRACTICES IN SURAT THANI
15:15-15:27	SP13_004	Kanyakorn Keawwilai	QUANTIFYING THE CARBON STOCK OF FOREST ECOSYSTEMS WITH SATELLITE IMAGERY AND GEOSPATIAL AI
15:30-15:42	SP13_005	Nattarika Intarapradit	PHYTOLITH-OCCLUDED CARBON ACCUMULATION ACROSS DIVERSE BAMBOO SPECIES IN THAI FOREST ECOSYSTEMS
15:45-15:57	SP13_006	Nattawut Sareein	ASSESSMENT OF CARBON STORAGE IN WETLANDS OF CHIANG RAI, THAILAND
16:00-16:12	SP13_007	Pipat Yodpinij	OPTIMIZING BIOCHAR APPLICATION RATES IN AGRICULTURAL SOIL THROUGH ANALYSIS OF NH4+ AND NO3-SORPTION-DESORPTION DYNAMICS

Symposium:	SP16-YOUNG RISING STARS OF SCIENCE 2025 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2025 (JYRSS)		
Room:	309 MHMK BUILDING		
Chairperson:	Chair: Assoc. Prof. Dr. Kitipong Assatarakul Co-Chair: Assoc. Prof. Dr. Athipat Thamrongthanyalak Co-Chair: Asst. Prof. Dr. Pumidech Puthongkham		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
13:00-14:00	-	-	COMMITTEE MEETING

Symposium:	SP17- SCIENCE POPULARIZATION FOR SUSTAINABLE COMMUNITY DEVELOPMENT		
Room:	208 MHMK BUILDING		
Chairperson:	Assoc. Prof. Dr. Songsak Srianujata Co-Chair: Dr. Sarawut Siriwong Co-Chairs: Monthida Sitathani		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-14:05	-	Songsak Srianujata	Introduction
14:05-14:15	SP17_INV01	Hu Junping	CHINA's ACTION TO ENHANCE CIVIC SCIENTIFIC LITERACY: POLICY ENVIRONMENT, PRACTICES, AND ASSESSMENT
14:15-14.25	SP17_INV02	Li Xiuju	A NATIONAL SURVEY ON THE SCIENTIFIC LITERACY OF PRIMARY AND SECONDARY SCHOOL STUDENTS IN CHINA: FRAMEWORK, FINDINGS, AND IMPLICATIONS
14:25-14:35	SP17_INV03	Sarawut Siriwong	CHANGE AGENTS AS CATALYSTS FOR COMMUNITY-BASED OYSTER PRODUCTION ENTERPRISE: A CASE STUDY IN TRAT PROVINCE
14:35-14:45	SP17_INV04	Korakot Aromdee	CHANGE AGENTS AS CATALYSTS FOR COMMUNITY-BASED BAMBOO UTILIZATION: A CASE STUDY IN KORAKOT BAMBOO HANDICRAFTS
14:45:14:55	SP17_INV05	Taweechai Amornsakchai	TRANSFORMING PINEAPPLE FIELD WASTE INTO CLIMATE-POSITIVE MATERIALS: A VISION FOR COMMUNITY-BASED SCIENCE POPULARIZATION
14:55-15:05	SP17_INV06	Kitti Supchukun	DEVELOPING A SUSTAINABLE GOAT AND SHEEP FARMING NETWORK WITH CIRCULAR ECONOMY FOR NEW LIVESTOCK INDUSTRIES
15:05-15:15	SP17_INV07	Niti Mekmok	THE INTEGRATION OF DIGITAL TECHNOLOGY TO ASSIST FARMERS IN IRRIGATED ZONES, AIMING TO ENHANCE PRODUCTIVITY AND ENSURE SUSTAINABLE AGRICULTURAL OUTCOMES
COFFEE BREAK			
15:15-15:25	SP17_INV08	Siraya Janasak	HERBAL INNOVATION AND MULTI-STAKEHOLDER INTEGRATION FOR SUSTAINABLE AREA-BASED DEVELOPMENT: POLICY RECOMMENDATIONS FROM THE MAEMOK HERBAL VALUE CHAIN, LAMPANG PROVINCE
15:25-15:35	SP17_INV09	Suneerat Fukuda	FROM CAMPUS TO COMMUNITY: ADVANCING LOW-CARBON FUTURES THROUGH UNIVERSITY-LED CLIMATE ACTION

15:35-15:45	SP17_INV10	Kittisak Ajariyakhajorn	ADVANCING AGRICULTURAL INNOVATION AND DAIRY SUSTAINABILITY IN THAILAND: A STRATEGIC MODEL FROM AIC CHULA-SARABURI
15:45-15:55	SP17_INV11	Jaroon Duangkrayom	GEO-EDUCATIONAL PROMOTING ACTIVITIES AND IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT IN KHORAT UNESCO GLOBAL GEOPARK, THAILAND
15:55-17:00	-	Songsak Srianujata Sarawut Siriwong Monthida Sitathani	OPEN DIALOGUE

Session:	POSTER PRESENTATION – SYMPOSIUM		
Room:	SALA PHRA KIEO		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
14:00-17:00	-	-	POSTER PRESENTATION (YRSS / JYRSS'S COMMITTEE)
15:00-18:00	-	-	POSTER PRESENTATION (SYMPOSIUM'S COMMITTEE)

Session:	STT51 CONGRESS BANQUET		
Room:	SALA PHRA KIEO		
Date:	November 12th, 2025		
Time	ID	Speaker	Title
18:00-21:00	-	-	BANQUET

NOVEMBER 13th, 2025

MORNING PROGRAM

Symposium:	SP5 - GENOME EDITING AND SYNTHETIC BIOLOGY		
Room:	203 MHMK BUILDING		
Chairperson:	Prof. Dr. Supaart Sirikantaramas Co-Chair: Prof. Dr. Teerapong Buaboocha Co-Chair: Assoc. Prof. Dr. Natapol Pornputtapong Co-Chair: Dr. Chayasith Uttamapinant		
Date:	November 13th, 2025		
Time	ID	Speaker	Title
9:00-9:30	SP5_INV01	Alisa Tubsuwan	GENE EDITING: FROM MOLECULAR SCISSORS TO THERAPEUTIC APPROACHES
9:30-10:00	SP5_INV02	Hikaru Seki	METABOLIC ENGINEERING OF HIGH-VALUE TRITERPENOID BIOSYNTHESIS IN PLANTS USING GENOME EDITING
10:00-10:30	SP5_INV03	Supachitra Chadchawan	EFFECTS OF OsGTL1 GENE EDITING IN RICE
COFFEE BREAK			
10:45-11:15	SP5_INV04	Tom Ellis	ENGINEERING UNICELLULAR YEAST TO ACHIEVE MODULAR MULTICELLULARITY
11:15-11:45	SP5_INV05	Bunpote Siridechadilok	MAPPING THE INTERACTIONS BETWEEN VITELLOGENIN AND ITS RECEPTOR FOR DEVELOPMENT OF OOCYTE-TARGETING PROTEIN DELIVERY IN SHRIMPS

Symposium:	SP16-YOUNG RISING STARS OF SCIENCE 2025 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2025 (JYRSS) – PITCHING PRESENTATION – YRSS		
Room 1:	Chem > 204 MHMK BUILDING		
Room 2:	Mat > 205 MHMK BUILDING		
Room 3:	Phy > 206 MHMK BUILDING		
Room 4:	Bio > 207 MHMK BUILDING		
Room 5:	Math > 304 MHMK BUILDING		
Room 6:	Com > 305 MHMK BUILDING		
Room 7:	Food > 306 MHMK BUILDING		
Room 8:	Env > 307 MHMK BUILDING		
Date:	November 13th, 2025		
Time	ID	Speaker	Title
9:00-10:30	-	-	PITCHING PRESENTATION – YRSS
COFFEE BREAK			

Session:	AWARDING CEREMONY – BEST ORAL & POSTER PRESENTATIONS – YRSS / JYRSS AWARDING SESSION		
Room:	SALA PHRA KIEO		
Date:	November 13th, 2025		
Time	ID	Speaker	Title
10:00-10:30	-	-	JYRSS AWARDING SESSION
10:30-11.00	-	-	AWARDING CEREMONY – BEST ORAL & POSTER PRESENTATIONS
11:00-12:00	-	-	YRSS AWARDING SESSION

SESSION A - PHYSICS / APPLIED PHYSICS



PHYSICS / APPLIED PHYSICS

Chair: Assoc. Prof. Dr. Auttakit Chatrabhuti
Co-Chair: Assoc. Prof. Dr. Udomsilp Pinsook
Co-Chair: Dr. Warintorn Sreethawong
Co-Chair: Dr. Warakorn Yanwachirakul
Co-Chair: Dr. Vicharit Yingcharoenrat

For the STT51 conference in Bangkok, Thailand, we are inviting physicists in all fields to submit abstracts/complete papers. This annual conference aims to bring together experts to explore the theoretical and experimental frontiers of physics, as well as their applications. Our sessions cover the fields of accelerator physics, astrophysics, condensed matter physics, high energy physics, materials physics and quantum technology. This conference offers a forum for cooperation and exchange of ideas. We invite you to join us in developing creative solutions and advancing the goal of a sustainable future.

Invited Speakers



Assoc. Prof. Dr. Apiwat Wisitsorasak



Asst. Prof. Dr. Chinorat Kobdaj



Dr. Apimook Watcharangkool



Dr. Noppadon Nuntawong

SESSION B - BIOLOGICAL SCIENCES



BIOLOGICAL SCIENCES
Biochemistry / Biotechnology / Microbiology / Molecular biology / Biomedical science / Biodiversity

Chair: Prof. Dr. Tavan Janvilisri
Co-Chair: Prof. Dr. Alissara Reungsang
Co-Chair: Assoc. Prof. Dr. Sehanat Prasongsuk
Co-Chair: Assoc. Prof. Dr. Kunlaya Somboonwiwat
Co-Chair: Assoc. Prof. Dr. Sittiporn Pattaradilokrat

In celebration of the golden jubilee of friendship—50 years of diplomatic relations between Thailand and China—the Faculty of Science, Chulalongkorn University is proud to host the STT51 conference. As part of this landmark event, we warmly invite researchers from all corners of the life sciences to submit abstracts or full papers to the Biological Sciences session. This year's session promises to be more than just a scientific forum—it's a stage for collaboration, innovation, and cross-cultural exchange. In a world facing complex challenges in health, food, energy, and the environment, biological sciences hold the key to transformative solutions. What better way to mark half a century of partnership than by uniting brilliant minds to share bold ideas, fresh discoveries, and creative breakthroughs? We welcome contributions across the full spectrum of life sciences, including Biochemistry, Biotechnology, Microbiology, Molecular Biology, Biomedical Science, and Biodiversity. Whether you're decoding nature's secrets or designing the future of sustainable living, this is your opportunity to connect, inspire, and lead. Join us at STT51 to celebrate science, build new bridges, and shape the next chapter of international collaboration.

Invited Speakers



Prof. Dr. Ikuo Hirono



Assoc. Prof. Dr. Pongchai Dumrongrojwatthana



Assoc. Prof. Dr. Saroj Ruchisansakun



Assoc. Prof. Dr. Wibhu Kutanan

SESSION C - CHEMISTRY



CHEMISTRY
Analytical Chemistry / Inorganic Chemistry / Organic & Medicinal Chemistry / Physical & Theoretical Chemistry

Chair: Prof. Dr. Tirayut Vilaivan
Co-Chair: Prof. Dr. Vatcharin Rukachaisirikul
Co-Chair: Prof. Dr. Thawatchai Tuntulani
Co-Chair: Dr. Nadnudda Rodthongkum
Co-Chair: Dr. Andrew William King

The Chemistry session endeavors to facilitate the convergence of professors, students, and scientists, providing a platform for the exchange of insights and research findings across four distinct sub-sessions: Analytical Chemistry, Inorganic Chemistry, Organic & Medicinal Chemistry, and Physical & Theoretical Chemistry. Each sub-session encompasses a diverse array of topics as outlined below. This comprehensive session aims to foster collaboration, inspire innovation, and drive advancements in the diverse fields of chemistry. Analytical Chemistry: sample preparation, chromatographic methods, environmental chemistry, spectroscopic analysis, electroanalytical chemistry, chemical sensor, biosensors, and modern analytical techniques Inorganic Chemistry: coordination chemistry, structural chemistry, crystal engineering, coordination polymer, metal organic framework, chemistry of main groups elements, lanthanide chemistry, bioinorganic chemistry, catalytic chemistry, supramolecular chemistry Organic & Medicinal Chemistry: natural product chemistry, medicinal chemistry, chemical biology, synthetic organic chemistry, drug design Physical & Theoretical Chemistry: novel spectroscopic methods, computational chemistry, quantum chemistry and molecular interaction, molecular dynamics.

Invited Speakers



Prof. Dr. Kwanwoo Shin



Prof. Dr. Rungnapha Saeeng



Prof. Dr. Xin Wang



Assoc. Prof. Dr. He Zhang



Assoc. Prof. Dr. Tanatorn Khotavivattana



Assoc. Prof. Dr. Thanthapatra Bunchuay



Nopmaneerat Leelawiwat

SESSION D - MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI



MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI

Chair: Assoc. Prof. Dr. Chartchai Leenawong
Co-Chair: Assoc. Prof. Dr. Athipat Thamrongthanyalak
Co-Chair: Assoc. Prof. Dr. Suphakant Phimoltares
Co-Chair: Asst. Prof. Dr. Jiraphan Suntornchost
Co-Chair: Asst. Prof. Dr. Nawinda Chutsagulprom
Co-Chair: Asst. Prof. Dr. Areena Hazanee
Co-Chair: Dr. Witchaya Rattanametawee

This session offers a dynamic forum for researchers in Mathematics, Statistics, Computer Science, Data Science, and Artificial Intelligence to exchange ideas, present breakthroughs, and explore emerging methodologies. With a focus on both theoretical innovation and applied problem-solving, the session highlights advances in areas such as algorithm design, mathematical and statistical modeling, computational theory, and intelligent systems. It encourages interdisciplinary collaboration while showcasing how foundational principles in math, stat, and computing continue to drive innovation across domains. Join us to engage in rich dialogue and contribute to the evolution of these rapidly advancing fields.

Invited Speakers



Assoc. Prof. Dr. Orawich Kumphon



Assoc. Prof. Dr. Varayu Boonpogkrong



Asst. Prof. Dr. Dittaya Wanvarie



Asst. Prof. Dr. Udomsak Rakwongwan

SESSION E - ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY



ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY

Chair: Prof. Dr. Pitsanupong Kanjanapayont
Co-Chair: Assoc. Prof. Dr. Prasert Reubroycharoen
Co-Chair: Assoc. Prof. Dr. Chanatip Samart
Co-Chair: Assoc. Prof. Dr. Pakorn Opaprakasit
Co-Chair: Assoc. Prof. Dr. Pasicha Chaikaew
Co-Chair: Dr. Mati Horprathum

The purpose of this session is to bring together leading academic scientists, researchers and research scholars from all around the world to present research findings and innovation in ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY, and related fields. The session particularly focuses on energy technologies, both renewable and non-renewable energy (e.g., coal, natural gas, biomass, solar, geothermal, and wind energies), energy materials for energy generation and storage (e.g., dielectric, piezoelectric, and triboelectric materials), as well as other aspects such as energy conservation, energy efficiency, economic, policy, and environmental assessment. Beside the sustainable energy, the pioneer research in environmental fields related with waste treatment, upcycling, and pollution control especially carbon dioxide capture and utilization are encouraged for submission. The session is expected to be an interdisciplinary forum for scientists, engineers, and practitioners to exchange and share their experiences, ideas, developments, and applications of the technologies which make advancement towards the sustainable development goals (SDGs).

Invited Speakers



Prof. Dr. Feng Wang



Prof. Dr. Limin Guo



Prof. Dr. Ning Yan



Asst. Prof. Dr. Prayath Nantasin

SESSION F - FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE



FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE

Chair: Assoc. Prof. Dr. Inthawoot Suppavorasatit
Co-Chair: Assoc. Prof. Dr. Siwaret Arikit
Co-Chair: Asst. Prof. Dr. Nattida Chotechuang
Co-Chair: Asst. Prof. Dr. Chutchamas Kanchana-udomkan
Co-Chair: Dr. Sorawit Powtongsook

The Food Science and Technology / Agricultural Science session at STT51 provides a vibrant platform for scholars, researchers, professionals, and students to share pioneering research and technological advancements addressing global food and agricultural challenges. With a focus on sustainable development, innovation, and cross-disciplinary integration, this session welcomes a wide range of contributions that drive the future of food systems and agriculture. Topics of interest include, but are not limited to: Functional foods and nutraceuticals, Innovative food processing and preservation technologies, Food safety, quality assurance, and traceability systems, Plant-based proteins and novel food ingredients, Sustainable and precision agriculture, Post-harvest technology and agri-food value chains, Packaging innovations and shelf-life improvement, Biotechnological and microbial applications in food and farming This year, we are proud to present the session in the spirit of international collaboration, as STT51 coincides with the 50th anniversary of diplomatic relations between China and Thailand. To honor this significant milestone, the session particularly welcomes research reflecting bilateral cooperation, regional innovation, and shared progress in food and agricultural science. We warmly invite all conference participants to attend this session, engage with distinguished speakers, and contribute to meaningful discussions that bridge research, practice, and policy. Whether you are a seasoned expert or a young researcher, this session offers valuable opportunities for knowledge exchange, networking, and collaboration across disciplines and borders.

Invited Speakers



Prof. Dr. Nathdanai Harnkarnsujarit



Prof. Dr. Poonpipope Kasemsap



Prof. Dr. Rui Xia



Dr. Hisayuki Uneyama

SP1 - CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE

50 ปีความสัมพันธ์ทางการทูตไทย - จีน
中泰建交50周年

CONFERENCE ON THAILAND - CHINA SCIENCE AND TECHNOLOGY COLLABORATIONS UNDER HER ROYAL HIGHNESS'S INITIATIVE

[ARTICLE SUBMISSION IS NOT AVAILABLE FOR THIS SYMPOSIUM]

Chair: Prof. Dr. Pairash Thajchayapong
Co-Chair: Dr. Thaweesak Koanantakool

This academic conference "Thailand-China Science and Technology Collaborations under Her Royal Highness Princess Maha Chakri Sirindhorn's Initiative" is organized to commemorate two significant milestones: Her Royal Highness Princess Maha Chakri Sirindhorn's 70th Birthday Anniversary (2 April 2025) and the 50th Year Anniversary of Thailand-China Diplomatic Relations in 2025. The event will take place from November 11-13, 2025, at Chulalongkorn University, Bangkok, Thailand, as part of the 51st International Congress on Science, Technology, and Technology-based Innovation (STT51).

The conference is jointly organized by the Information Technology Foundation under the Initiative of Her Royal Highness Princess Maha Chakri Sirindhorn, the Science Society of Thailand under the Patronage of His Majesty the King, the Faculty of Science at Chulalongkorn University, and other partner agencies. It features a symposium (November 11-12) and an exhibition (November 11-13), showcasing Thailand-China collaborations in science and technology under the initiative of Her Royal Highness Princess Maha Chakri Sirindhorn.

The program includes keynote speeches, plenary sessions, and parallel sessions covering wide ranges of collaboration topics including: nuclear fusion, climate science, particle physics, space and astronomy, polar research, geoinformatics, nanotechnology, AI and large language models, and human resources development in science and technology. Distinguished speakers from Thailand and China, including academics, researchers, and policymakers, will present their insights and advancements in these fields. The talks will showcase bilateral achievements and outline future pathways for scientific cooperation.

Highlights include:

- Opening remarks and keynote speeches by Her Royal Highness Princess Maha Chakri Sirindhorn, Dr. Zhang Xuejun, President of Changchun Institute of Optics, Chinese Academy of Science, and Thai Outstanding Scientists.
- Parallel sessions on topics such as JUNO/Particle Physics, Space and Astronomy, AI/Generative AI, and Polar Research.
- Panels on clean energy solutions and medical use of proton therapy.
- An exhibition showcasing collaborative projects and innovations.

This conference serves as a platform to strengthen Thailand-China scientific partnerships, foster innovation, and celebrate the shared achievements in science and technology under the initiative of Her Royal Highness Princess Maha Chakri Sirindhorn.

Synopsis of all Parallel Sessions:

[1] JUNO/Particle Physics:
This session highlights the collaborative efforts between Thailand and China in advancing particle physics research, focusing on the JUNO experiment (a research and development laboratory focusing on high-energy physics and particle astrophysics, particularly, the study pf neutrinos), BESIII research, and the development of related technologies. It underscores the shared commitment to scientific innovation and international collaboration in high-energy physics

[2] Space and Astronomy:
This session highlights the collaborative advancements between Thailand and China in space sciences and astronomy, focusing on areas such as Very Long Baseline Interferometry (VLBI), high-energy astrophysics, lunar exploration technologies, and the integration of big data and AI in astronomical research. It emphasizes the shared vision of fostering innovation and strengthening international partnerships in space exploration and scientific discovery.

[3] Geoinformatics research and Nanotechnology:
This session showcases the application of geoinformatics and nanotechnology in addressing regional challenges and advancing scientific innovation. It highlights applications in agricultural monitoring, the development of medical technologies, and pharmaceutical development, emphasizing the collaborative efforts between Thailand and China in leveraging cutting-edge technologies for societal and economic impact.

[4] S&T Human Resources Development and Scholarships:
This session focuses on fostering collaboration between Thailand and China in developing human resources in science and technology. It highlights scholarship programs under the Princess Sirindhorn IT Foundation, examples of educational initiatives, and capacity-building efforts aimed at strengthening bilateral ties and advancing scientific expertise.

[5] Nuclear Fusion and Climate Sciences Session:
This session highlights Thailand–China collaboration in the pursuit of sustainable energy and environmental resilience. It features progress on Thailand's Tokamak-1 fusion project and China's BEST reactor, alongside joint efforts in climate modeling and urban air quality studies. The session concludes with a high-level panel on the potential of Small Modular Reactors (SMRs) as a transitioning pathway to global clean energy, emphasizing cross-border knowledge transfer and strategic cooperation. It underscores the pivotal role of science and technology partnerships in addressing shared energy and environmental challenges.

[6] Accelerator Technology Session & Clinical Applications of Proton Therapy in Thailand:
This session presents key advancements in accelerator technology, focusing on systems successfully developed in-house and deployed for significant societal benefit. We will explore the journey from conceptual design to validated, real-world impact across medicine, agriculture, and fundamental research.
The session will feature the proton accelerator developed at the Shanghai Synchrotron Radiation Facility (SSRF), which has been fully implemented for practical cancer therapy in China, highlighting a complete technology pipeline from domestic research to vital public health service. Following this, the focus will shift to a linear accelerator (linac) engineered for agricultural sterilization. This segment will detail its entire in-house creation and commissioning, presenting validated results on its success in enhancing food safety. The session will also cover the advanced analytical capabilities at the National Astronomical Research Institute of Thailand (NARIT) and the Synchrotron Light Research Institute (SLRI), where Scanning Electron Microscopy (SEM) and Accelerator Mass Spectrometry (AMS) serve as critical infrastructure driving fundamental scientific discovery.
To bring these themes together, the session concludes with a panel discussion on the medical use of proton therapy in Thailand. This discussion will connect the global advancements in accelerator engineering directly to local clinical applications, underscoring the role of shared expertise and innovation in building high-impact scientific infrastructure.

[7] Artificial Intelligence (AI)/Large Language Model and Generative AI:
This session brings together AI experts from Thailand and China to explore strategic directions for regional collaboration in artificial intelligence, with a focus on Large Language Models (LLMs) and Generative AI. It will examine global trends in AI development and governance, showcase China's advancements in LLMs, highlight Thailand's ThaiLLM initiative for locally adapted models, and discuss real-world applications of generative AI across industries. The session aims to foster knowledge exchange, address ethical and regulatory challenges, and strengthen bilateral cooperation for responsible and impactful AI innovation.

[8] Polar Research:
This session focuses on strengthening Thailand–China cooperation in polar science to address global environmental challenges. It features discussions on China's strategic vision and leadership in Arctic and Antarctic research, including sustainable exploration and international collaboration. Thai experts contribute perspectives on the country's growing role in polar studies, emphasizing past cooperation and future opportunities. The session highlights the importance of joint research in understanding climate change, fostering scientific exchange, and promoting sustainability in the Earth's polar regions.

Plenary Speakers/Invited Speakers/Chairpersons



Prof. Dr. A-Li Luo



Prof. Dr. Changgen Yang



Prof. Dr. Chengqing Zong



Prof. Dr. David Ruffolo



Prof. Dr. Hai-Bo Li



Prof. Dr. Jiang Peng



Prof. Dr. Jitti Mungkalasiri



Prof. Dr. Lin Zhaohui



Prof. Dr. Peng Xuebing



Prof. Dr. Siwatt Pongpiachan



Prof. Dr. Suchana Chavanich



Prof. Dr. Voranop Viyakarn



Prof. Dr. Xueyuan Tang



Prof. Dr. Yang Feng



Prof. Dr. Zhaohui Lin



Prof. Dr. Zhiqiang Shen



Assoc. Prof. Dr. Ayut Limphirat



Assoc. Prof. Boonrucksar Soonthornthum



Assoc. Prof. Chonlakiet Khorprasert



Assoc. Prof. Dr. Prayoon Songsiriritthigul



Assoc. Prof. Dr. Somsak Dangtip



Assoc. Prof. Dr. Saroj Rujirawat



Assoc. Prof. Dr. Thawatchai Onjun



Assoc. Prof. Dr. Thee Chowwanonthapunya



Asst. Prof. Dr. Chayanit Asawatangtrakuldee



Asst. Prof. Chomporn Sitathanee



Asst Prof. Dr. Khanchai Khosonthongkee



Asst Prof. Dr. Narumon Suwonjandee



Asst. Prof. Dr. Wiphu Rujopakarn



Dr. Chadamas Thuvasethakul



Dr. Chai Wutiwiwatchai



Dr. Dingcheng Huang



Dr. Ditchaphong Phoomikiattisak



Dr. Deanpen Japrung



Dr. Ekkasit Tharavichitkul



Dr. Kampanart Silva



Dr. Lu Kun



Dr. Pan Hailian



Dr. Saran Poshyachinda



Dr. Somjai Chunjarean



Dr. Song Yuntao



Dr. Thadpong Pongthawornkamol



Dr. Thepchai Supniti



Dr. Uracha Ruktanonchai



Dr. Wang Peng



Dr. Wencheng Fang



Alinee Thanawatsuggasari



Apichat Leckngam



Mao Yawei



Panu Nueangjumnong



Siriwat Chedsi

SP2 - FLAVOR AND FRAGRANCE WITHOUT BORDERS: FROM ORIGIN TO GLOBAL MARKET



FLAVOR AND FRAGRANCE WITHOUT BORDERS: FROM ORIGIN TO GLOBAL MARKET

Chair: Assoc. Prof. Dr. Sittiwat Lertsiri
Co-chair: Assoc. Prof. Dr. Mutita Meenune
Co-chair: Assoc. Prof. Dr. Inthawoot Suppavorasatit
Co-chair: Asst. Prof. Dr. Yaowapa Lorjaroenphon
Co-chair: Dr. Jetsada Wichaphon
Co-chair: Sutheera Arjcharoen
Co-chair: Kamonlak Masomrong

Discover the science, culture, and innovation behind the scents and tastes that unite two nations. Join us at Senses Without Borders: Flavor and Fragrance Across China and Thailand, a unique symposium celebrating the 50th anniversary of diplomatic relations between China and Thailand. This event brings together researchers, industrials, and cultural experts to explore the shared traditions and future innovations in flavor and fragrance. From aromatic herbs and spices to cutting-edge science, the symposium offers a cross-cultural platform to discuss trends, technologies, and collaborations shaping the scents landscape of Asia. Experience the power of flavor and fragrance—where science meets culture, and borders dissolve.

Invited Speakers



Assoc. Prof. Dr. Sittiwat Lertsiri



Dr. Bangon Kietthanakorn



Dr. Udomlak Sukatta



Thitipat Suppattranont

SP3 - NEXGEN ENERGY: STORAGE AND CONVERSION FOR SUSTAINABILITY



NEXGEN ENERGY: STORAGE AND CONVERSION FOR SUSTAINABILITY

Chair: Asst. Prof. Dr. Jitti Kasemchainan
Co-Chair: Dr. Pinit Kidkhunthod
Co-Chair: Dr. Priew Eiamlamai

The "NexGen Energy: Storage and Conversion for Sustainability" session presents recent advancements in energy science and technology. Primary research domains encompass electrochemical storage systems (novel electrode and electrolyte architectures as well as interfacial phenomena), and energy conversion processes (catalysis for CO_2 reduction, photocatalytic/photoelectrochemical hydrogen evolution, and electrochemical transformation pathways). Particular emphasis is placed on integrated storage-conversion systems exhibiting synergistic functionalities. Photovoltaic research encompasses innovative materials and device physics advancing solar energy utilization. This session provides a forum for fundamental and applied research advancing Thailand's sustainable energy infrastructure.

Invited Speakers



Prof. Dr. Chiaki Terashima



Prof. Dr. Fuda Yu



Prof. Dr. Limin Guo



Prof. Dr. Liping Wang



Prof. Dr. Liqiang Xie



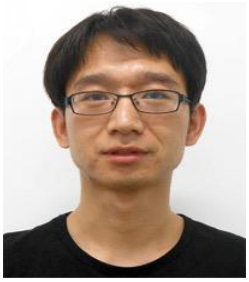
Prof. Dr. Ruiqin Zhang



Prof. Dr. Suk Won Cha



Prof. Dr. Yanfen Wan



Assoc. Prof. Dr. Hongyi Gao



Assoc. Prof. Dr. Rapee Utke



Asst. Prof. Dr. Pawin Iamprasertkun



Dr. Atiweena Krittayavathananon



Dr. Pimpa Limthongkul

SP4 - BIOREFINERY



BIOREFINERY

Chair: Prof. Dr. Chawalit Ngamcharussrivichai
Co-Chair: Assoc. Prof. Dr. Duangamol N. Tungasmita

This session aims to bring together leading researchers, industry innovators, and policymakers to discuss the latest advancements and future directions in biorefinery technology. Biorefineries are at the forefront of the global transition towards a circular bioeconomy, transforming biomass into a wide range of high-value products such as biofuels, biochemicals, biomaterials, and bioproducts. The session will cover a comprehensive range of topics, including: • Novel feedstock utilization strategies (e.g., agricultural residues, aquatic biomass, waste streams) • Process intensification and integration for improved efficiency and economic viability • Emerging catalytic and biocatalytic pathways for biomass conversion • Life cycle assessment and sustainability metrics for biorefinery systems • Policy frameworks and industrial case studies promoting bio-based transitions By facilitating multidisciplinary dialogue, this session seeks to highlight innovative solutions and collaborative approaches that can overcome current bottlenecks in biorefinery deployment, enhance resource efficiency, and contribute to climate-neutral goals.

Invited Speakers



Assoc. Prof. Dr. Duangamol Tungasmita



Dr. Lalita Attanatho



Dr. Nuttapat Thiensuwan



Warodom Hunsiri

SP5 - GENOME EDITING AND SYNTHETIC BIOLOGY



GENOME EDITING AND SYNTHETIC BIOLOGY

[ARTICLE SUBMISSION IS NOT AVAILABLE FOR THIS SYMPOSIUM]

Chair: Prof. Dr. Supaart Sirikantaramas
Co-Chair: Prof. Dr. Teerapong Buaboocha
Co-Chair: Asst. Prof. Dr. Natapol Pornputtapong
Co-Chair: Dr. Chayasith Uttamapinant

Genetic modification has been significantly facilitated by the discovery of the CRISPR/Cas system, which provides an efficient molecular tool for editing the genomes of living organisms for desirable traits. The rapid development of omics technologies and computational data analysis tools is accelerating the application of genome editing, leading to more effective genetic studies of important microorganisms, plants, and animals, as well as a wider range of genome-based biotechnological applications. In recent years, the integration of these frontier technologies and advanced biological knowledge has established a platform that significantly enhances scientists' ability to engineer novel organisms with desirable properties, which is greatly instrumental to the field of synthetic biology. With advancements in genome editing and synthetic biology, biological systems can be redesigned or created to perform specific tasks. These include producing new drugs, vaccines, biofuels, and bio-based chemicals, as well as providing enhanced nutritional value or possessing increased tolerance to stressed conditions in crops. In this session, the seminar will cover frontier research in the field of genome editing and synthetic biology in various organisms by leading scientists. These studies are not only expanding our fundamental understanding of biology but also paving the way for a new era of biotechnology – one where solutions to some of humanity's greatest challenges lie within our grasp.

Invited Speakers



Prof. Dr. Hikaru Seki



Prof. Dr. Supachitra Chadchawan



Prof. Dr. Tom Ellis



Asst. Prof. Dr. Alisa Tubsuwan



Dr. Bunpote Siridechadilok

SP6 - NAVIGATING THE QUANTUM FRONTIER



NAVIGATING THE QUANTUM FRONTIER

[ARTICLE SUBMISSION IS NOT AVAILABLE FOR THIS SYMPOSIUM]

Chair: Asst. Prof. Dr. Thiparat Chotibut
Co-Chair: Asst. Prof. Dr. Salinporn Kittiwatanakul
Co-Chair: Dr. Supanut Thanasilp

Navigating the Quantum Frontier is a focused symposium that convenes Thailand's leading quantum scientists and engineers to showcase and discuss the latest advances in quantum science and technology. In line with the Quantum Thailand Research Initiative, the program spans: • Quantum sensors and metrology • Quantum materials and device physics • Quantum communication and networks • Quantum simulation platforms • Foundational aspects of quantum science • Quantum machine learning and algorithms The agenda balances fundamental and applied perspectives, beginning with keynote presentations from experts, followed by invited talks from early-career scientists, and concluding with structured discussion sessions designed to catalyze new collaborations. Emphasis is placed on both current breakthroughs and future research directions.

Invited Speakers



Assoc. Prof. Dr. Worawat Meevasana



Asst. Prof. Dr. Pruet Kalasuwan



Asst. Prof. Dr. Sorawis Sangtawesin



Dr. Nithiwadee Thaicharoen



Dr. Phatthamon Kongkhambut



Dr. Poompong Chaiwongkhot

SP7 - COLOUR SCIENCE/TECHNOLOGY, LIGHT AND APPLICATIONS



COLOUR SCIENCE/TECHNOLOGY, LIGHT AND APPLICATIONS

Chair: Prof. Dr. Shigeki Nakauchi
Co-Chair: Assoc. Prof. Dr. Pichayada Katemake

Exploring the Critical Role of Colour Science and Technology We invite researchers, scholars, and professionals from all fields of Colour Science and Technology, Light, and their Applications to submit abstracts or full papers for presentation at the upcoming STT51 Conference. This conference aims to bring together a diverse community of experts to explore and exchange knowledge on the critical role of colour in science, technology, and society. Topics of interest include, but are not limited to: • Fundamentals of colour science • Colour measurement and standards • Lighting and illumination technologies • Colour in imaging, display, and digital media • Human perception, vision, and cognition • Applications in design, architecture, conservation, art, and industry STT51 provides a dynamic forum for interdisciplinary dialogue, fostering innovation and collaboration across academia, research, and industry. We look forward to your contributions that will shape the future of colour science and technology.

Invited Speakers



Assoc. Prof. Dr. Vineetha Kalavally



Dr. Steve Paolini

SP8 - CULTURAL HERITAGE: TRADITIONAL/DIGITAL COLOR



CULTURAL HERITAGE: TRADITIONAL/DIGITAL COLOR

Chair: Prof. Dr. Shigeki Nakauchi
Co-Chair: Assoc. Prof. Dr. Pichayada Katemake

Colour in Cultural Heritage: Bridging Tradition and Digital Innovation We invite researchers, professionals, and practitioners from all fields of Cultural Heritage to submit abstracts or full papers for the STT51 Conference, with a special focus on the theme: "The Critical Role of Color in Cultural Heritage: Traditional and Digital Perspectives." The conference seeks to bring together experts and scholars to explore how color—both in its traditional material forms and digital representations—shapes the preservation, interpretation, and experience of cultural heritage. We welcome contributions in areas including (but not limited to): • Traditional color materials and techniques in art and architecture • Color in conservation science and restoration practices • Colorimetry, spectral imaging, and analysis of artworks • Color perception in cultural contexts • Case studies combining traditional knowledge and digital technology STT51 offers an interdisciplinary platform for advancing discussions at the intersection of science, technology, history, and culture, supporting innovation in both research and practice.

Invited Speakers



Prof. Dr. Shigeki Nakauchi

SP9 - EXPLORING THE COSMOS: ADVANCES IN OBSERVATIONAL AND THEORETICAL ASTROPHYSICS

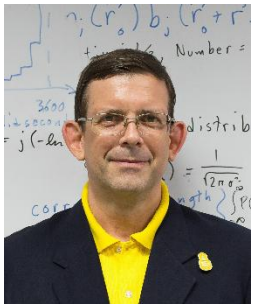


EXPLORING THE COSMOS: ADVANCES IN OBSERVATIONAL AND THEORETICAL ASTROPHYSICS

Chair: Dr. Taweewat Somboonpanyakul
Co-Chair: Dr. Nicha Leethochawalit
Co-Chair: Dr. Krittapas Chanchaiworawit
Co-Chair: Dr. Thanawuth Thanathibodee

Astrophysics plays a central role in unraveling the fundamental questions of the cosmos. Continued progress in this field depends on the synergy between cutting-edge observations and advanced theoretical modeling. With the advent of next-generation telescopes and sophisticated simulations, researchers are making unprecedented strides in areas such as star and planet formation, galaxy evolution, black holes, dark matter, cosmology, and high-energy astrophysical phenomena. We invite researchers, scholars, and students in astrophysics and related fields to submit abstracts for the upcoming STT51 conference. This session will highlight recent advances in our understanding of the universe—from nearby stars to distant galaxies—through both observations and theoretical approaches. This session aims to foster the exchange of ideas, data, and insights across diverse areas of astrophysics, and to inspire innovative research that address mysteries of the universe.

Invited Speakers



Prof. Dr. David Ruffolo



Assoc. Prof. Dr. Waraporn Nuntiyakul



Asst. Prof. Dr. Teeraparb Chantavat



Asst. Prof. Dr. Yuhiko Aoyama



Dr. Samaporn Tinyanont

SP10 - X-RAY CRYSTALLOGRAPHY



X-RAY CRYSTALLOGRAPHY

Chair: Prof. Dr. Nongnuj Muangsin
Co-Chair: Assoc. Prof. Dr. Kuakarun Krusong
Co-Chair: Assoc. Prof. Dr. Kittipong Chainok

The experimental science known as X-ray crystallography is by far the most effective way to ascertain how atoms are arranged in a crystalline solid in three dimensions. This technique has been employed in the field of structural chemistry and the study of biological macromolecules for more than a century. In biological crystallography, three-dimensional molecular structures including proteins and nucleic acids are ascertained atomic level. This facilitates our comprehension of the fundamental mechanisms of biomolecules, while also assisting in the exploration of new medicine development. A combination of X-ray crystallography and other techniques such as NMR spectroscopy and electron microscopy unveils the secret of life, shedding light on complex biological molecules. These techniques work together to provide a comprehensive understanding of molecular interactions and dynamics. Apart from macromolecular crystallography, the determination of crystal structures of organic, organometallic and coordination compounds, known as small molecule or chemical crystallography, is crucial and extremely valuable for comprehending the relationship between structure and properties, as well as the supramolecular interactions (such as hydrogen bonds, halogen bonds, and π–π stacking) of crystalline solids. Significantly, it also facilitates crystal engineering to enhance structural design and achieve desired functionality. This session will share current research in X-ray crystallography, feature a discussion panel on its applications, and include a comprehensive workshop focused on both small-molecule and protein X-ray crystallography.

Invited Speakers



Prof. Dr. Chun-Hung Lin



Prof. Dr. Santi Pailoplee



Asst. Prof. Dr. Numpon Insin



Dr. Prathapa Siriyara Jagannatha



Dr. Tatchamapan Yoskamtorn

SP11 - RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY



RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY

Chair: Dr. Yutthana Tumnoi
Co-Chair: Dr. Wipada Ngansom

Radioecology is a multidisciplinary scientific concerning the presence/concentration of both natural (e.g., 238U, 232Th, 226Ra, 222Rn, 40K, 7Be, 14C, and others) and artificial (e.g., 90Sr, 134Cs, 137Cs, and others) radionuclides in the environment, the complexity of their transfer processes within and between ecosystems, and the effects of ionizing radiation on human and non-human biota. Investigations in radioecology consist of field samplings and experiments, controlled-lab experiments, and laboratory procedures including radiochemistry and radioactivity measurement. Radioecological studies normally focus on three main environments in the biosphere: marine environment, freshwater environment, and land environment. They could provide necessary data for radiation dose estimation and radiological risk assessment on human and the environmental health using predictive models. Interest and studies in the area of radioecology, environmental radioactivity, and utilization of radiotracers to reveal biogeochemical and ecological processes have significantly increased to ascertain and manage radiological risks associated with both routine and accidental releases from the historical nuclear testing, the nuclear accidents/facilities, and non-nuclear facilities. This session welcomes presentations on both basic and advanced research programmes on radioecology, environmental radioactivity, and related disciplines in order to promote and advance the science of environmental radioactivity research, and to enhance the radiological protection of humans and the environment.

SP12 - THE 2nd INTERNATIONAL SYMPOSIUM OF SCIENCE COMMUNICATION AND PUBLIC SCIENCE LITERACY



THE 2nd INTERNATIONAL SYMPOSIUM OF SCIENCE COMMUNICATION AND PUBLIC SCIENCE LITERACY

Chair: Dr. Ganigar Chen

In a society increasingly shaped by the rapid development of science and technology—such as artificial intelligence (AI)—and global crises like climate change, food insecurity, and pandemics, the role of science communication has become more vital than ever. Effective science communication enhances public scientific literacy, helping people combat misinformation and myths that can easily spread in the digital era and have serious consequences for individuals, businesses, and society as a whole. Moreover, it fosters a culture of curiosity, critical thinking, and scientific engagement, empowering people to make informed decisions on issues that affect their lives and influence government policy. This symposium aims to bring together international participants from both academic research and professional practice to exchange insights and experiences in science communication, with a focus on advancing global efforts to promote scientific literacy.

Invited Speakers



Dr. Fung Hon-Ngen



Dr. Julia Rizzo



Dr. Saran Poshyachinda



Mark Ivan Roblas

SP13 - NATURE-BASED SOLUTIONS FOR CLIMATE MITIGATION



NATURE-BASED SOLUTIONS FOR CLIMATE MITIGATION

Chair: Prof. Dr. Anchana Prathep
Co-Chair: Asst. Prof. Dr. Tassanee Jiaphasuanan
Co-Chair: Dr. Milica Stankovic
Co-Chair: Kanyanat Kaewutai

Nature-based Solutions (NbS) enhance natural ecosystems to address climate change and biodiversity loss through restoration, protection, and sustainable management. Recognized globally, NbS are integrated into the Nationally Determined Contributions (NDCs) of over 105 countries under the Paris Agreement. In Thailand, a key NDC strategy involves generating carbon credits from the forestry and land-use sectors. However, progress toward Net Zero targets is hindered by a shortage of certified professionals and limited understanding of NbS. To overcome this, a national initiative supported by PMU-B has been launched to build technical capacity and establish demonstration sites for Green, Blue, and Teal Carbon. The project supports the development of an NbS-based research and implementation ecosystem, contributing to Thailand's climate goals through applied science and skilled workforce development. This symposium aims to share NbS research and build networks to strengthen collaborations, leading Thailand toward effective climate mitigation and enhanced human wellbeing under the NbS framework.

Invited Speakers



Prof. Dr. Jeark Principe



Assoc. Prof. Dr. Atthaphon Ariyarit



Assoc. Prof. Dr. Prateep Duengkae



Assoc. Prof. Dr. Wongkot Wongsapai



Dr. Andreas A. Hutahaean



Dr. Nuntikorn Kitratporn



Dr. Pannawee Mekwichai



Dr. Sililak Chumkiew



Pakkasem Tongchai



Vanyarat Kongsap



Brain Power Funded Research Projects

SP14 - VALORIZATION OF BIOMASS-RELATED WASTES



VALORIZATION OF BIOMASS-RELATED WASTES

Chair: Asst. Prof. Dr. Kanokwan Ngaosuwan
Co-Chair: Prof. Dr. Tetsuya Kida
Co-Chair: Asst. Prof. Dr. Weerinda Mens

We are pleased to invite submissions of abstracts and full papers for the upcoming STT51 conference, featuring a focused session on Valorization of Biomass-Related Wastes. This session aims to bring together researchers working at the forefront of chemical engineering, chemistry, biochemical engineering, and applied sciences fields that are driving innovation in the conversion of biomass wastes into high-value products. This session will provide a platform for researchers and experts to share cutting-edge developments in areas such as thermochemical conversion (e.g., pyrolysis, gasification), catalytic upgrading, biochemical pathways (e.g., fermentation, enzymatic hydrolysis), process intensification, reactor design, and techno-economic and environmental assessment for valorization of biomass-related wastes. We particularly welcome interdisciplinary studies that bridge laboratory scale innovation with industrial scalability and policy relevance. Moreover, we encourage contributions that explore the molecular-level mechanisms underlying biomass conversion, the design of novel catalysts or solvents, and the integration of green chemistry principles into waste valorization strategies. Short communications on emerging technologies or case studies of industrial implementation are also welcome. Beyond presenting data, this session is a space for dialogue linking diverse disciplines, scales of research, and both theoretical and applied perspectives. By bringing together diverse expertise from chemical and biochemical sciences, we hope to catalyze new synergies and accelerate progress toward the sustainable development goals (SDGs). Join us as we explore how fundamental and applied chemical sciences can reshape our understanding and utilization of biomass-related wastes.

Invited Speakers



Prof. Dr. Armando T. Quitain



Prof. Dr. Insik In



Assoc. Prof. Dr. Nopphon Weeranoppanant



Assoc. Prof. Dr. Rattana Muangrat



Assoc. Prof. Dr. Siti Zullaikah

SP15 - EMPOWERING SCIENCE EDUCATORS FOR GLOBAL CHALLENGES



EMPOWERING SCIENCE EDUCATORS FOR GLOBAL CHALLENGES

Chair: Assoc. Prof. Dr. Punnama Siriphannon
Co-Chair: Asst. Prof. Dr. Ubonwan Hongwityakorn
Co-Chair: Dr. Phuriwat Khamaikawin

In a rapidly changing world, science educators play a vital role in preparing students to engage with complex global challenges such as climate change, biodiversity loss, and sustainable development. This symposium aims to empower and inspire science teachers by highlighting innovative, interdisciplinary teaching strategies and collaborative practices that connect classroom learning to real-world issues. Through shared experiences, practical tools, and forward-thinking pedagogy, the session will strengthen the capacity of educators to foster scientific curiosity, critical thinking, and a deeper understanding of the natural world. It will also provide a platform for dialogue among educators, researchers, and policymakers to support continuous professional growth and impactful science education.

SP16 - YOUNG RISING STARS OF SCIENCE 2025 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2025 (JYRSS)



YOUNG RISING STARS OF SCIENCE 2025 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2025 (JYRSS)

Chair: Assoc. Prof. Dr. Kitipong Assatarakul
Co-Chair: Assoc. Prof. Dr. Athipat Thamrongthanyalak
Co-Chair: Asst. Prof. Dr. Pumidech Puthongkham

The Science Society of Thailand under the Patronage of His Majesty the King (SCISOC) recognizes the urgent need to nurture and train the next generation of scientists and technologists. The development of highly skilled professionals in these fields is vital to advancing research and innovation, which are key drivers of Thailand's long-term economic growth and social development. In response to this need, SCISOC has established the Young Rising Stars of Science Award (YRSS) since 2020 to recognize exceptional senior research projects at the university level. The competition covers eight research areas: Biology, Chemistry, Physics, Computer Science, Food Science & Technology, Geology & Environmental Science, Materials Science, and Mathematics & Statistics. Furthermore, SCISOC has launched the Junior Young Rising Stars of Science Award (JYRSS) since 2021. This award honors outstanding high school science research projects conducted under the mentorship of faculty members from science faculties at universities across Thailand. The JYRSS not only recognizes excellence in student research but also aims to inspire and encourage students to pursue undergraduate studies in science. Through these initiatives, SCISOC is committed to fostering scientific excellence and encouraging talented young individuals to pursue careers as scientists and technologists. It is expected that these youth will grow to become leaders in science and technology at both national and international levels.

SP17 - SCIENCE POPULARIZATION FOR SUSTAINABLE COMMUNITY DEVELOPMENT



SCIENCE POPULARIZATION FOR SUSTAINABLE COMMUNITY DEVELOPMENT

Chair: Prof. Dr. Songsak Srianujata
Co-Chair: Dr. Sarawut Siriwong
Co-Chair: Monthida Sitathani

We are pleased to invite researchers and academic professionals working in multidisciplinary teams to submit abstracts for the upcoming STT 51 conference. This session offers a dynamic forum for sharing ideas and case studies in sustainable community development. The session highlights strategic approaches and innovative initiatives of science popularization process leading to achieve environmental, social, and economic pillars of sustainability of local communities. The session gives emphasis on integrative learning, area-based collaborative approach, and networking platform. Join us to engage innovatively in dialogue to make science and technology tangible and actionable for sustainable development.

Invited Speakers



Assoc. Prof. Dr. Kittisak Ajariyakhajorn



Assoc. Prof. Dr. Suneerat Fukuda



Assoc. Prof. Dr. Taweechai Amornsakchai



Asst. Prof. Dr. Jaroon Duangkrayom



Asst. Prof. Dr. Siraya Janasak



Asst. Prof. Dr. Winai Kaewlamun



Dr. Hu Junping



Dr. Lli Xiuju



Dr. Sarawut Siriwong



Korakot Aromdee



Niti Mekmok

ABSTRACTS FOR INVITED SPEAKERS

INVITED SPEAKER: A_INV01

CORE COLLAPSE SUPERNOVAE AND BEYOND STANDARD MODEL FROM MULTI-MESSENGER DETECTIONS

Apimook Watcharangkool*
National Astronomical Research Institute of Thailand
*e-mail: apimook@narit.or.th

Abstract:
The Optical study of supernovae has been our tool to read galactic history text book. It provided us incredible knowledge of how heavy elements that made up us are synthesized, where are we in this vast cosmos, what is waiting at the end of life of a big bright star we have seen in the sky, etc. However, from the multi-messenger standing point a single supernova could provide a lot more information, especially, new physics beyond standard model. State of the art detectors such as JUNO, IceCube, and LIGO, together with alert system, will allow us to test, constraint, or even confirm theoretical models like sterile neutrinos, exotic particles, core collapsing mechanism and black hole formation etc. This talk will focus on phenomenological aspects of sterile neutrinos, and also give an overview of how well we prepare to detect it from the next core-collapse supernova.

Dr. Apimook Watcharangkool was born in Chonburi, Thailand in 1987. He received the bachelor's degree in physics from Chiang Mai University, Thailand in 2010. In 2012, he then obtained his MSc from Imperial College Lonodon, and then PhD in physics from King's College London in 2017. His research interest is in noncommutative geometry and mathematical aspects of gravitational waves and neutrino physics.

INVITED SPEAKER: A_INV02

DEVELOPMENT OF THE PROTON COMPUTED TOMOGRAPHY PROTOTYPE IN THAILAND

Chinorat Kobdaj,* Narongrit Ritjoho
School of Physics, Institute of Science, Suranaree University of Technology, 111 University Ave., Muang Nakhon Ratchasima 30000 Thailand
*e-mail: kobdaj@g.sut.ac.th

Abstract:
Proton Computed Tomography (pCT) offers a direct method for reconstructing relative stopping power (RSP) distributions, reducing range uncertainties and improving dose accuracy in particle therapy. This study extends prior work published in *IEEE Transactions on Nuclear Science* (10.1109/TNS.2024.3486318) and *Nuclear Instruments and Methods in Physics Research A* (10.1016/j.nima.2024.170125), focusing on phantom-based imaging using ALPIDE CMOS pixel sensors and a custom-built trigger-controlling system.
As part of the Bergen pCT collaboration, our team in Thailand has developed a pCT prototype optimized for clinical integration. The system features submicron spatial resolution and fast readout, enabling accurate proton tracking under clinical beam conditions. Phantom experiments performed at Suranaree University of Technology (SUT) and King Chulalongkorn Memorial Hospital (KCMH) validate the imaging performance and synchronization architecture, which includes MEGA2560-based control of beam gating, rotational stage movement, and sensor activation.
Results show robust RSP reconstruction across multiple angles and confirm that the ALPIDE-based tracking and calorimeter system is suitable for integration with the Varian ProBeam Compact Therapy System. The trigger logic supports repeatable, synchronized data acquisition in a clinical environment without interrupting prescribed beam delivery routines.
Next, circular rotating detector arrays will be implemented to enhance angular coverage and streamline 3D image reconstruction. Additionally, layering more ALPIDE sensors in the calorimeter section is planned to increase energy resolution and improve granularity of RSP mapping. These upgrades are expected to transition the system from proof-of-concept to a reliable imaging tool for adaptive treatment planning.
This presentation will highlight experimental imaging results, the integration of hardware and control subsystems, and the pathway toward clinical deployment of pCT in Thailand's national cancer care framework.

Chinorat Kobdaj obtained his PhD in Physics from the University of London (1995) before returning to Thailand to join Suranaree University of Technology (SUT) as a Lecturer. He played a leading role in developing the graduate program for the School of Physics and served as Chair from 2008–2012. Between 2005–2008, he was Deputy Director of the Center for Computer Services, spearheading the development of SUT's High-Performance Computing Cluster. In 2012–2013, he worked as a visiting scientist at CERN, contributing to the Royal Initiative Projects by Her Royal Highness Princess Maha Chakri Sirindhorn. These efforts led to the formation of SUT's experimental particle physics group and participation in the ALICE (CERN) and PANDA (GSI/FAIR) collaborations under the Center of Excellence in High Energy and Astrophysics. His simulation research for the ALICE Inner Tracking System (ITS) and the PANDA Electromagnetic Calorimeter expanded into sensor development through partnerships with the Thai Microelectronics Center (TMEC) and beam testing at Synchrotron Light Research Institute (SLRI). Since 2019, he has been an active member of the Bergen pCT collaboration, focusing on medical imaging applications for particle therapy. Currently, he leads the Boron Neutron Capture Therapy (BNCT) Project at SUT, driving interdisciplinary research that integrates high-energy physics with clinical innovation.

INVITED SPEAKER: A_INV03

RECENT PROGRESS ON THE FAST ION STUDY IN THAILAND TOKAMAK-1

Apiwat Wisitsorasak,[1,2,*] Kunihiro Ogawa,[3,4] Siriyaporn Sangaroon,[5] Boonyarit Chatthong,[6] Akihiro Shimizu,[3,4] Worathat Paenthong,[4] Suebsak Suksaengpanomrung,[7] Arlee Tamman,[7] Nopporn Poolyarat,[7] Mitsutaka Isobe[3,4,5]

[1] Theoretical and Computational Physics Group, Department of Physics, Faculty of Science, King Mongkut's University of Technology Thonburi, Bangkok Thailand

[2] Center of Excellence in Theoretical and Computational Science, Faculty of Science, King Mongkut's University of Technology Thonburi, Bangkok Thailand

[3] National Institute for Fusion Science, National Institutes of Natural Sciences, Toki, Japan

[4] The Graduate University for Advanced Studies, SOKENDAI, Toki, Japan

[5] Department of Physics, Mahasarakham University, Maha Sarakham, Thailand

[6] Division of Physical Science, Faculty of Science, Prince of Songkla University, Thailand

[7] Thailand Institute of Nuclear Technology (Public Organization), Bangkok, Thailand

*e-mail: apiwat.wis@kmutt.ac.th

Abstract:

Thailand Tokamak-1 (TT-1) is a small tokamak designed to confine hydrogen plasma with a maximum plasma current of 100 kA and a magnetic field of 1.0 T. While the device currently relies on Ohmic heating, neutral beam injection shows promise as an auxiliary heating method. These additional heat sources can also generate fast ions that excite various MHD instabilities, for example, toroidicity-induced Alfvén eigenmodes (TAE), energetic-particle continuum modes (EPM), and energetic particle-driven geodesic acoustic modes (EGAM). These instabilities can lead to significant particle loss, reducing fusion yield and damaging the first wall. Thus, it is critical to comprehend the behavior and impact of fast ions for the successful future plasma operation of TT-1.

In this study, simulations of neutral beam injection (NBI) were performed using the Monte Carlo code NUBEAM to assess NBI utilization. The study investigated various injection conditions, including beam energy and direction. Results indicate that a 20 keV beam launched in the co-current direction with a tangential radius of 0.55–0.65 m is suitable for TT-1. Incorporating the toroidal field ripple, the simulations show that most beam ions escape the last closed flux surface (LCFS) in the region between toroidal field coils due to banana drift loss and the ∇B drift effect. Furthermore, Alfvén eigenmodes were computed using the AE3D code, based on three-dimensional equilibria reconstructed by the VMEC code. The analysis reveals that the gap frequencies occur within the range of 130–300 kHz. The minimum beam energy required to excite the TAE modes is 2 keV at the sideband resonance condition.

Assoc. Prof. Dr. Apiwat Wisitsorasak was born in Bangkok, Thailand, in 1986. He received his bachelor's degree in Science from the Department of Physics, Faculty of Science, Mahidol University, Thailand, in 2008. In 2014, he earned his M.S. and Ph.D. in Physics from Rice University in the United States. Since 2014, he has been working in the Department of Physics, Faculty of Science, King Mongkut's University of Technology Thonburi, Thailand. His research interests include plasma physics, nuclear fusion, and complex systems.

INVITED SPEAKER: A_INV04

ADVANCING MEDICAL DIAGNOSTICS WITH SERS: FROM SUBSTRATE ENGINEERING TO CLINICAL APPLICATIONS

Saksorn Limwichean,[1] Uraiwan Waiwijit,[1] Pitak Eiamchai,[1] Mati Horprathum,[1] Panisadee Avirutnan,[2] Sansanee Noisakran,[1] Prida Malasit,[2] Benjawan Kaewseekhao,[3] Kiatichai Faksri,[3] Noppadon Nuntawong[1,*]

[1] National Science and Technology Development Agency (NSTDA) 111 Thailand Science Park (TSP), Phahonyothin Road, Khlong Nueng, Khlong Luang, Pathum Thani 12120

[2] The Division of Dengue Hemorrhagic Fever Research (DHFR) and Siriraj Center of Re-search Excellence in Dengue and Emerging Pathogens, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand

[3] Research and Diagnostic Center for Emerging Infectious Diseases (RCEID), Khon Kaen University, Khon Kaen, Thailand

*e-mail: noppadon.nuntawong@nectec.or.th

Abstract:

Surface-Enhanced Raman Spectroscopy (SERS) has emerged as a highly sensitive analytical tool for molecular detection, holding tremendous promise for applications in medical diagnostics. In this talk, I will present a comprehensive review of recent progress at National Electronics and Computer Technology (NECTEC) in the development and deployment of commercially viable SERS substrates with a specific focus on biomedical applications.

Our SERS platform is based on silver nanostructured films fabricated via a scalable physical vapor-deposition technique, which combines planar-type magnetron sputtering with glancing-angle deposition (GLAD). These nanostructures, precisely engineered for high field enhancement, are prepared on p-type silicon wafers and offer reproducible, high-performance SERS activity across large batches. Detailed characterization was performed with field-emission scanning electron microscopy (FE-SEM), and all substrates were packaged in nitrogen-filled bags to preserve integrity until use.

I will share two significant case studies that exemplify advances in medical diagnostics using this platform. The first involves the label-free detection of latent tuberculosis infection (LTBI) from human plasma samples using SERS combined with machine learning. From a cohort of 1,000 individuals screened with the interferon gamma release assay (IGRA), our model achieved up to 93% diagnostic accuracy following optimization of both the substrate and spectral database. The second case study focuses on the application of our commercial SERS substrate for the early and accurate classification of dengue infections in pediatric patients. Analyzing plasma samples from 60 children with distinct febrile conditions, dengue fever (DF), dengue hemorrhagic fever (DHF), and other febrile illnesses (OFI), machine learning models such as Linear Discriminant Analysis (LDA) and Logistic Regression were able to achieve area-under-curve (AUC) scores as high as 0.99, highlighting the potential of SERS for both diagnostic classification and severity prediction.

Together, these findings reveal how robust SERS sensors in combination with data-driven analysis can transform the diagnostic landscape for infectious diseases. Our work underscores the potential of next-generation SERS technology as a rapid, accurate, and scalable diagnostic tool, particularly suitable for deployment in resource-limited clinical settings.

Dr. Noppadon Nuntawong was born in Nakhon Si Thammarat, Thailand. He received the bachelor's degree in Electrical Engineering from Prince of Songkla University, Thailand in 1997. He received the Ph.D. in Optical Sciences and Engineering from The University of New Mexico, USA in 2007. From 2008 to present, he has been working as a researcher at the National Electronics and Computer Technology Center (NECTEC), National Science and Technology Development Agency (NSTDA), Thailand. His research interests include sensor material fabrication and characterization, multivariate analysis, spectroscopic AI and machine learning, surface-enhanced Raman spectroscopy (SERS), physics of electronic devices and nanomaterials, semiconductor materials and devices.

INVITED SPEAKER: B_INV01

UNRAVELING THE MYSTERY OF THE MECHANISM BY WHICH FEEDING BENEFICIAL MICROORGANISMS REDUCES MORTALITY FROM MICROBIAL INFECTIONS IN SHRIMP

Ikuo Hirono*
Tokyo University of Marine Science and Technology,
*e-mail: hirono@kaiyodai.ac.jp

Abstract:
Invertebrates lack an adaptive immune system, making it difficult to develop disease management and prevention strategies for shrimp. We elucidated the mechanism by which administering beneficial microorganisms enhances disease resistance in shrimp, specifically whether this is due to trained immunity or activation of innate immunity. We fed vannamei shrimp a diet supplemented with certain lactic acid bacteria (LAB) and conducted comprehensive gene expression analysis. Gene expression profiling identified genes whose expression changed with LAB administration, and differences in circular RNA expression were also investigated. Administration of disease-resistant LAB improved survival rates against infection by Vibrio parahaemolyticus, the causative agent of acute hepatopancreatic necrosis disease (AHPND), and white spot syndrome virus (WSSV). Transcriptome analysis revealed that LAB supplementation induced changes in gene expression related to pathogen recognition, antimicrobial peptides, transcriptional regulation, and immune memory. These results suggest that shrimp resistance mechanisms against the two pathogens differ. This study demonstrates that LAB administration influences both innate and adaptive immunity against bacterial and viral pathogens in shrimp. Furthermore, it has been found that LAB not only activates but also regulates the immune system. These results emphasize that despite the absence of adaptive immunity in shrimp, feeding beneficial microorganisms can induce sustained immune enhancement against infection. I also conduct research using photosynthetic bacteria and Bacillus, so I will introduce that as well.

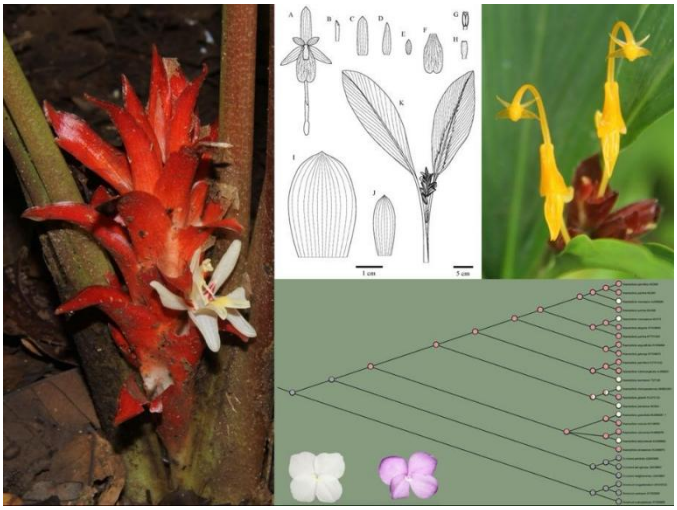
He is a Professor at the Tokyo University of Marine Science and Technology, Japan. He obtained the doctoral degree from Kagoshima University, Japan. His research areas include the shrimp immune system, disease pathogenesis in fish and shrimp, effects of dietary supplements in aquatic animals, and development of vaccines against various aquatic diseases. His research work has been published (over 470 papers) in well-known international journals. His h-index is over 70. Most of his research work involves international research collaborations under governments and in the private sector. He has/had many of international students from Ecuador, Columbia, Egypt, Thailand, Philippines, Vietnam, Indonesia, Singapore, Sri Lanka, India, South Korea, and China. He has/had many of international research collaborations under governments.

INVITED SPEAKER: B_INV02

PROGRESS IN GINGER FAMILY RESEARCH IN THAILAND: DIVERSITY, EVOLUTION, AND ECOSYSTEM SERVICES

Saroj Ruchisansakun*
Department of Plant Science, Faculty of Science, Mahidol University, Thailand
*e-mail: saroj.ruc@mahidol.ac.th

Abstract:
Research on the ginger family (Zingiberaceae) in Thailand has expanded considerably in recent decades, culminating in the completion of the Flora of Thailand treatment in 2023, which recognized 28 genera and 394 species. Since then, new taxa continue to be described annually, underscoring the country's role as a global hotspot of Zingiberaceae diversity. Phylogenetic studies have been conducted in many genera, primarily to address taxonomic and classification questions. However, significant gaps remain, as many species are yet to be included in molecular phylogenies, and only a limited number of studies have advanced to testing morphological character evolution. Beyond systematics, knowledge of the ecological roles of Zingiberaceae in Thailand remains strikingly underdeveloped. Research on their contributions to ecosystem services, particularly plant–animal interactions such as pollination and seed dispersal, and plant–fungal associations, is still scarce. Future efforts integrating phylogenomics, eDNA reference libraries, comparative morphology, and ecological studies are needed to deepen understanding of both the evolutionary history and functional significance of Zingiberaceae in sustaining Thailand's ecosystems.



Associate Professor Dr. Saroj Ruchisansakun was born in Bangkok, Thailand, in 1987. He received his bachelor's and master's degrees from the Department of Plant Science, Faculty of Science, Mahidol University. In 2018, he earned his doctorate in Understanding Evolution (Biology) from Leiden University, the Netherlands. Since 2018, he has been working at the Department of Plant Science, Faculty of Science, Mahidol University, Thailand. His research interests include plant systematics, evolution, and pollination biology of Balsaminaceae and Zingiberaceae, as well as conservation biology and ethnobotany.

INVITED SPEAKER: B_INV03

GENETIC ORIGIN OF THE SEA NOMADS FROM THAILAND

Wibhu Kutanan,[1,*] Wipada Woravatin[2]
[1] Department of Biology, Faculty of Science, Naresuan University, Phitsanulok, Thailand
[2] Department of Biology, Faculty of Science, Khon Kaen University, Khon Kaen, Thailand
*e-mail: wibhuk@nu.ac.th

Abstract:
The sea nomads of Thailand, known as Chao Lay, include the Austronesian-speaking Moken, Moklen, and Urak Lawoi, who traditionally inhabit the coastal regions and islands of the Andaman Sea in southern Thailand. Their maritime lifestyle has attracted significant interest in their genetic origins and relationships with other sea nomad groups in Island Southeast Asia (ISEA); however, comprehensive genetic data on these communities remain scarce. Here, we generated complete mitochondrial genome sequences and genome-wide data from the Moken, Moklen, and Urak Lawoi groups. The sea nomads display lower maternal genetic diversity compared to the majority of southern Thai populations. The results also suggest the absence of recent maternal expansions among them. Notably, haplogroups D4e1a, E1a1a1a, M21b2, M46a, M50a1, and M71c are predominant among the sea nomads, underscoring their genetic distinctiveness. Bayesian coalescent age estimates of clades characteristic of sea nomads for these haplogroups point to a timeframe associated with the Austronesian expansion period. Our findings suggest that the sea nomads of Thailand likely originated from Mainland Southeast Asia (MSEA) and have a different maternal history from Indonesian sea nomads, who show closer ties to ISEA. In contrast, the genome-wide data show that the Thai sea nomads exhibit both MSEA and ISEA ancestries. A genetic separation between the sea nomads of Thailand and ISEA was observed, with the former showing more heterogeneity within their groups than the latter. The Moklen and Urak Lawoi are closely related to each other and show more genetic relatedness to ISEA populations than the Moken, who exhibit more MSEA ancestry. However, we do not exclude potential origins of the Thai sea nomads in ISEA or Taiwan, as it is possible that ancestral sea nomad males incorporated MSEA females into their communities upon arriving in Thailand. Further studies on Y-chromosome data could provide more insight into their genetic history.

Dr. Wibhu Kutanan is an Associate Professor of Genetics in the Department of Biology, Faculty of Science, at Naresuan University, Thailand. He earned his doctorate in Biology from Chiang Mai University in 2010 and completed postdoctoral research with Professor Mark Stoneking at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. His research focuses on anthropological genetics, utilizing various genetic markers, including forensic STRs, mtDNA and Y-chromosome sequences, genome-wide data, and whole genome sequencing. He has generated the largest datasets of mtDNA genome and Y chromosome in Mainland Southeast Asia. In addition to studying contemporary populations, Dr. Kutanan also concentrates on ancient DNA studies to clarify population history in Thailand and Mainland Southeast Asia.

INVITED SPEAKER: B_INV04

GAMING AND SIMULATIONS TO SUPPORT ACTIVE LEARNING, BIODIVERSITY CONSERVATION, AND SUSTAINABLE DEVELOPMENT

Pongchai Dumrongrojwatthana,[1,2,*] Raekkhwan Polthanya,[1] Satayu Panjinda,[1] Suthinee Onuam,[1] Visaruth Rojritthikrai,[1] Nakulkan Singhoah,[1] Montathip Sommeechai[3]
[1] Department of Biology, Faculty of Science, Chulalongkorn University, Bangkok, Thailand
[2] Center of Learning Network for the Region, Chulalongkorn University, Bangkok, Thailand
[3] Department of Silviculture, Faculty of Forestry, Kasetsart University, Bangkok, Thailand
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Abstract:
The importance of active learning, biodiversity conservation, and sustainable development has increased during the past decade. Universities in Thailand have been developing and revising their curricula and courses by reducing traditional lectures and incorporating more active learning methodologies. Moreover, the concepts of sustainable development and biodiversity conservation have been integrated into various courses. Active learning can be achieved through various methods, including "gaming and simulation." This method has gained increasing recognition in Thailand under the PLEARN (Play and Learn) concept. This presentation will demonstrate examples of gaming and simulations developed by the Tropical Ecology and Natural Resource Management Research Laboratory. These tools are designed to support active teaching, training via workshops, and support decision making in natural resource management. The examples cover a wide range of ecosystems, including both natural ecosystems such as forests, wetlands, and limestone mountains, and human-made ecosystems such as agroecosystems and urban ecosystems. They also address diverse natural resources, including soil, forests, fishes, amphibians, mammals, and urban green spaces. These gaming and simulations have been applied in secondary schools and higher education, as well as in field workshops for knowledge sharing and collaborative natural resource management planning with local stakeholders. Implementations and scenario explorations can enhance essential 21st-century skills among learners and promotes multiple Sustainable Development Goals, including goal 4: Quality Education, goal 11: Sustainable Cities and Communities; goal 13: Climate Action; goal 15: Life on Land; and goal 17: Partnerships to Achieve the Goal.

Associate Professor Dr. Pongchai Dumrongrojwatthana was born in Surat Thani, Thailand in 1979. He received the B.Sc. (Biology) and M.Sc. (Zoology) from Department of Biology, Faculty of Science, Chulalongkorn University (CU), Thailand in 2001 and 2005, respectively. In 2010, he received the Doctorate in Agricultural Technology, and Human, Economic and Regional Geography, from Faculty of Science, CU, and Paris Ouest Nanterre La Défense University, France, respectively. From 2010 to present, he worked at Department of Biology, CU, Thailand. His research interests are integrated renewable resource management using gaming and simulation, geographic information systems (GIS), carbon and biodiversity credits.

INVITED SPEAKER: C_INV01

SUPRAMOLECULAR ARCHITECTURES FOR ADVANCED MOLECULAR RECOGNITION AND SUSTAINABLE DEVELOPMENT

Thanthapatra Bunchuay*
Department of Chemistry and Center of Excellence for Innovation in Chemistry (PERCH-CIC), Faculty of Science, Mahidol University, Bangkok, 10400, Thailand
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Abstract:
Since the pioneering work of Cram, Lehn, and Pedersen laid the foundation for supramolecular host–guest chemistry, macrocyclic motifs have become indispensable in molecular assembly and recognition. A particularly transformative development came in 2008, when Ogoshi and collaborators introduced pillararenes—a novel class of highly symmetric and rigid macrocycles with unique structural features that propelled them to prominence in supramolecular chemistry and nanomaterials. Building on these advances, research in the SupraValentine Laboratory at MUSC has expanded the scope of supramolecular systems through innovative synthetic methodologies, host–guest interactions, molecular assemblies, and applications in nanostructured materials. Beyond fundamental design, supramolecular chemistry also offers powerful solutions to pressing global challenges. The use of reversible, selective, and stimuli-responsive host–guest interactions enables efficient pollutant capture, heavy metal removal, organic contaminant degradation, and sustainable separation and recycling strategies. By integrating structural diversity with dynamic molecular recognition, supramolecular materials not only enrich the field of molecular assembly but also pave the way for greener, circular technologies in water purification and waste management.

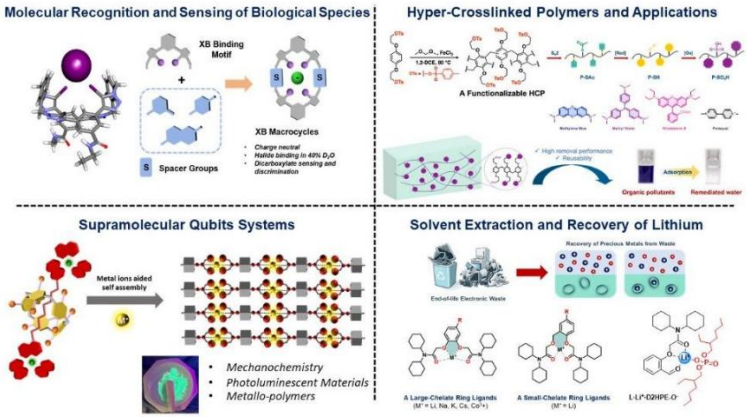


Figure 1. Summary of Research Topics.

Thanthapatra (Valentine) Bunchuay, a recipient of the Royal Thai Scholarship (2004 – 2018), graduated from Mahidol University (Thailand) with a first class honour B.Sc. degree in 2011 and M.Sc. degree in chemistry in 2014. Having finished his D.Phil.in November 2018, he is now working as associate professor in organic chemistry (supramolecular chemistry) at Mahidol. His research focuses on synthetic supramolecular chemistry of macrocyclic molecules and investigations of their host-guest behavior via suite spectroscopic techniques. Novel macrocycles are also used as the basis of functional materials for applications in sensing, extraction and recovery, delivery, and soft materials.

INVITED SPEAKER: C_INV02

ROBOT-ARM BASED CHEMISTRY LAB-AUTOMATION

Kwanwoo Shin*
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Abstract:
We present a robotic platform for automating key manual tasks in chemistry and biology, including pipetting (Figure 1a), cell culture (Figure 1b), and genetic manipulation, using standard lab tools without modification. The system integrates a 6-axis robotic arm with computer vision, allowing object recognition via ArUco marker-based imaging, and precise manipulation through 3D-printed gripper interfaces. As shown in Figure 1c, the platform operates in a compact lab environment with peripheral devices such as incubators, centrifuges, and suction modules. A remote-control GUI enables real-time, internet-based access to run complex experimental protocols. This platform demonstrates that a robot arm can replace essential chemical and biological handling steps with reproducibility and precision, offering a new foundation for lab automation, remote experimentation, and scalable education in molecular sciences.

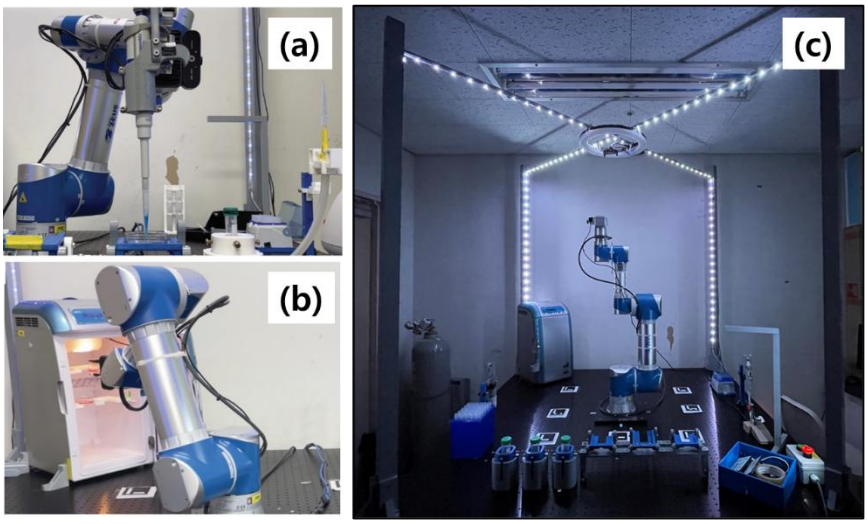


Figure 1. (a) Robotic pipetting using standard lab tools. (b) Automated cell culture with incubator access. (c) Full view of the vision-guided lab automation platform.

Kwanwoo Shin, Ph.D. is Professor of Chemistry at Sogang University and President of the Research & Business Development Foundation. He received his Ph.D. from SUNY Stony Brook and conducted postdoctoral research at NIST (USA). He also served as Visiting Faculty in Bioengineering at Harvard University's SEAS in 2013 and 2021. His research interests include artificial cells—focusing on cell-free expression, cytoskeletal formation, and sustainable energy generation—as well as biosensors, extracellular matrix (ECM) engineering, and liposomal assemblies for regenerative and diagnostic applications. He is currently President of Scientists and Engineers Without Borders (SEWB), promoting global scientific collaboration.

INVITED SPEAKER: C_INV03

WTE - BRUKER MS – GERSTEL FROM MOLECULES TO MEANING: BUILDING A FUTURE OF PURPOSE-DRIVEN ONE HEALTH ANALYSIS

Nopmaneerat Leelawiwat*
TH Health Co., Ltd., / World Tech Enterprises Ltd., Thailand
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Abstract:
The ONE Health paradigm underscores the intrinsic interconnections among human health, food systems, and the environment, calling for integrative strategies that move beyond conventional disciplinary boundaries. This work introduces a purpose analytical framework that integrates advanced sample preparation, Bruker's high resolution mass spectrometry, and Gerstel's automated handling with eco-material innovations to transform molecular data into meaningful insights.
Integrated workflows enabled efficient extraction and clean-up across clinical, food, and environmental samples, ensuring consistent analyte recovery. Bruker's timsTOF and timsMetabo platforms powered advanced 4D-Metabolomics and environmental toxicology with Trapped Ion Mobility Spectrometry (TIMS), Collision Cross Section (CCS), and Parallel Accumulation Serial Fragmentation (PASEF) technologies. These innovations deliver high-resolution molecular insights and enhance analytical confidence by adding an orthogonal dimension of separation and providing reproducible CCS values, which are crucial for diagnostics, food safety, and ecosystem monitoring (Bruker, 2021; Bruker, 2025a; Bruker, 2025b). Gerstel's automated samplers and Thermal Desorption-Gas Chromatography/Mass Spectrometry (TD-GC/MS) systems supported high-throughput profiling of volatile and semi-volatile compounds from diverse matrices. Furthermore, Gerstel's MultiPurpose Sampler (MPS) robotic enabled the automation of complex sample preparation techniques, such as Solid Phase Extraction (SPE) and liquid-liquid extraction, which minimizes manual errors and significantly increases laboratory throughput (Gerstel, 2024).
This study introduces an integrated analytical platform for comprehensive multi-omics detection across diverse domains. The platform links dietary metabolites to human health, connects environmental toxins to systemic inflammation, and associate soil and plant molecular profiles with resilience and yield. It also uncovers how material, environment interactions affect sustainability. By uniting molecular science with material innovation, this framework drives cross-sector progress in healthcare, agriculture, environmental monitoring, food production, and material science. The results provide a scalable, data, driven pathway for transforming complex molecular datasets into actionable insights, supporting the ONE Health vision to advance global well-being and sustainability.

Nopmaneerat Leelawiwat holds both a bachelor's and master's degree in Science from the Department of Food Technology, Faculty of Engineering and Industrial Technology, Silpakorn University, Thailand. Since 2015, she has served as Vice President at World Tech Enterprises Ltd., where she oversees the import, distribution, and service of high-end analytical systems across multiple scientific domains—including Chemical Science, Life Science, Forensic Science, Agricultural Science, Food Science, and Medical Research—for both government and private sectors. In 2023, she was appointed Assistant Chief Executive Officer at TH Health Co., Ltd., a subsidiary of Thonburi Healthcare Group Public Company Limited. In this role, she leads strategic initiatives to deliver comprehensive healthcare services, integrating premium products and innovative solutions to elevate health outcomes across Thailand. Her research interests include functional foods, food microbiology, flavor and aroma analysis using advanced analytical instrumentations such as GCMS, HPLC.

INVITED SPEAKER: C_INV04

BIOCHAR: A KEY MATERIAL BRIDGING WASTE VALORIZATION AND ENVIRONMENTAL SUSTAINABILITY

He Zhang,[1,2,*] Jie Ji,[1] Yuqing Zhao[1]

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Abstract:

This study demonstrates the potential of biochar as a sustainable material for environmental remediation by developing an efficient system for nonylphenol (NP) degradation. Biochar (BC) derived from pine leaves and sludge at 300–400 °C was modified with organic acids to regulate persistent free radicals (PFRs) and enhance reactive oxygen species (ROS) production. The low-temperature (300 °C) sludge-derived biochar exhibited abundant oxygen-containing functional groups, facilitating redox reactions and electron transfer. When combined with 20 mM citric acid (0.2 g/L biochar), the system achieved 85.71% NP degradation, primarily driven by hydroxyl radicals (·OH), as confirmed by quenching experiments. Electrochemical analysis and DFT calculations further elucidated the role of biochar-PFRs in mediating electron transfer from organic acids, ensuring sustained ROS generation. These findings highlight biochar's dual functionality—valorizing organic waste into a high-performance catalyst while enabling efficient pollutant degradation—providing a green and scalable solution for environmental sustainability.

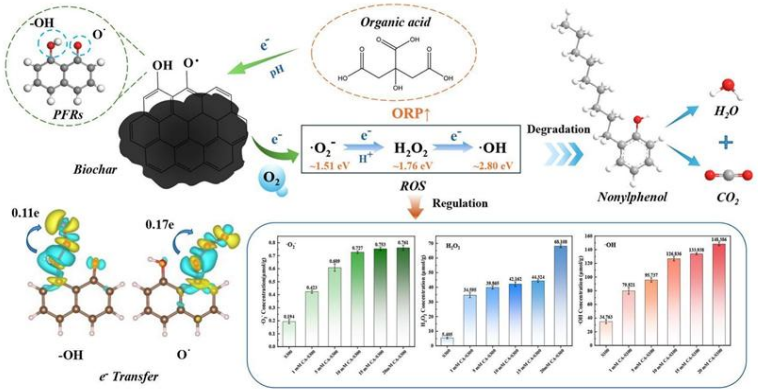


Figure 1. Schematic diagram of the study.

Associate Professor He Zhang was born in Zhejiang, China in 1991. He earned his Bachelor's degree in Environmental Engineering from Hubei Normal University (2013), followed by a Master's degree in Environmental Engineering from Donghua University (2015). In 2020, he completed his Ph.D. in Environmental Science and Engineering at Donghua University. Since 2020, Dr. Zhang has been a faculty member at the Department of Environmental Science and Engineering, University of Shanghai for Science and Technology. In 2025, he was additionally appointed as Deputy Director of the Agricultural Technology Service Center in Shanghai's Minhang District. His research focuses on organic waste resource utilization and environmental catalysis.

INVITED SPEAKER: C_INV05

HYDROPHILICITY-TUNED POLYMER FOR STABLE AQUEOUS BATTERY ELECTROLYTE

Xin Wang*
TBA
*e-mail: TBA

Abstract:
TBA

TBA

INVITED SPEAKER: C_INV06

STRUCTURAL MODIFICATION OF NATURAL PRODUCTS TO UNLOCK BIOACTIVITY

Rungnapha Saeeng*
Department of Chemistry and Center for Innovation in Chemistry, Faculty of Science Burapha University and The Research Unit in Synthetic Compounds and Synthetic Analogues from Natural Product for Drug Discovery (RSND), Burapha University, Chonburi, Thailand
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Abstract:
Natural products have long served as a rich source of bioactive compounds, forming the backbone of many drug discovery and development efforts. By carefully modifying their chemical structure or introducing biologically inspired groups, their potency, selectivity, and bioavailability can be significantly enhanced. Our research has explored the modification of diverse natural compounds, such as andrographolide, mycophenolic acid, caerulomycin, and genipin, achieving notable improvements in cytotoxicity and therapeutic potential. This presentation focuses on andrographolide, a diterpenoid from *Andrographis paniculata*, which has been a central theme of our work. Structural modifications of andrographolide have unlocked bioactivity, leading to significant improvements in cytotoxicity and therapeutic potential. This work shows how modifying natural products can open new ways to develop pharmaceuticals and bioactive molecules.

Professor Rungnapha Saeeng was born in Bangkok, Thailand. She received her Bachelor's degree in Chemistry in 1992 and Master's degree in Organic Chemistry in 1996 from the Department of Chemistry, Faculty of Science, Mahidol University, Thailand. She earned her Doctor of Agricultural Sciences in Organic Chemistry in 1999 from Nagoya University, Japan. Since 1999, she has been with the Department of Chemistry, Faculty of Science, Burapha University, Thailand, where she is currently a Professor of Organic Chemistry. Her research interests focus on the modification of natural products and the development of new organic synthetic methods.

INVITED SPEAKER: C_INV07

RATIONAL APPROACHES TO DRUG DISCOVERY: TARGETING VIRAL PROTEASE AND CANCER TUBULIN PATHWAYS

Tanatorn Khotavivattana,[1,*] Chanat Aonbangkhen,[1] Jantana Yahuafai,[2] Siwaporn Boonyasuppayakorn,[3] Kittikhun Wangkanont,[4] Thanyada Rungrotmongkol[4]

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Abstract:

Emerging viral threats and drug-resistant cancers highlight the urgent need for new therapeutic strategies. We present two rationally designed small-molecule approaches that exemplify how structure-based methods can guide drug discovery. For SARS-CoV-2, a structure-based design campaign targeting the main protease (Mpro) began with molecular dynamics simulations of lapatinib, identified as a virtual screening hit. Fragment-guided optimization informed the design of simplified aminoquinazoline analogs, which were prioritized using molecular docking and LigandScout analysis. The resulting compounds yielded potent Mpro inhibitors with improved antiviral activity (EC_{50} ~1.1 µM) and significantly reduced cytotoxicity compared to lapatinib. In parallel, anticancer agents were developed by re-engineering colchicine through phenoxy-linked extensions at the C7 amide, designed to expand binding beyond the canonical β-tubulin site toward α-tubulin. This strategy delivered derivatives with exceptional potency (IC_{50} = 0.08 nM) and selectivity indices exceeding 2,000. Together, these studies illustrate how rational scaffold modification, integrating computational modeling with biological validation, can generate promising antiviral and anticancer leads.

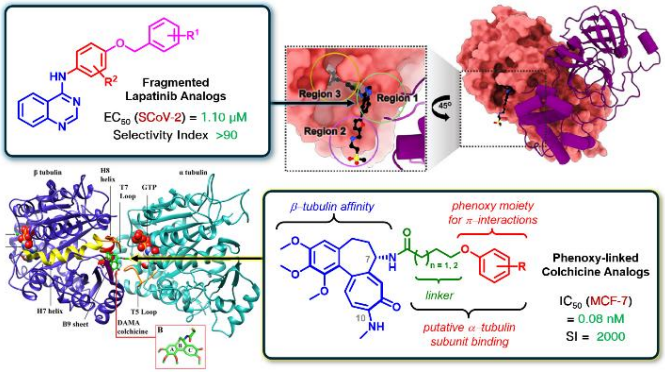


Figure 1.

Assoc. Prof. Dr. Tanatorn Khotavivattana received his bachelor's and master's degree in Chemistry (MChem) from the University of Oxford, UK, in 2013, and his doctorate (DPhil) in Organic Chemistry from the University of Oxford in 2017. Since 2017, he has been with the Department of Chemistry, Faculty of Science, Chulalongkorn University, Thailand, where he currently serves as an Assistant Dean for Research Affairs. His research is based on organic synthesis, spanning the design and construction of novel molecular scaffolds and their application in medicinal chemistry. He is particularly interested in developing anticancer and antimicrobial agents, exploring natural product-inspired compounds, and applying computational tools to support drug discovery.

INVITED SPEAKER: D_INV01

WHEN STATISTICS MEETS RESEARCH: LESSONS FROM HANDS-ON INTEGRATION

Orawich Kumphon*
Applied Statistics Research Unit, Department of Mathematics, Mahasarakham University, Maha Sarakham 44150, Thailand
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Abstract:
Mathematical Sciences is the cornerstone of all scientific inquiry and technological advancement. It's a discipline that not only delves into the abstract beauty of numbers and shapes but also applies this knowledge to solve complex problems in various domains. In a Statistical Sciences, you will explore a rich tapestry of the theoretical and application areas, ranging from the elegance of Applied Mathematics and Differential Equations to the practicality of Statistical Modelling and their applications which involve with analytical and problem-solving skills through a deep understanding of mathematical concepts and their real-world applications: hydrological, agricultural, reservoirs, etc.

Associate Professor ORAWICH KUMPHON was born in Nongkhai, Thailand in 1972. She received the bachelor's degree in Science from Department of Mathematics, Faculty of Science, Srinakharinwirot University (Mahasarakham Campus), Thailand in 1993, the M.Sc. in Statistics, Chulalongkorn University, Thailand in 1997 and Ph.D. in Mathematics, University Brunei Darussalam, Brunei in 2003. From 1997 to present, she worked at Department of Mathematics, Faculty of Science, Mahasarakham University, Thailand. Her research interests in Modelling, Semiparametric Statistics, Optimisation and Applied Statistics.

INVITED SPEAKER: D_INV02

MAKING MONEY WITH MATHEMATICS: CASE STUDIES

Udomsak Rakwongwan*
Department of Mathematics, Department of Science, Kasetsart University
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Abstract:
Mathematics doesn't just explain the world — it pays those who know where to look.
In this session, we uncover how mathematical thinking can turn market inefficiencies into trading opportunities. Focusing on derivative mispricing, we'll dive into two real-world examples that show how numbers quietly move money across global markets.
First, we'll explore Cash-and-Carry Arbitrage, a classic quant strategy that profits from the gap between spot and futures prices — proof that the simplest equations can yield consistent edge when executed with precision.
Then, we'll go deeper — into a lesser-known, personally developed approach: the synthesis of betting positions using derivatives logic. This segment reveals how option structures can be re-imagined to price and hedge real-world beliefs, effectively turning probabilities into profit. I'll walk through the logic, the math, and the mechanics of how this strategy worked in practice.
Beyond formulas and code, this talk is about the mindset: seeing markets as systems of equations waiting to be balanced — and realizing that every mispriced number is an opportunity waiting to be found.

TBA

INVITED SPEAKER: D_INV03

THE HENSTOCK–KURZWEIL INTEGRAL: A MODERN PERSPECTIVE AND APPLICATIONS

Varayu Boonpogkrong*
Department of Mathematics, Division of Computational Science, Faculty of Science, Prince of Songkla University, Hat-Yai, Thailand
*e-mail: varayu.b@psu.ac.th

Abstract:
The Henstock–Kurzweil integral, as a generalization of the Riemann integral, provides a powerful framework that extends beyond the limitations of the Lebesgue theory. This talk explores modern perspectives on the Henstock–Kurzweil integral and its various extensions, including its role in manifolds, divergence theorems, and stochastic calculus. We will highlight key results from our recent work, including convergence theorems, compact operators in HK spaces, and applications to financial mathematics. The talk aims to provide both a conceptual overview and insights into future directions of non-absolute integration.

Varayu Boonpogkrong, Ph.D. is an Associate Professor of Mathematics at Prince of Songkla University, Thailand. He received his B.Sc. in Mathematics from Chulalongkorn University, and his M.Sc. and Ph.D. in Mathematics from the National University of Singapore. His research interests include non-absolute integrals, the Riemann approach to integration, real analysis, and stochastic integrals with applications. He is the author of *The Non-uniform Riemann Approach to Stochastic Integration* (World Scientific, 2024).
He has published in international journals on integration theory and stochastic analysis. He has also been invited to present his research at international conferences. He actively contributes to curriculum development in mathematics at PSU.

INVITED SPEAKER: D_INV04

LLM IN LANGUAGE LEARNING

Dittaya Wanvarie*
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Abstract:
Recent advancements in large language models (LLMs) have enabled these systems to generate text with a level of sophistication comparable to that of human writers. LLMs now demonstrate considerable proficiency in composing content, translating languages, and performing various tasks relevant to language education. As a result, they are increasingly being integrated into applications aimed at writing, summarization, and language acquisition, where they may serve as alternatives to human instructors in second or third language learning contexts.
Despite these capabilities, LLMs do not inherently ensure the accuracy or reliability of their outputs. Their effective use necessitates ongoing human oversight to validate content and maintain educational standards. Moreover, LLMs are typically designed to provide concise, direct responses, which may not align with pedagogical approaches that emphasize gradual, stepwise understanding and iterative feedback. For optimal integration within educational settings, LLMs must be adapted to support learners in developing independent communication skills and mastering language principles through guided practice and error correction.

Dittaya Wanvarie serves as an assistant professor in the Department of Mathematics and Computer Science, Chulalongkorn University. She earned her Ph.D. from Tokyo Institute of Technology (currently known as the Institute of Science Tokyo) in 2011. Her research focuses on information retrieval, natural language processing, and cloud computing.

INVITED SPEAKER: E_INV01

In_2O_3 BASED CATALYSTS FOR CO_2 HYDROGENATION TO METHANOL

Limin Guo,* Yifu Wang, Biao Gao
Green Energy Industry Research Centre, School of Environmental Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, China
*e-mail: lmguo@hust.edu.cn

Abstract:
CO_2 catalytic hydrogenation to methanol is promising for CO_2 utilization. In_2O_3-based catalysts are attracting much attention because of their high methanol selectivity. However, a low CO_2 conversion rate limits the overall methanol yield. Herein, we developed the interface of $CoIn_2$ alloy and In_2O_3 oxide as a $CoIn_2/In_2O_3$ catalyst and successfully achieved high performance for CO_2 hydrogenation to methanol. Experimental and theoretical results indicated that the alloy/oxide interface is stable during the reaction atmosphere; the high performance arising from the electronic interaction between $CoIn_2$ and In_2O_3, which improves the electron density at the $CoIn_2$ interface, facilitates H_2 dissociation, CO_2 adsorption, and the hydrogenation of formate intermediates to methanol, which justifies the sustained high methanol selectivity and production rate. The optimized catalyst showed a methanol selectivity up to 74% and a high methanol space-time yield up to 0.69 $g_{MeOH}g_{cat}^{-1}h^{-1}$ at 5.0 MPa, H_2/CO_2 = 3:1, 300 °C and 36000 $mLg_{cat}^{-1}h^{-1}$. In addition, Co/In_2O_3 catalysts often undergoing structural transformation during a prolonged induction period. And $Co_3InC_{0.75}$ is frequently observed after this process, yet its catalytic role has remained elusive due to the lack of phase-pure materials and mechanistic clarity. Herein, I will also report the synthesis of highly crystalline, phase-pure $Co_3InC_{0.75}$ via a one-step gas-phase carburization method from CoInOx mixed oxides. Catalytic tests reveal that $Co_3InC_{0.75}$ acts as an active phase for CO_2 selective hydrogenation, achieving a methanol space-time yield of 0.69 $g_{MeOH}g_{cat}^{-1}$ $h^{-1}$with a selectivity of 70.1% at 280 °C, 5 MPa, H_2 : CO_2 ratio of 3:1, and a gas hourly space velocity of 24,000 $cm^3_{STP}g_{cat}^{-1}h^{-1}$, and remains stable over 100 hours of continuous operation. *In situ* characterizations and theoretical studies confirm that the carbide surface promotes direct CO_2 dissociation and sequential hydrogenation via a RWGS-mediated pathway. This work identifies $Co_3InC_{0.75}$ as a previously overlooked active phase and expands the design landscape for carbide-based CO_2 hydrogenation catalysts.

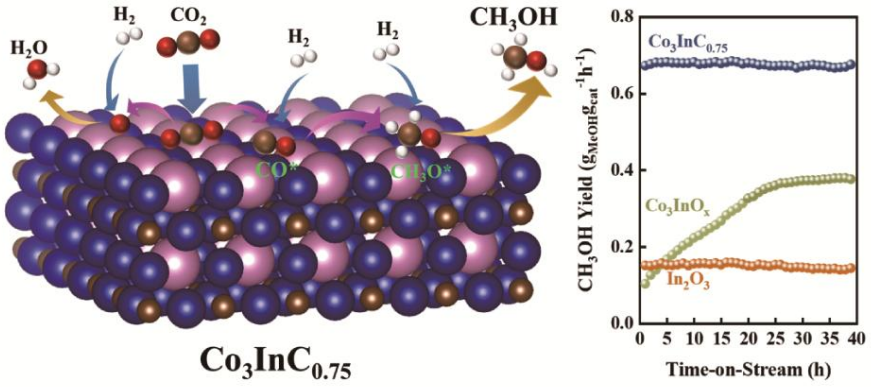


Figure 1. The $Co_3InC_{0.35}$, In_2O_3 and Co_3InO_x for CO_2 hydrogenation to methanol.

Limin Guo, Professor at the School of Environmental Science and Engineering, Huazhong University of Science and Technology, WPI Visiting Professor at the International Institute for Carbon-neutral Energy Research, Kyushu University, and adjunct professor at Faculty of Science, Chulalongkorn University. HIs research interest includes CO_2 catalytic hydrogenation and adsorption elimination of volatile organic compounds.

INVITED SPEAKER: E_INV02

CATALYTIC CONVERSION OF BIOMASS

Feng Wang*
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Abstract:
Lignin is a key resource for producing renewable aromatic chemicals and materials sustainably. Here, we discuss our work on catalytic strategies for lignin separation from lignocellulose:
1. Nickel-Catalyzed Lignin Valorization: Native birch wood lignin was converted into monomeric phenols using nickel-based catalysts in common alcohols. This achieved high chemoselectivity, yielding propylguaiacol and propylsyringol with >90% selectivity at 50% lignin conversion.
2. Maleic Acid Extraction: A 50 wt% maleic acid solution extracted 60% lignin from birch wood with a dilution factor of only 3. The extracted lignin retained >80% β-O-4 bonds and achieved a monophenol yield of >30% via catalytic hydrogenolysis, comparable to milled wood lignin.
3. Catalytic Arylation Pathway: By leveraging lignin-derived phenols with high nucleophilicity, we directed C–C bond formation in a catalytic arylation process. The selectively condensed lignin was isolated in near-quantitative yields while preserving cleavable β-ether units. In a tandem catalytic process involving aryl migration and transfer hydrogenation, lignin was converted into benign bisphenols, which are superior alternatives to fossil-based bisphenols.

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TBA

INVITED SPEAKER: E_INV03

PARTICIPATION OF THAI GEOLOGISTS ON ANTARCTIC RESEARCH

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Abstract:
In late 2015 to early 2016, three Thai geologists were invited to join Antarctic Expedition of Japan and China. Dr. Prayath Nantasin from Kasetsart University joined the 58th Japanese Antarctic Expedition (JARE58) while Professor Dr. Pitsanupong Kanjanapayont and Associate Professor Dr. Thasinee Charoentitirat from Chulalongkorn University participated the 33th Chinese Antarctica Research Expedition (CHARE 33). Dr. Prayath Nantasin was assigned to conduct research focusing on metamorphic rocks cropping out around the Lützow-Holm Bay, East Antarctica which have been part of Pan-African Orogeny, a global scale mountain range covering part of east Africa, Madagascar, Sri Lanka, southern India and eastern Antarctica formed by series of continental collisions resulting a supercontinent named 'Gondwana' which onset since 950 million years ago and lasted long until 550 million years before present. After two months fieldwork on several localities along the coast of East Antarctica, Dr. Prayath Nantasin collected numbers of metamorphic rock samples over 800 kilograms. Meanwhile Professor Dr. Pitsanupong Kanjanapayont and Associate Professor Dr. Thasinee Charoentitirat were conducting their geological fieldwork at the King George Island surrounding the Great Wall Station of China. Contrasting to Lützow-Holm Bay, the geology near China's Great Wall Station on the Fildes Peninsula of King George Isaland is dominated by Late Cretaceous to Tertiary volcanic rocks, forming the Great Wall Formation. These volcanics, including agglomerates, breccias, and lavas, are interbedded with sedimentary rocks of lacustrine origin. Both Japanese and Chinese scientist teams were part of a program called 'Asian Forum for Polar Sciences (AFoPS) which is a non-governmental organization established in 2004 to encourage and facilitate cooperation for the advance of polar sciences among countries in the Asian region. Based on those samples collected from Antarctica six bachelor senior projects and two master theses were done by Thai students which could be account as a significant contribution from Thai geologist on Antarctic scientific research.

Dr. Prayath Nantasin was born in Nan, Thailand in 1977. He received the bachelor's degree in Geology from Department of Geology, Faculty of Science, Chulalongkorn University, Thailand in 2000. He received the Dr.rer.nat. in Earth Science, in 2013 from Institute of Earth Science, University of Graz, Austria. From 2005 to present, he worked at Department of Earth Sciences, Faculty of Science, Kasetsart University, Thailand. His research interests in petrology and mineralogy of igneous and metamorphic rocks especially rock samples collected during JARE58. In addition, he also applies a principle of geochemistry to conduct research on groundwater dynamics and carbon dioxide storage especially mineral carbonation and enhance rock weathering (ERW) techniques.

INVITED SPEAKER: E_INV04

FUTURE FUELS: FROM BIOMASS TO HYDROGEN

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Abstract:

The transition toward a sustainable energy future relies on efficient and scalable routes for hydrogen (H_2) production, storage, and utilization. We present two catalytic strategies that exemplify this vision: ammonia cracking for H_2 release and CO_2 hydrogenation for carbon recycling. Ammonia decomposition is a key reaction in the green hydrogen economy, as ammonia serves as a carbon-free hydrogen carrier. To overcome its sluggish kinetics, we developed a tungsten filament "light-bulb" reactor capable of operating at temperatures up to 1,800 K. This configuration enables ultrafast ammonia cracking with rate constants far exceeding those of state-of-the-art catalysts, achieving 99.995% conversion without membrane separation. The sharp radial temperature gradient allows efficient heat utilization and low power consumption, while the compact design – two to three orders of magnitude smaller than conventional reactors – offers strong potential for distributed H_2 generation. In parallel, we advance CO_2 hydrogenation to methanol by integrating H_2 activation and delivery functions into a hybrid Pd/CNT + ZnZrOx catalyst. The carbon nanotube network efficiently transports hydrogen activated on Pd to remote ZnZrOx sites, enhancing overall hydrogenation kinetics by an order of magnitude compared with conventional Pd-promoted systems. This architecture delivers record activity and excellent stability over 600 h on stream, demonstrating the promise of hybrid catalytic designs for scalable carbon utilization. Together, these studies exemplify how innovative catalytic and reactor strategies can reshape hydrogen-based energy conversion, paving the way toward a sustainable fuel future.

Professor Ning Yan received his B.Sc. and Ph.D. degrees in Chemistry from Peking University, working with Prof. Kou Yuan from 2000 to 2009. After a Marie Curie Fellowshiip at École Polytechnique Fédérale de Lausanne in Switzerland with Prof. Paul Dyson, he joined National University of Singapore in 2012 and set up the Green Catalysis Lab. He was promoted to full professor and was appointed as the CHI Director in 2024. His group focuses on the catalytic transformation of renewable resources and heterogeneous catalysis. Among the awards he received are the inaugural "Green Chemistry for Life" Yong Scholar Award from UNESCO in 2014, the inaugural G2C2 Young Research Award from Global Green Chemistry Center Network in 2015, "Energy, Environment and Sustainability Early Career Award" from Royal Society of Chemistry in 2017, "Sustainable Chemistry & Engineering Lectureship Award" from American Chemistry Society in 2018, "Young Researcher Award" from NUS in 2019, and "NRF Investigatorship" from the Singapore Government in 2021. He is or was part of the editorial team of numerous international journals, such as ACS Catalysis, ACS Sustainable Chemistry & Engineering, Catalytic Science & Technology and Molecular Catalysis.

INVITED SPEAKER: F_INV01

TBTOOLS: AN INTEGRATED AND MULTIFUNCTIONAL BIOINFORMATICS TOOLKIT FOR THE BIG DATA ERA

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Abstract:

The rapid development of high-throughput sequencing techniques has led biology into the big-data era. data analyses using various bioinformatics tools rely on programming and command-line environments, which are challenging and time-consuming for most wet-lab biologists. here, we present tbtools (a toolkit for biologists integrating various biological data-handling tools), a stand-alone software with a user-friendly interface. the toolkit incorporates over 300 functions, which are designed to meet the increasing demand for big-data analyses, ranging from bulk sequence processing to interactive data visualization. since the first release in 2020, it has been used by >300 k users and cited in >10 k publications. in tbtools-ii, the plugin mode which enables users to develop their own functionalities has been launched to promote the theme of "one for all, all for one (หนึ่งเดียวเพื่อทุกคน ทุกคนเพื่อเป้าหมายเดียวกัน)" in the biology community. tbtools is platform-independent software that can be run under all operating systems with java runtime environment 1.6 or newer. it is freely available to non-commercial users at https://github.com/cj-chen/tbtools/releases

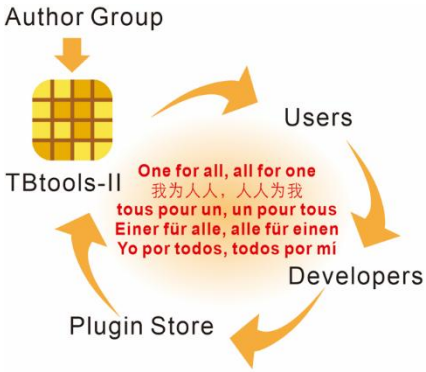


Figure 1. The theme of "one for all, all for one" of tbtools.

Professor Dr. Nathdanai Harnkarnsujarit is Vice Dean for Research & Innovation at the Faculty of Agro-Industry, Professor Rui Xia. Dr. Xia was born in Hunan, China. He received the bachelor's and master's degrees in Horticulture from South China Agricultural University, China in 2004 and 2007, respectively. He received the Ph.D degree from Viginia Polytechnic Institute and State University (Virginia Tech), USA in 2013. He got his postdoctoral trainings in University of Delaware, and Donald Danforth Plant Science Center in USA. From 2016 to present, he worked at College of Horticulture, South China Agricultural University, China. His research interests in plant genomics, flower and fruit development in subtropical and tropical fruit trees, and development of bioinformatics tools.

INVITED SPEAKER: F_INV02

FROM QUANTUM AND SATELLITE TO CARBON FARMING: MAKING NET ZERO MISSION POSSIBLE

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Abstract:
Sunlight quantum is the initial and ultimate source of energy for most life on Earth. Plants have the unique ability to absorb this solar quantum energy and convert it into chemical energy in organic compound that can be used by living cells. This process, called photosynthesis, makes them the crucial entry point for energy into an ecosystem. The colonization of land by plants began around 400 million years ago, leading to a dramatic reduction in atmospheric carbon dioxide (CO_2). As large forests grew and died in swampy wetlands, their organic matter was buried before it could fully decompose and release its carbon. This led to the formation of massive coal deposits and other fossil fuels, effectively removing vast amounts of carbon from the active carbon cycle for millions of years. Utilization of fossil fuels (coal, oil, and natural gas) are account for nearly 90% of all human-caused CO_2 emissions. Strategies that leverage and enhance natural plants' photosynthesis, known as "nature-based solutions", are a crucial part of climate change mitigation efforts.

Carbon farming, an important nature-based solution, is crucial for making the net-zero mission possible by transforming agriculture (and forestry) from a significant carbon source into a global carbon sink. While agriculture currently accounts for nearly a quarter of global greenhouse gas emissions, implementing carbon-smart practices in agriculture and forestry can significantly reduce emissions while also actively removing CO_2 from the atmosphere.

Satellites provide the "eyes in the sky" for monitoring vast agricultural areas. For carbon farming, they play a crucial role in measurement, reporting, and verification (MRV) which are the process of proving how much carbon a farm has sequestered. Satellite also provide cost-effective and scalable data. Traditional methods of measuring changes in soil and biomass carbon stocks through physical sampling are expensive and time-consuming. Satellites provide a faster, more cost-effective, and scalable alternative, allowing for the monitoring of carbon farming initiatives across millions of hectares of land. In addition, satellite data can also be used to track specific practices that affect carbon levels, such as no-till farming, cover cropping, and changes in crop types.

While distinct technologies, quantum computing and satellite technology are converging to support carbon farming by enhancing how carbon sequestration is measured, modeled, and optimized. Satellites provide data collection at a massive scale, while quantum computing offers the potential for unprecedented analysis of that data. Thus, quantum and satellite applications to carbon farming would make Thailand's net zero mission possible.

Professor Poonpipope Kasemsap was born in 1964. His academic career began at Kasetsart University, where he earned his Bachelor of Science in Agriculture with first-class honor in 1983. He then went on to complete both his M.S. and Ph.D. in Plant Physiology at the University of California at Davis, graduating in 1986 and 1989. From 1991 to present, he has worked at Faculty of Agriculture, Kasetsart University. He is the current director of the Horticulture Innovation Lab Regional Center at Kasetsart University and has contributed to numerous projects aimed at improving the lives of farmers through sustainable agriculture. He served as Chairman of the International Biology Olympiad from 2008 to 2018. His research interests are climate smart agriculture and carbon farming.

INVITED SPEAKER: F_INV03

KOKU AND UMAMI: ASIAN TASTE INNOVATIONS FOR HEALTH AND PLANETARY WELL-BEING

Hisayuki Uneyama*
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abstract:
The EAT-Lancet Commission released an updated version of the Planetary Health Diet in October 2025. This revised framework (Version 2) is expected to serve as a guiding model for creating sustainable dietary patterns that promote both human and planetary well-being. Interestingly, the original Planetary Health Diet (2019, Version 1) already bore a close resemblance to traditional dietary practices in monsoon regions such as Japan, coastal China, and Thailand—regions long centered around rice and fermented seasonings.
In Japan, for example, the cultural wisdom of fermentation produced taste dimensions such as Koku (depth and richness) and Umami. These sensory qualities not only enhanced palatability but also fostered the establishment of sustainable, predominantly plant-based dietary patterns that have supported both health and cultural continuity.
In this symposium, we will discuss the similarities and differences between the newly proposed Planetary Health Diet Version 2 and dietary traditions across East and Southeast Asia. By highlighting the role of Koku and Umami as enablers of delicious, healthy, and sustainable diets, the presentation will explore the essential components of future dietary models that can advance global health and planetary well-being.

Dr. Hisayuki Uneyama, Senior Specialist, Global Communication Department, Ajinomoto Co., Inc., holds an M.Sc. from Tohoku University and is a licensed pharmacist and medical doctor. With over 25 years in taste physiology and nutrition science, he has led research on the functions of umami and amino acids and advanced Ajinomoto's core food and health technologies. He previously served as Group Leader of the Umami Wellness Research Group and Corporate Fellow overseeing global science communication. Currently, he focuses on external engagement in taste and health, serves on government expert committees, and is a Board Member of the Umami Information Center and Visiting Lecturer.

INVITED SPEAKER: F_INV04

MODERN FOOD TECHNOLOGY FOR SUSTAINABILITY AND GLOBAL COMPETITIVENESS

Nathdanai Harnkarnsujarit*
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Abstract:
Modern food technology plays a pivotal role in driving sustainability and competitiveness of the food industry. The global food system is currently challenged by limited natural resources, climate change, and changing consumer demands for safe, nutritious, and environmentally friendly products. To address these issues, modern approaches have been developed, including alternative proteins, functional ingredients, precision fermentation, sustainable packaging, and AI-driven food innovation. These technologies not only enhance nutritional quality and extend product shelf life but also reduce environmental footprints through circular economy strategies and bio-based solutions. Moreover, the integration of digital platforms and advanced processing contributes to personalized nutrition and improved resource efficiency. This presentation highlights the opportunities and challenges of modern food technology for sustainability, emphasizing its potential to transform Thailand's food industry into a global leader while aligning with the Sustainable Development Goals (SDGs).

Professor Dr. Nathdanai Harnkarnsujarit is Vice Dean for Research & Innovation at the Faculty of Agro-Industry, Kasetsart University, Thailand, and Director of the High-Value Food Program under the Program Management Unit for Competitiveness (PMUC). He serves as an editorial board member of the Journal of the Science of Food and Agriculture (JSFA), Society of Chemical Industry (SCI), Q1, and as a reviewer for more than 80 international scientific journals. He is also an associate judge at the Central Intellectual Property and International Trade Court. Professor Nathdanai has published over 100 research articles with more than 3,850 citations (h-index 39) and has led over 40 research projects. His expertise spans food technology, functional ingredients, pet food, and sustainable bioplastic packaging. He has contributed significantly to national research and policy through roles in multiple committees and working groups, shaping strategic directions on future food, functional food components, and competitiveness enhancement in Thailand.

SP1 PLENARY SPEAKER: SP1_PLS01

FUSION: A PROMISING ENERGY SOLUTION FOR OUR FUTURE

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Abstract:
Fusion energy holds immense potential as a clean, sustainable, and virtually limitless power source for the future. Unlike fossil fuels, fusion produces minimal long-lived radioactive waste and emits no greenhouse gases, offering a critical solution to climate change and energy security. Recent advancements in magnetic confinement (e.g., ITER) and laser-driven inertial confinement (e.g., NIF) have brought fusion closer to commercialization. Private-sector investments and government initiatives are accelerating progress. While technical hurdles remain, fusion's promise of abundant, low-carbon energy could revolutionize global energy systems if scalability and economic viability are achieved. This report explores fusion's principles and current progress.

Lu Kun received a Ph.D. at Institute of Plasma Physics, Chinese Academy of Sciences (ASIPP), with a major in Nuclear Energy Science and Engineering research. Since 2025, Lu Kun took the position of Executive Deputy Director of ASIPP. Prof. Lu has been engaged in the research of magnetic confinement nuclear fusion science and technology for a long time, especially in engineering design and R&D. He has been acting as the leader of ITER magnet feeder R&D and Series production since 2007. From 2017 to 2021, he was the Responsible officer of CFETR integration design, which produced the latest version of CFETR engineering design version. Since 2019, he has been acting as the Deputy Chief Engineer of Comprehensive Research Facility for Fusion Technology (CRAFT) project. Currently, Lu Kun is also responsible for the engineering design for BEST facility.

SP1 PLENARY SPEAKER: SP1_PLS02

AI/GENERATIVE AI IN CHINA

Wang Peng*
TBA
*e-mail: TBA

Abstract:
TBA

TBA

INVITED SPEAKER: SP1_INV01

SCIENCE AND TECHNOLOGY DEVELOPMENT FOR JUNO

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Abstract:
The Jiangmen Underground Neutrino Observatory (JUNO), located in South China, is a cutting-edge experiment in neutrino physics. With a 20-kiloton target mass of ultra-pure Liquid Scintillator (LS), JUNO is designed to achieve groundbreaking measurements—most notably the determination of the Neutrino Mass Ordering (NMO) and high-precision measurement of three neutrino oscillation parameters with sub-percent accuracy. The detector system comprises a Central Detector (CD), a Water Cherenkov Detector (WCD), and top tracker detectors. The CD is instrumented with 17,612 20-inch and 25,600 3-inch Photo-Multiplier Tubes (PMTs), providing an energy resolution better than 3% at 1 MeV.
Beyond its core reactor neutrino program, JUNO pursues a broad physics agenda that includes studies of solar, supernova, geoneutrinos, and atmospheric neutrinos, as well as searches for physics beyond the Standard Model such as nucleon decay. Detector installation, liquid scintillator filling, and system commissioning have been completed, and physics data taking is currently in progress.
This presentation will provide an overview of key scientific and technological advances in JUNO, including the development of 20-inch Microchannel-Plate PMTs, magnetic shielding coils for all PMTs, the purification and circulation system for 40-kiloton ultrapure water, and 20-kiloton liquid scintillator handling system. These systems are essential for achieving and maintaining optimal detector performance.

Professor Changgen Yang was born in ShanXi, China in 1962. He received the bachelor and master degrees in University of Science and Technology of China in 1982 and 1985 respectively, Ph. D. degree in the Institute of High Energy Physics (IHEP), CAS, in 1993. His research experience includes in LEP L3, L3 Cosmic, AMS experiments. Research in Daya Bay and JUNO experiments in recent years. Faculty of IHEP now.

INVITED SPEAKER: SP1_INV02

THAI-JUNO COLLABORATION
Narumon Suwonjandee,[1,*] Khanchai Khosonthongkee[2] on behalf of THAI-JUNO CONSORTIUM
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[2] School of Physics, Institute of Science, Suranaree University of Technology, Nakhon Ratchasima, 30000, Thailand
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Abstract:
This presentation highlights the collaboration between Thai and Chinese institutions in neutrino physics. Initiated under the patronage of Her Royal Highness Princess Maha Chakri Sirindhorn, the partnership involves Chulalongkorn University (CU), Suranaree University of Technology (SUT), and the National Astronomical Research Institute of Thailand (Public Organization) – NARIT, which signed a Memorandum of Understanding (MOU) with the Institute of High Energy Physics (IHEP), China on April 7, 2017. The joint research focuses on the Jiangmen Underground Neutrino Observatory (JUNO), particularly the Earth Magnetic Field (EMF) shielding design aimed at minimizing magnetic field effect in the detector region to optimize the performance of photomultiplier tubes (PMTs). The team also investigates structural factors, such as steel-induced magnetic effects, to ensure optimal PMT functionality. To date, seven students and one assistant researcher have participated in this project — two have completed their Ph.D., two have completed their M.Sc., and three are currently pursuing doctoral degrees. The collaboration has produced over 20 co-authored research papers and six conference presentations related to EMF and PMT development. Additionally, a dark room and smaller EMF shielding coils have been established at SUT to support PMT testing and capacity building. These facilities are instrumental in advancing technical expertise and providing training opportunities for the next generation of researchers in neutrino physics and related fields.

Assistant Professor Dr. Narumon Suwonjandee was born in Bangkok, Thailand in 1970. She received the bachelor's degree in Physics from Faculty of Science, Chulalongkorn University, Thailand in 1993. She received the master and doctoral degrees in Physics in 1998 and 2004, respectively, from University of Cincinnati, Ohio, USA. Since 2004, she has been a faculty member at the Department of Physics, Faculty of Science, Chulalongkorn University, Thailand. Her research interests include particle physics, particularly neutrino physics in the JUNO and KATRIN experiments, as well as physics education.

Assistant Professor Dr. Khanchai Khosonthongkee was born in Samut Songkhram, Thailand, in 1978. He received a B.Sc. in Physics from the Department of Physics, Faculty of Science, Mahidol University, Thailand, in 1999, and a Ph.D. in Physics from the School of Physics, Institute of Science, Suranaree University of Technology, Nakhon Ratchasima, Thailand, in 2004. Since 2005 he has been a faculty member at the School of Physics, Institute of Science, Suranaree University of Technology. His research focuses on particle physics, with current work in neutrino physics as part of the JUNO and KATRIN experiments.

INVITED SPEAKER: SP1_INV03

PHYSICS HIGHLIGHTS FROM THE BESIII EXPERIMENT

Hai-Bo Li*
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Abstract:
This presentation showcases the scientific achievements of the Beijing Spectrometer III (BESIII) experiment at the Beijing Electron Positron Collider II (BEPCII). Operating since 2008, BESIII is a state-of-the-art general-purpose detector optimized for studies in the τ-Charm energy region (1.84 - 4.95 GeV). With its world-leading luminosity and precision, BESIII has made significant contributions to our understanding of quantum chromodynamics (QCD) and the Standard Model. Key results include precision measurements of charmed hadrons and τ lepton properties, the discovery and characterization of exotic hadronic states (like the XYZ particles), and searches for CP violation and rare decays. These findings continue to play a crucial role in probing fundamental physics and testing theoretical models.

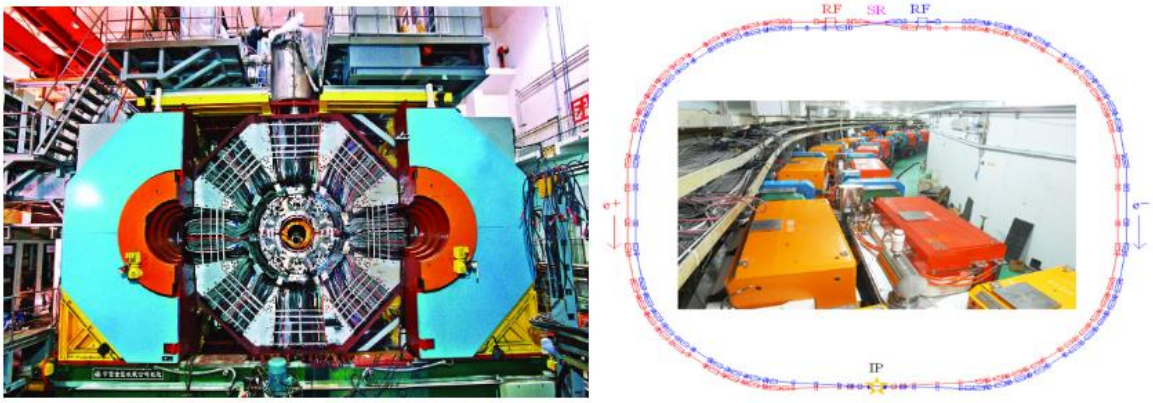


Figure 1. Sideview of BESIII detector (left) and part of the accelerator (right).

Professor Hai-Bo Li is a physicist specializing in heavy flavor physics and hadron spectroscopy. Born in Hebei, China (1970), he earned his B.Sc. in Physics from Hebei Normal University (1992) and his Ph.D. in Particle and Nuclear Physics from the Institute of High Energy Physics (IHEP), Chinese Academy of Sciences (CAS) (1998). His international research career includes: serving as a CERN Fellow (1998-2000), working on the ALEPH experiment, and working as a Research Associate at SLAC (2001-2005), contributing to the BABAR experiment. Since 2005, Professor Li has been conducting research at IHEP in Beijing.

INVITED SPEAKER: SP1_INV04

THAI-BESIII RESEARCH AND ACTIVITIES

Wiriya Ruengyoo,[1] Nattapat Tagsinsit,[1] Xu Kai,[1] Zheng Zhao,[1] Attaphon Kaewsnod,[1] Christoph Herold,[1] Ayut Limphirat,[1,*] Yupeng Yan,[1] Chunxu Yu,[2] Hai-Bo Li[3]

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Abstract:

The Beijing Spectrometer III (BESIII) is a state-of-the-art particle physics experiment located at the Institute of High Energy Physics (IHEP) in Beijing, China. It operates at the Beijing Electron-Positron Collider II (BEPCII), which was designed specifically for exploring the tau-charm energy region, covering center-of-mass energies from 2 to 5 GeV. This energy range is ideal for studying hadrons containing charm quarks as well as the tau lepton. With over 500 physicists from more than 80 institutions across 17 countries, BESIII exemplifies the spirit of global scientific cooperation. Suranaree University of Technology (SUT) has established close partnerships with both Nankai University and IHEP in China. This collaboration spans both experimental and theoretical aspects of hadron physics. Thai researchers have contributed to the analysis of BESIII data, focusing on rare decay channels and the search for exotic states. In addition, they have been involved in software development and student training programs. This partnership benefits both sides. Chinese institutions gain from the fresh perspectives and manpower provided by Thai researchers, while Thai universities gain access to cutting-edge data and international expertise. Through joint workshops, summer schools, and exchange programs, a new generation of Thai physicists is being trained to participate in high-level international research.

Assoc. Prof. Ayut Limphirat was born in Ratchaburi, Thailand. He received the bachelor's degree in Physics from Faculty of Science, Chulalongkorn University, Thailand, and the doctoral degree in Physics from Institute of Science, Suranaree University of Technology, Thailand. Since 2012 he has been a faculty member at the School of Physics, Institute of Science, Suranaree University of Technology. His research interests include hadron physics and heavy ion physics.

INVITED SPEAKER: SP1_INV05

GEOSPATIAL APPLICATIONS FOR RICE MONITORING IN CAMBODIA, LAO PDR, AND MYANMAR COUNTRIES

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Abstract:
Rice is the primary food source for a significant portion of Southeast Asia. Nevertheless, its production is being challenged by climate change, natural disasters, and limited access to timely agricultural information. To address this issue, the *Geospatial Information Applications for Rice Monitoring in CLM Countries (Cambodia, Lao PDR, Myanmar)* project was launched under the Lancang-Mekong Cooperation Special Fund. Jointly implemented by the Geo-Informatics and Space Technology Development Agency (GISTDA) and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), the project aims to improve food security and enhance livelihoods in vulnerable regions by providing access to geo-referenced agricultural monitoring systems. The initiative developed and expanded a rice monitoring system capable of mapping cultivated areas, estimating production, and detecting crop health conditions using space-derived datasets. In parallel, a capacity-building program was conducted to strengthen technical expertise in utilizing satellite remote sensing applications for agricultural management. A total of 42 participants from 24 organizations across three countries received training. The results demonstrate that national and sub-national officials are now better equipped to use the tailored crop monitoring system to support evidence-based agricultural planning and decision-making.

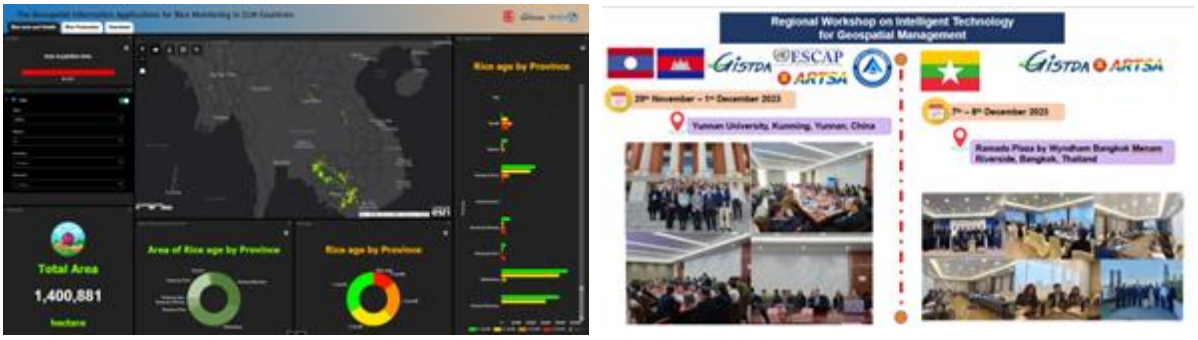


Figure 1. Geospatial Information Applications for Rice Monitoring in CLM Countries System (left) and Capacity Building Activities with UNESCAP and AIRCAS for CLM countries (right).

Mr. Panu Nueangjumnong is a Senior Geoinformatics Specialist at the Geo-Informatics and Space Technology Development Agency (GISTDA) in Thailand. He has a Bachelor of Science in Geography from Kasetsart University and a Master of Science in Environmental Management Technology from Mahidol University. In 2008, obtain a scholar from the Sirindhorn International Center for Geo-informatics to conduct research at Wuhan University. Presently, he works in multiple initiatives that involve geospatial applications for environmental management, disaster risk assessment, and agricultural monitoring. These projects are designed to assist in the decision-making process of sustainable agriculture and environmental management.

INVITED SPEAKER: SP1_INV06

DEVELOPMENT OF NANOSENSORS FOR MINIMALLY INVASIVE SCREENING OF NON-COMMUNICABLE DISEASES

Piyawat Pitikultham,[1,2] Kawin Loha,[3] Thitirat Putnin,[4] Dechnarong Pimalai,[4] Nuankanya Sathirapongsasuti,[5] Chagriya Kitiyakara,[5] Qiao Jiang,[1,2] Baoquan Ding,[1,2] Thitikorn Boonkoom,[4] Harit Pitakjakpipop,[4] Ibrar Alam,[4] Alongkot Treetong,[4] Poramin Boonbanjong,[5] Itthi Chatnuntawech,[4] Surat Teerapittayanon,[4] Ulrich F. Keyser,[6] Albert Schulte,[3] Deanpen Japrung[4,*]

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Abstract:

This research presents the development of two complementary nanosensor platforms for minimally invasive screening of non-communicable diseases (NCDs), focusing on early detection of oral cancer biomarkers. The first platform integrates graphene oxide (GO)-based fluorescence quenching with rolling circle amplification (RCA) for the detection of salivary microRNAs, specifically miR-21 and miR-16. DNA-functionalized GO acts as a fluorescence quencher, and upon hybridization with the RCA-amplified targets, the fluorescent dyes are released, enabling highly specific and sensitive detection down to sub-nanomolar concentrations. This system provides a non-invasive, user-friendly approach suitable for early-stage screening. The second platform utilizes solid-state nanopore technology for label-free, single-molecule analysis. This system allows direct electrical detection of miR-21 and structural profiling of RCA products based on their translocation signatures through the nanopore. The nanopore analysis complements the fluorescence-based platform by offering molecular-level confirmation of amplification and target recognition. Together, these platforms showcase the integration of nanomaterial-based and nanopore-based sensing technologies for accurate, minimally invasive diagnostics with potential applications in population-wide cancer screening.

Deanpen Japrung earned her PhD in Chemical Biology from the University of Oxford and is currently a principal researcher at the National Nanotechnology Center (NANOTEC) in Thailand. Her research focuses on nanomaterial-based biosensors for diagnostics, with expertise in aptasensors, miRNA detection, nanopore analysis, and point-of-care technologies for diseases such as cancer, diabetes, and chronic kidney disease. She has published over 60 research articles in journals such as Nano Letters, ACS Omega, and The Journal of Physical Chemistry B, and holds 42 patents related to diagnostic and biosensing platforms.

INVITED SPEAKER: SP1_INV07

NANOSCALE BIOMEDICAL ENGINEERING FOR PHARMACEUTICAL DEVELOPMENT

Pan Hailian*
Director of Graduate Education Department at National Center for Nanoscience and Technology, CAS, China
*e-mail: TBA

Abstract:
TBA

TBA

INVITED SPEAKER: SP1_INV08

BRIDGING SKIES AND BORDERS: THE SINO-THAI VLBI COLLABORATION

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Abstract:
The advent of Very Long Baseline Interferometry (VLBI) has revolutionized our ability to explore the universe with unparalleled angular resolution and to measure Earth's geometric and dynamic parameters with millimeter-level precision. This invited talk presents an overview of the VLBI collaboration between China and Thailand, a partnership that exemplifies how international cooperation can significantly benifit scientific exploration.
The talk will begin by outlining the foundational context of the collaboration, highlighting the complementary strengths of China's advanced VLBI infrastructure and expertise—epitomized by its pivotal role in the Chang'e lunar missions and the quickly evolving Chinese VLBI Network led by Shanghai Astronomical Observatory (SHAO) — and Thailand's strategic geographic location and growing ambitions in radio astronomy. The newly established 40m Thai National Radio Telescope in Chiang Mai, Thailand effectively extends the existing VLBI Networks' baseline lengths, dramatically improving their imaging resolution and sensitivity. I will concentrate on the current status of the Sino-Thai VLBI collaboration (including some technical specifications, the challenges and successes of initial joint testing observations), followed by some key scientific and technical objectives to be pursued, including high-resolution astrophysics (studies on the jet dynamics of active galactic nuclei, masers in star-forming regions, and the precise astrometry of compact objects), geodetic and Earth science applications (measurement of crustal deformation in Southeast Asia, monitoring of Earth orientation parameters, and regional disaster mitigation through precise tectonic plate monitoring), and technology transfer and capacity building (knowledge exchange, and creating new opportunities for training the next generation of scientists and engineers). Finally, the talk will look towards the future, discussing the roadmap for deeper integration into global VLBI networks like EAVN (the East Asian VLBI Network), IVS (the International VLBI Service for Geodesy and Astrometry) and some others.
The Sino-Thai VLBI collaboration stands not only as a testament to shared scientific pursuit but also as a model for future international partnerships that push the boundaries of our knowledge about both the universe and our planet.

Professor Dr. Zhiqiang Shen is a radio astronomer at Shanghai Astronomical Observatory (SHAO), Chinese Academy of Sciences with expertise on VLBI technique and its application in astrophysics. He began his academic journey with a B.Sc. in astronomy from Nanjing University in 1986, followed by a M.Sc. in astrophysics from Peking University in 1989 and a PhD in radio astronomy from SHAO in 1996. He has studied and worked in several renowned research institutions in the United States, Japan, and Taiwan, China, among other places. His main research interest is about high-resolution VLBI studies of compact objects such as the super-massive black hole at the Galactic Centre, central parsec region of Active Galactic Nuclei (AGN), VLBI astrometry of pulsars, etc. He is a member of International Technical Advisory Committee for System Integration & VLBI Development of the Thai National Radio Astronomy Observatory (TNRO).

INVITED SPEAKER: SP1_INV09

SINO-THAI HIGH-ENERGY ASTROPHYSICS AND COSMIC RAYS

David Ruffolo*
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Abstract:
Thailand and China have strong collaboration in the fields of high-energy astrophysics and cosmic rays, which are high-energy particles from space. Thai researchers contribute to the Large High Altitude Air Shower Observatory (LHAASO) Collaboration, which operates a huge 1.3 km^2 cosmic ray detector in Sichuan Province, China. LHAASO is the world's leading detector of ultra-high energy gamma rays, which in turn come from collisions of cosmic rays with energies on the order of 1 PeV (10^{15} eV). We have provided clear evidence for PeVatrons (natural accelerators of PeV-range particles) at various types of Galactic objects, and recorded the first onset of TeV (10^{12} eV)-range gamma rays from a gamma ray burst (GRB 221009A). In an analysis led by Thai participants, LHAASO has found the highest-energy effects on cosmic rays ever reported for a solar storm. Solar storms can also enhance space radiation at lower energies by up to 10,000 times within a few minutes, posing a key hazard to humans and instruments in space. To this end, Thai scientists have designed the Moon-Aiming Thai-Chinese Hodoscope (MATCH), which has been delivered for integration onto the Chinese Chang'E-7 lunar orbiter to perform unique observations of cosmic rays and to monitor space weather effects from solar storms. Another Thai-designed instrument has been accepted for the Chang'E-8 lunar lander, and we aim to continue collaborating on future space missions. This collaboration is driving Thailand's first designs and construction of space instrumentation, joining the global space technology community.

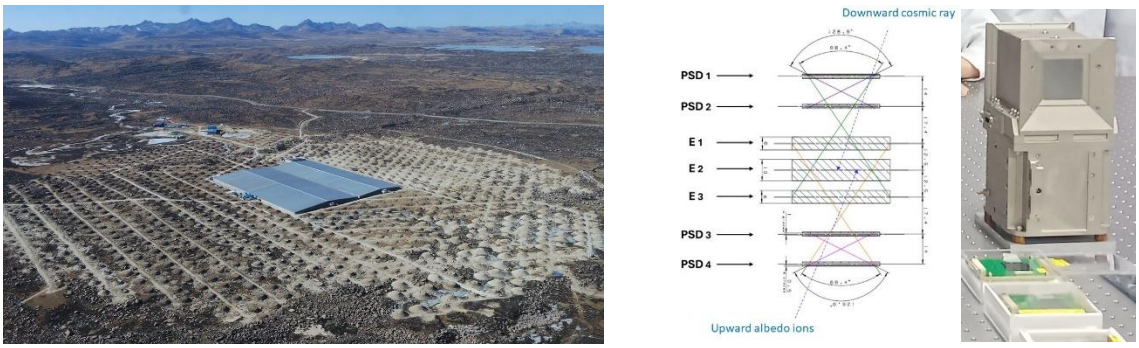


Figure 1. Examples of Sino-Thai collaboration in high-energy astrophysics and cosmic rays. (Left) The LHAASO detector in Sichuan Province, China, one of the world's premier cosmic ray detectors. (Middle, right) The MATCH particle detector for the Chang'E-7 lunar orbiter.

Professor Dr. David Ruffolo was born in Iowa City, Iowa, USA in 1968. He received bachelor's degrees in Physics and Mathematics from U. Cincinnati, USA in 1985. He received a Ph.D. in Physics in 1991 from U. Chicago, USA. From 1991-2003, he worked at the Department of Physics, Faculty of Science, Chulalongkorn University, Thailand, and since then at the Department of Physics, Faculty of Science, Mahidol University, Thailand. He won the 2017 Outstanding Thai Scientist Award and 2022 Outstanding Researcher Award. His research interests cover high energy particles from space, i.e., cosmic rays, including their detection, transport theory, and data analysis, and space plasma physics, including solar wind turbulence and magnetic reconnection.

INVITED SPEAKER: SP1_INV10

DEVELOPMENT OF PAYLOADS AND SATELLITES FOR LUNAR EXPLORATION

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Abstract:
TBA

TBA

INVITED SPEAKER: SP1_INV11

SINO-THAI BIG DATA AND COLLABORATION

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Abstract:
This presentation will primarily focus on the sharing of astronomical data and the application of large-scale artificial intelligence models in astronomy. On September 30 this year, China's largest spectral survey project, LAMOST, officially released the international version of Data Release 11 (DR11), which include more than 25 million spectra. Under the existing China-Thailand cooperation framework, these datasets have been synchronized and uploaded to the data servers at NARIT. This data plays a significant role in Milky Way research and the discovery of peculiar celestial objects. In the first half of this year, the National Astronomical Observatories of China, in collaboration with the Zhejiang Laboratory, launched a suite of AI large models for astronomy, which was the result of a year-long training effort. These AI models are currently undergoing continuous iterations, and we look forward to collaboration between Chinese and Thai scientists in testing the models and applying them to real astronomical research.

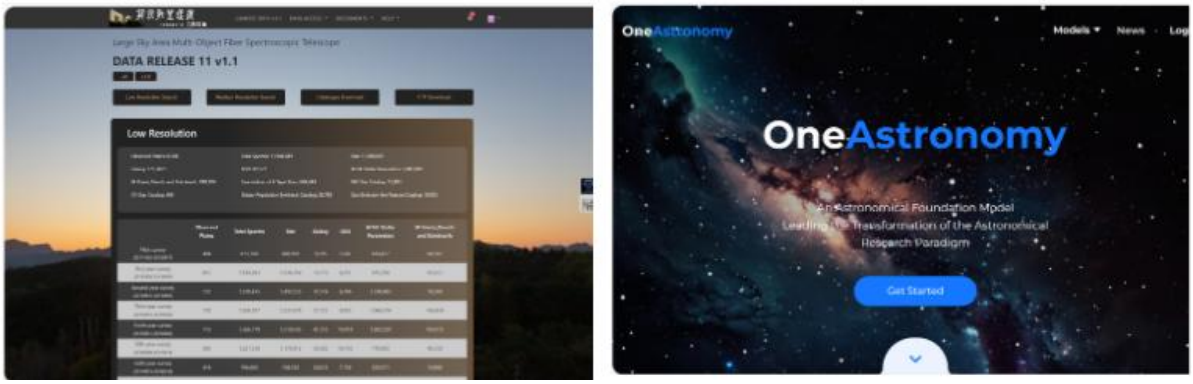


Figure 1. Webpages of LAMOST Data Release 11 (left) and OneAstronomy AI large models (right).

Professor A-Li Luo was born in Hohhot, Inner Mongolia, China in 1969. He earned a bachelor's degree from the Department of Wireless Communication at the University of Electronic Science and Technology of China in 1991. In 2001, he received his PhD in Astrophysics from the Graduate School of the Chinese Academy of Sciences. Since 2001, Professor Luo has been working with the LAMOST group, initially as a developer and currently as its director. LAMOST (the Large Sky Area Multi-Object Fiber Spectroscopic Telescope) is one of China's major Big Science Facilities under the Chinese Academy of Sciences. His research interests include big data mining, the application of artificial intelligence in galactic studies, and the discovery of rare celestial objects.

INVITED SPEAKER: SP1_INV12

OVERVIEW OF THAILAND-CHINA COLLABORATION ON SCIENCE AND TECHNOLOGY HUMAN RESOURCES DEVELOPMENT UNDER THE INITIATIVE OF HRH PRINCESS MAHA CHAKRI SIRINDHORN

Chadamas Thuvasethakul*
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Abstract:
This presentation highlights Thailand-China collaboration in science and technology human resources development under Her Royal Highness Princess Maha Chakri Sirindhorn's initiative. Key programs include the HRH–Xian Jiaotong University scholarship for Master's Degrees in engineering and technology, launched in 2011; the Sirindhorn Center for Geo-Informatics (SCGI) Double-Degree Master's Program with Wuhan University and Burapha University, launched in 2018 to foster expertise in space technology and geo-informatics for regional competitiveness; and the OCSC- UCAS Scholarship, initiated in 2008 with the Memorandum of Understanding signed between the Office of Civil Service Commission (OCSC) and University of Chinese Academy of Sciences (UCAS), which enables Thai students to pursue Ph.D. studies at UCAS, and conduct research at CAS research institutes. Graduates from these programs have contributed their knowledge and expertise to Thailand's scientific and technological advancement. Additionally, Her Royal Highness Princess Maha Chakri Sirindhorn's Scholarship supports Thai students' academic and cultural exchange with China, fostering leadership and regional cooperation. Together, these programs exemplify sustained efforts to develop skilled human resources, strengthen bilateral ties, and promote innovation and sustainable development in the region. This presentation will highlight key achievements, ongoing challenges, and future prospects for Thailand-China collaboration in science and technology human resource development inspired by HRH Princess Maha Chakri Sirindhorn's vision and dedication.



Dr. Chadamas Thuvasethakul is a former Executive Vice President of Thailand National Science and Technology Development Agency (NSTDA), Ministry of Higher Education Science Research and Innovation, overseeing Science and Technology Human Resources Development. Examples of program under her supervision are: Junior Science Talents Project (JSTP), NSTDA Graduate Scholarship, Science and Technology program for youth, teacher, and student. Presently, she is a Deputy Secretary General of the Information Technology Foundation under the Initiative of HRH Princess Maha Chakri Sirindhorn and also serves as an Expert at NSTDA. She has experiences working on various projects focusing on the application of digital technologies to increase access to quality education and enhance quality of life of the under privileged, including rural school children, persons with disabilities, chronically-illed children in the hospitals, prison inmates and youth in the juvenile detention center. She received a Ph.D. in Health Policy and Administration and an M.S. in Pharmacy Administration from the University of North Carolina at Chapel Hill, U.S.A., and a Bachelor of Pharmaceutical Sciences (1st Class Honors) from Chulalongkorn University, Bangkok.

INVITED SPEAKER: SP1_INV13_1

OCSC-UCAS SCHOLARSHIP

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Abstract:
The Memorandum of Understanding (MoU) between UCAS and OCSC was first signed in 2008 and has been renewed regularly. It is particularly noteworthy that Her Royal Highness Princess Maha Chakri Sirindhorn has visited UCAS on five occasions and personally attended the signing and renewal ceremonies of the agreement, reflecting her strong commitment to talent development and scientific and educational cooperation between the two countries. Over the past seventeen years, UCAS and OCSC have worked closely together to support Thai students pursuing studies in China. After graduation, most of these students returned to work at educational institutions or government agencies, where they are applying their expertise to contribute meaningfully to their country and society. In the first part of this presentation, an overview of the partnership between UCAS and OCSC will be provided. This will be followed by a detailed discussion on the admission and cultivation of scholarship recipients at UCAS, along with examples of outstanding students. Finally, future prospects for the scholarship program will be presented for further consideration and discussion.



Figure 1. Her Royal Highness Princess Maha Chakri Sirindhorn visited UCAS for the third time in 2011 and witnessed the renew of the MoU between UCAS and OCSC.

Dr. Dingcheng Huang serves as the Deputy Director of the International Affairs Office at the University of Chinese Academy of Sciences (UCAS). He holds a doctoral degree in Zoology from the predecessor of UCAS, Graduate University of Chinese Academy of Sciences. Since 2011, Dr. Huang has been dedicated to advancing international cooperation, with a particular focus on international student programs. As the head of the International Students Office at UCAS, he has established a standardized and modern management system, leading to significant growth in both quantity and quality of international students. His efforts have also contributed to enhancing the university's global reputation.

INVITED SPEAKER: SP1_INV13_2

OCSC-UCAS SCHOLARSHIP

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Abstract:
The OCSC–UCAS Scholarship Program, established under the noble initiative of Her Royal Highness Princess Maha Chakri Sirindhorn, is a collaboration between the Office of the Civil Service Commission (OCSC), Thailand, and the University of Chinese Academy of Sciences (UCAS). The program allows Thai students to continue their studies in science and technology and helps strengthen collaboration between Thailand and China. In this presentation, I will share my experiences as a PhD scholar at Institute of Metal Research (IMR), UCAS. My study journey provided comprehensive academic training, valuable research opportunities, and international exposure that strengthened my professional development. I will also reflect on the challenges and achievements during my PhD, as well as the collaborative networks built through the program. These experiences illustrate how the OCSC–UCAS Scholarship supports both individual growth and the broader vision of sustainable scientific collaboration between Thailand and China.



Figure 1. Discussion and collaboration opportunities during a visit to IMR with Prof. Ke Wei.

Associate Professor Dr. Thee Chowwanonthapunya is a lecturer at Kasetsart University, Sriracha Campus. He earned his Doctor of Engineering in Materials Science and Engineering from the Institute of Metal Research, Shenyang (2010–2014). His research focuses on grain-refined aluminum casting alloys, atmospheric corrosion, failure analysis, and metallurgical engineering. His major publications include contributions to the Institute of Advanced Materials and Technology, University of Science and Technology Beijing, and recent work with the Materials Corrosion and Protection Center, Institute of Metal Research, Chinese Academy of Sciences. He is also active in academic exchange and international conferences, supporting knowledge sharing and promoting Thailand–China scientific cooperation in advanced materials and sustainable engineering.

INVITED SPEAKER: SP1_INV14

SIRINDHORN CENTER FOR GEO-INFORMATICS (SCGI) MASTER PROGRAM

Ditchaphong Phoomikiattisak*
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Abstract:
Her Royal Highness Princess Maha Chakri Sirindhorn presided over the official opening of the Sirindhorn Center for Geo-Informatics (SCGI) building on March 20, 2015. After that, on April 6, 2017, Wuhan University: WHU, China, Burapha University: BUU, and Geo-Informatics and Space Technology Development Agency (Public Organization): GISTDA, Thailand agreed to cooperate on offering a Double master's degree on Geoinformatics and Space Technology under the supervision of the Sirindhorn Center for Geo-Informatics (SCGI). The MOU was signed by three parties at Wuhan University, China. The program aims to develop innovative talent in space technology and geo-informatics, serving as a key driver for enhancing national capability and regional competitiveness in the future. It also seeks to establish a collaborative network to promote the exchange of knowledge, information, and research in these fields, thereby contributing to sustainable development across the region. The SCGI Master's Program has been running since July 2018. To date, it has welcomed seven batches with a total of 54 students, of whom 37 have graduated.



Figure 1. The official opening of the Sirindhorn Center for Geo-Informatics (SCGI) building.

Dr. Ditchaphong Phoomikiattisak is the Head of the Geo-Informatics Technology Division at the Geo-Informatics and Space Technology Development Agency (GISTDA), Thailand. With over seven years of experience managing innovation projects in collaboration with leading national and international institutions, he specializes in developing cutting-edge geospatial solutions. He currently leads the capacity building initiatives in geo-informatics and space technology, collaborating with partners across Thailand and around the globe.

INVITED SPEAKER: SP1_INV15

BRIDGING THAILAND AND CHINA THROUGH EDUCATION: THE HER ROYAL HIGHNESS PRINCESS MAHA CHAKRI SIRINDHORN's SCHOLARSHIP

Chayanit Asawatangtrakuldee*
Department of Physics, Faculty of Science, Chulalongkorn University, Thailand
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Abstract:
The Her Royal Highness Princess Maha Chakri Sirindhorn's Scholarship is a visionary initiative that builds bridges between Thailand and China by offering Thai students the opportunity to pursue higher education, cultural exchange, and international collaboration. As a recipient of this scholarship, I experienced firsthand how it provides not only access to world-class academic training and research in China but also invaluable lessons in adapting to new cultural settings, developing global perspectives, and forming lifelong friendships. This journey was transformative both personally and professionally, broadening my worldview and inspiring me to contribute my knowledge and experiences back to Thailand. In this talk, I will reflect on the origins and goals of the scholarship, share my own experiences as an example of its impact, and highlight how it empowers Thai students to become ambassadors of friendship and future leaders who will strengthen Thailand's role in regional cooperation and development.



Figure 1. Recipients of Her Royal Highness Princess Maha Chakri Sirindhorn's Scholarship.

Assistant Professor Dr. Chayanit Asawatangtrakuldee is an experimental particle physicist at Chulalongkorn University, with an active affiliation in the CMS and the SND@LHC Collaborations at CERN. She began her academic journey with a B.Sc. in Physics from Peking University (2006-2010), followed by a Doctor of Natural Science in Particle and Nuclear Physics at the same institution (2010-2015), both enriched through joint research programs with CERN. She continued her career path as a fellow at DESY from 2016 to 2018, before joining Chulalongkorn University in 2019. Her research work focuses on searches beyond the Standard Model, particularly involving the Higgs boson and exotic particles, as well as Neutrino Physics at the collider. Her key publications include significant contributions to the CMS collaboration and recent work with the SND@LHC collaboration at CERN.

INVITED SPEAKER: SP1_INV16

THAILAND TOKAMAK-1 AT A GLANCE

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Abstract:
Thailand Tokamak-1 (TT-1), i.e., the first tokamak in Thailand, has been in operation and now entering into its second year. The facility is an example of collaborative effort from the Thai government through TINT, Electricity Generating Authority of Thailand (EGAT), Institute of Plasma Physics (ASIPP, China), and French Alternative Energies and Atomic Energy Commission (CEA, France) . Some typical operating parameters of TT-1 tokamak are 100 kA in plasma current, 0.9 T for magnetic field, 123 ms for plasma flattop, and 6×10^{18} m^{-3} in electron density. More experimental plasma scenarios are planned for machine operation and open for application. A few partners from Center for Plasma and Nuclear Fusion (CPaF) are carrying out or scheduled for their experiments. A run campaign of up to one month can now be applied under the consent of a steering committee. Few selected preliminary results will be presented. Also, results from TT-1 on magnetohydrodynamic behaviors of TT-1 plasma or electrically conducting fluids under the influence of magnetic and electric fields, from a few cases are reported. With the complexities and rapid dynamics in the plasma behavior render conventional diagnostics method too slow, machine learning and artificial intelligence are utilized for analyzing of multi-magnetic probes to help locate plasma positions in a thousand-fold faster fashion for live monitoring. With these improving diagnostics in hands, better and faster plasma positioning can be envisaged. Certain activities under TINT and CPaF are broadened to international level to other tokamak facilities than TT-1. Schools, trainings, and workshops for fusion and plasma technology are organized regularly to nurture and train students, engineers, and industrial partners under the human resource development program. Engineers from EGAT, researchers and graduate students from universities, and staff of TINT have experienced eight-week trainings at the bigger fusion facility under construction, ITER in Europe. ASEAN school for plasma and nuclear fusion (ASPNF) is for example and has been organized annually and opens for ASEAN and Thai participants. A few scholarships are available under the Thailand Academy of Sciences (TAS) programme by PMU-B to TINT. A wider collaborative network, e.g., ASEAN advanced engineering center in fusion technology is under discussion. Updates of the fusion initiative in Thailand and progress of TT-1 will be presented in this talk.

Associate Professor Dr. Somsak Dangtip was born in Chiang Mai, Thailand. He received the bachelor's degree in Physics from Department of Physics, Faculty of Science, Chiang Mai University in 1992. He continued and was awarded his Ph.D, in Applied Neutron Physics in 2000 from Uppsala University, Sweden. From 2000, he started working at Fast Neutron Research Facility, Department of Physics, Faculty of Science, Chiang Mai University, before joining Mahidol University in 2003. Then in 2019, he has joined Thailand Institute of Nuclear Technology as a manager of Center of Advanced Engineering and Nuclear Technology. His research interests in Radiation Interaction with Matters, Applied Neutron Research, Plasma Technology & Applications, and Fusion Technology.

INVITED SPEAKER: SP1_INV17

CURRENT STATUS AND PROGRESS OF BEST TOKAMAK PROJECT

Peng Xuebing*
Institute of Plasma Physics, Chinese Academy of Sciences, China
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Abstract:
In this presentation, the recent information of Burning plasma Experimental Superconducting Tokamak（BEST）will be introduced. BEST tokamak will be devoted to the steady state operation and control of burning plasma in D-T experiment. With a moderate fusion power (20-200MW), BEST will also contribute to the burning plasma and alpha particle physics in future reactors. The major design work of BEST has been finished, while the construction of BEST has been started in the middle of 2023. Progress of BEST individual system design & construction will be presented in the talk. Also, the BEST campus and building construction will be shown. International collaboration and joint research on BEST will be welcome.

Peng Xuebing received a Ph.D. at Institute of Plasma Physics, Chinese Academy of Sciences (ASIPP), with a major in Nuclear Energy Science and Engineering research. Since 2025, Peng Xuebing took the position of Division Head of Fusion Engineering Research Division at ASIPP. Prof. Peng has been engaged in the research of magnetic confinement nuclear fusion for 20 years, through the projects at home and abroad. From 2011 to 2013, he had been responsible for the thermo-structural analysis for in-vessel components of W7-X in Germany. From 2017-2019, he had been carried out structural integrity assessment for ITER in-vessel coil in France. He is now in charge of the design development of BEST in-vessel components. In addition, he is the co-chair of engineering group in ITPA for ITER and the editor of journal of scientific reports.

INVITED SPEAKER: SP1_INV18

EARTH SYSTEM MODEL DEVELOPMENT FOR CLIMATE STUDIES

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Abstract:
Earth system model is one of the key tools for understanding the past climate change and predicting the future climate change and weather and climate extremes. In this talk, we firstly introduce the Earth System Science Numerical Simulator Facility (EarthLab), which has been established and put into application since 2020. The Chinese Academy of Sciences Earth System Model version 2 (CAS-ESM2), the core component of EarthLab, has been further documented with its framework and performance in simulating the past climate variability and changes, and it is found that CAS-ESM2 demonstrates a good performance in simulating ENSO and East Asia monsoon circulation, which are crucial for reliable seasonal climate prediction. Then we present the configuration of dynamical climate prediction system of the Institute of Atmospheric Physics (IAP-DCP) based on the CAS-ESM component model, followed by the evaluation of predicting skill for climate anomalies based on the 30-year hindcast experiments. Analysis results reveal that, IAP-DCP does show reasonable skills in predicting the summer rainfall anomalies over China, Southeast Asia, and even over west African regions. All these suggest that the CAS-ESM can be further applied for the simulation and operational prediction of hydrometeorological disasters for the regional and global sustainable development, particularly in the global South.

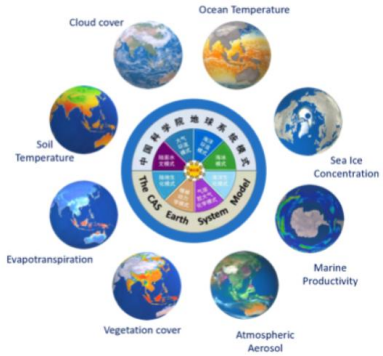


Figure 1. Earth System Model Development for Climate Studies.

Professor Zhaohui Lin was born in Fujian Province, China in 1968. He received the bachelor's degree in Fluid Mechanics from Department of Modern Mechanics, University of Science and Technology of China in 1990, and his Ph.D. in Meteorology in 1995 from the Institute of Atmospheric Physics, Chinese Academy of Sciences. Since 1996, he has been working as a research scientist at the same institute. His research focuses on earth system model development, subseasonal to seasonal hydrometeorological predictions, land-atmosphere interaction, as well as hydrological modeling and forecasting. Professor Lin has published more than 190 peer-reviewed journal articles and has been honored with multiple prestigious awards at the national, ministerial, and provincial levels in recognition of his scientific contributions.

INVITED SPEAKER: SP1_INV19

SIZE-SEGREGATED ANALYSIS OF PAHs IN URBAN AIR: SOURCE APPORTIONMENT AND HEALTH RISK ASSESSMENT IN AN URBAN CANAL-ADJACENT ENVIRONMENT

Siwatt Pongpiachan[1,2,*], Danai Tipmanee[3], Chukkapong Khumsup[4], Phoosak Hirunyatrakul[4], Muhammad Zaffar Hashmi[5], and Saran Poshyachinda[1]

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Abstract:

This study examines the distribution, origins, and health hazards of polycyclic aromatic hydrocarbons (PAHs) across six particle size fractions obtained from an urban rooftop location in Bangkok, Thailand. We collected PM samples using a six-stage cascade impactor at a canal boat port, trapping PAHs in particle sizes ranging from ultrafine ($PM_{0.65–1.1}$) to coarse ($PM_{7.0\ and\ beyond}$) over an 11-week period. We utilized gas chromatography-mass spectrometry to quantify twelve PAH congeners. Results indicated that PAHs primarily concentrate in fine particles ($PM_{2.1–3.3}$), with traffic emissions from gasoline and gasoline cars being the principal sources, augmented by emissions from diesel canal boats and industrial activities. The health risk assessment showed that the lifetime lung cancer risk (LLCR) values for all particle sizes were less than 1×10^{-6}. This means that PAH exposure in this area has a very low cancer risk. Principal Component Analysis (PCA) and Positive Matrix Factorization (PMF) found traffic and industrial emissions as the primary sources of PAHs, with canal boats accounting for 5% of the total. These findings highlight the necessity of specific emission control regulations and advocate for the implementation of cleaner fuel alternatives and electric propulsion in canal transit to enhance urban air quality in Bangkok.

Prof. Dr. Siwatt Pongpiachan is a leading Thai environmental scientist and executive director of Future Earth Thailand. His multidisciplinary research spans atmospheric chemistry, air pollution, environmental risk assessment, and sustainable development. With a Ph.D. from the University of Birmingham, his academic foundation is in environmental geochemistry and toxicology.

Over the past two decades, Prof. Pongpiachan has established himself as an expert in chemical characterization of atmospheric pollutants, particularly polycyclic aromatic hydrocarbons (PAHs) and $PM_{2.5}$-bound heavy metals. His research frequently employs advanced analytical techniques such as synchrotron-based XANES, ATR-FTIR, and ICP-MS, and integrates them with GIS-based modeling and satellite remote sensing to study the spatial and temporal behavior of environmental contaminants.

He has led several high-impact, policy-relevant projects, including those funded by: UNIDO – focusing on green chemistry, sustainable industrial practices, and urban-industrial symbiosis. / NARIT – using ACSM data to understand $PM_{2.5}$ pollution in ambient air of Thailand. / U.S. Department of State – investigating meteorological influences on COVID-19 transmission. / Strategic research programs in Thailand – e.g., using artificial neural networks to link climate and pollution data with child health outcomes.

Prof. Pongpiachan has also contributed to legal and regulatory frameworks concerning dioxins, furans, and unintentional POPs, especially in the scrap metal and waste incineration industries. He is active in both national and international environmental governance and often collaborates with institutions such as Johns Hopkins University, Michigan State University, and IEECAS, Xian, China. His recent work emphasizes the integration of space technology, participatory science, and advanced analytics to address complex environmental issues such as heavy metal contamination in river basins and land subsidence from groundwater overexploitation. Throughout his career, he has maintained a strong commitment to capacity building, public engagement, and science communication, particularly through initiatives that link environmental monitoring with community awareness and disaster preparedness.

INVITED SPEAKER: SP1_INV20

FROM CHINA TO THAILAND: SMR – A MAJOR LEAP FORWARD FOR GLOBAL CLEAN ENERGY

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Abstract:
TBA

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INVITED SPEAKER: SP1_INV21

R&D ON PROTON AND HELIUM-ION THERAPY FACILITIES AT SSRF/SARI

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Abstract:
Particle therapy technology is one of the primary methods for treating cancer, with mainstream systems including proton therapy devices and carbon ion therapy devices. Globally, there are over 130 such devices in operation and more than 30 under construction. After nearly a decade of efforts, China has successfully completed the research and development of its first proton therapy device, which has already treated over 900 cancer patients. This report will present the construction process and current operational status of this proton therapy device, as well as outline future R&D plans and initiatives for new proton therapy technologies. Additionally, the report will highlight the R&D plan and progress of an integrated proton-helium therapy device. This technology is currently undergoing conceptual design and technical development at Ruijin Hospital in Shanghai and is planned to be completed within the next five years, aiming to provide more effective particle therapy for cancer patients.

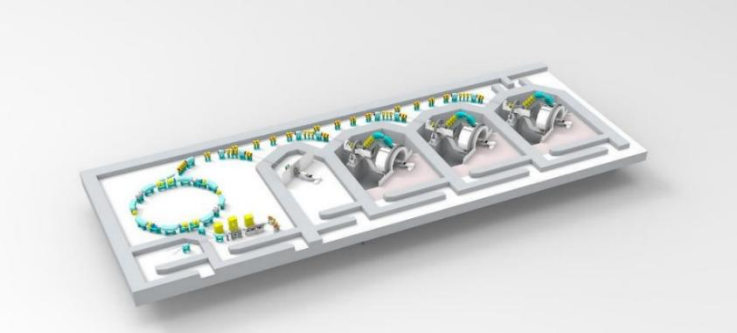


Figure 1. Proton therapy facility (up) and Helium-ion therapy facility (down).

Dr. Fang Wencheng is an expert in particle accelerator physics and technology, a research fellow, and a doctoral supervisor. He currently serves as the Director of the Particle Beam Application Technology Department at the Shanghai Advanced Research Institute, Chinese Academy of Sciences. He has long been dedicated to the fields of particle accelerator physics and technology, advanced particle therapy techniques, and medical isotope equipment technology. He has previously served as the project system-level and sub-system-level lead for the national major scientific and technological infrastructure project, the "Soft X-Ray Free-Electron Laser Facility." He led his team in the development and commissioning of China's first domestically developed proton therapy demonstration device, which has completed registration and is now open for treatment. Currently, as the head of the particle beam therapy technology team, he is spearheading the development of an integrated proton-helium ion therapy system and medical isotope production equipment.

INVITED SPEAKER: SP1_INV22

A THAI LINEAR ACCELERATOR FOR PRODUCT IRRADIATION: ADVANCING SUSTAINABLE AGRICULTURE AND ECONOMIC SELF-RELIANCE

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Abstract:
To counter the reliance on expensive and inflexible imported technology, the Synchrotron Light Research Institute has developed a domestic linear particle accelerator (LINAC). Leveraging 24 years of institutional expertise, the prototype operates within an adjustable 3-6 MeV energy range and incorporates key in-house systems, including an EPICS-based control architecture and modular radiation shielding. The accelerator utilizes high-energy electron beams or X-rays to destroy the DNA of microorganisms and pests. This process has successfully extended the shelf life of agricultural products like longan, mango, and strawberry by up to 30 days without compromising product quality. This innovation establishes a national knowledge base for irradiation, enhances food security, and is projected to reduce technology import costs by over 200 million baht annually. Future plans focus on upgrading the accelerator's power and efficiency for industrial-scale applications through strategic collaborations. The long-term goal is to position Thailand as a regional hub for radiation innovation in the agricultural, medical, and polymer industries.

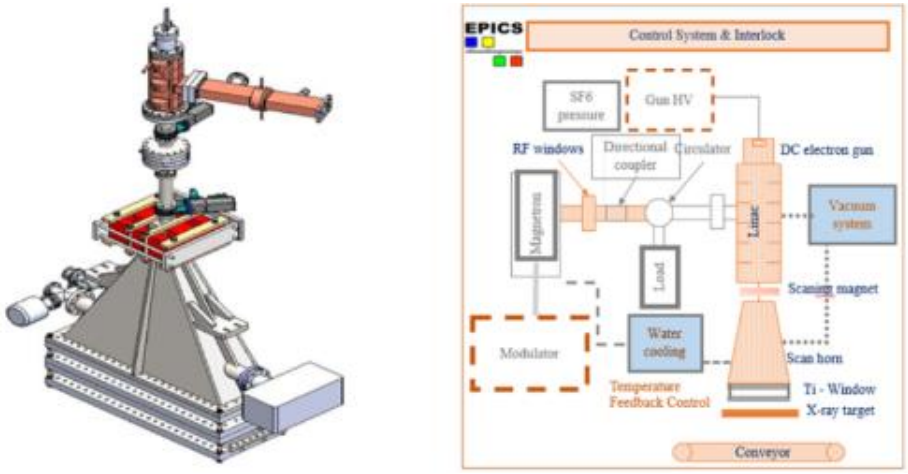


Figure 1. Shows the main components for the operation of a particle accelerator to produce sterile radiation by destroying the DNA of microorganisms.

Dr. Somjai Chunjarean is a researcher in accelerator technology at the Synchrotron Light Research Institute (SLRI), where her work focuses on beam dynamics and instabilities in advanced accelerators. She holds bachelor's and master's degrees in physics from Chiang Mai University and earned a Ph.D. with distinction from Suranaree University of Technology in 2010. Following her doctorate, she spent four years as a Post-Doctoral Fellow at the Pohang Accelerator Laboratory (PAL) in Korea before joining SLRI. Her expertise lies in understanding the behavior of particle beams in high-gradient linear and circular accelerators, a critical area for the development of next-generation synchrotron light sources.

INVITED SPEAKER: SP1_INV23

PRESENT STATUS OF THAILAND AMS RADIOCARBON DATING PROJECT

Natthapong Saengwises,[1] Nontaphat Promsena,[1] Nawasin Chomchan,[1] Umput Suethonglang,[1] Jetsada Phomuen,[1] Nanthawat Toarun,[1] Surachet Rattanasuporn,[2] Chomphunuch Songsiriritthigul,[2] Chaiwat Theppawong,[3] Pattra Jayasvasti,[3] Samattachai Tanun,[3] Apichat Leckngam,[3] Wiwek Phacheerak,[2] Supagorn Rugmai,[2] Prayoon Songsiriritthigul[1,2,*]

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Abstract:

This report provides an update on the development of a compact accelerator mass spectrometer (AMS) intended for radiocarbon dating applications. The system has been designed with a footprint of approximately 3.1 × 2.6 m², making it suitable for laboratory-scale installation while retaining the essential performance of larger facilities. The AMS consists of five major sections: (i) a low-energy carbon ion beamline, (ii) a fast beam-switching system, (iii) a 200-kV tandem accelerator, (iv) a high-energy bending magnet, and (v) an ion beam measurement and analysis stage. The design of the ion optical components and beam transport system was optimized through extensive computer modeling using CST Studio Suite. Ray-tracing simulations were employed to evaluate beam dynamics and transmission efficiency, providing insights into the expected system performance. These results form the basis for both the mechanical design and the anticipated operational characteristics of the AMS. In this presentation, the outcomes of the simulations, the integration of subsystems, and the projected analytical capabilities of the instrument will be presented and discussed. The current construction status of the project and the next steps toward commissioning will also be reported.

Dr. Prayoon Songsiriritthigul, born in Chiang Rai, Thailand in 1968, received his B.Sc. in Physics from Chiang Mai University in 1990 and his Ph.D. in Physics from Gothenburg University, Sweden, in 1997. His research focuses on ion accelerators and synchrotron radiation. He contributed to the design and construction of Thailand's first synchrotron light source, the Siam Photon Project, including its accelerator complex and first-phase beamlines. He is currently a faculty member in the School of Physics at Suranaree University of Technology, Thailand.

INVITED SPEAKER: SP1_INV24

SEM's DESIGN AND DEVELOPMENT

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Abstract:
A collaborative project to design and develop a low-cost Scanning Electron Microscope (SEM) by leveraging the collective expertise of five national research institutes in Thailand. The primary objectives are to facilitate the domestic production of an affordable SEM and to establish an instrument capable of imaging objects with dimensions of 5 microns or larger, such as biological cells. The project's development was systematically distributed among the partner institutions—the National Astronomical Research Institute of Thailand (NARIT), Chiang Mai University (CMU), the Thailand Institute of Nuclear Technology (TINT), the National Science and Technology Development Agency (NSTDA), and the Synchrotron Light Research Institute (SLRI)—based on their respective specializations. Responsibilities encompassed the design of mechanical hardware and control systems (NARIT), electron beam simulation (CMU), detector and signal amplification development (TINT), control and imaging software creation (NSTDA), and the engineering of the vacuum and vibration isolation systems (SLRI). To date, the project has progressed to its third-generation prototype. This instrument has achieved a spot size of approximately 30 microns and has successfully demonstrated its imaging capabilities through the acquisition of high-quality micrographs, such as that of a dragonfly's eye.

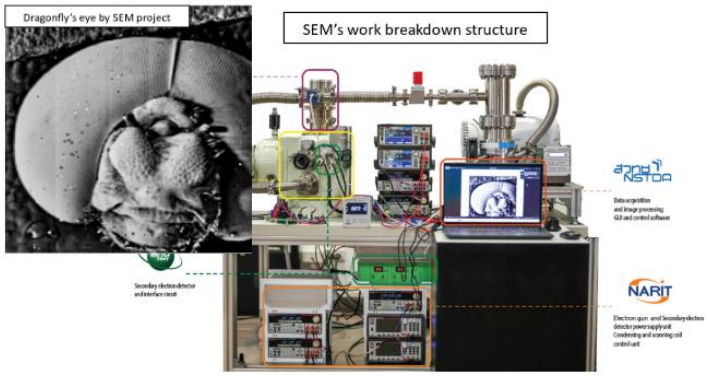


Figure 1. A Collaborative project to develop SEM system.

Apichat Leckngam is the Senior Manager of Observatory Operations and Engineering at the National Astronomical Research Institute of Thailand (NARIT). Holding a master's degree in electrical engineering from KMITL, his expertise lies in mechatronics and the development of astronomical instrumentation. He plays a crucial role in managing Thailand's key astronomical facilities, leading the technical development and modernization of both the optical Thai National Telescope and the new Thai National Radio Astronomy Observatory. He is the Senior Manager of Observatory Operations and Engineering at the National Astronomical Research Institute of Thailand (NARIT) in Chiang Mai.

INVITED SPEAKER: SP1_INV25_1

CLINICAL APPLICATIONS OF PROTON THERAPY IN THAILAND

Chonlakiet Khorprasert*
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Abstract:
TBA

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INVITED SPEAKER: SP1_INV25_2

CLINICAL APPLICATIONS OF PROTON THERAPY IN THAILAND

Chomporn Sitathanee*
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Abstract:
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INVITED SPEAKER: SP1_INV25_3

ESTIMATION OF PROTON NEEDS IN FACULTY OF MEDICINE, CHIANG MAI UNIVERSITY

Ekkasit Tharavichitkul,* Somvilai Chakrabandhu, Pitchayaponne Klunklin, Wimrak Onchan, Bongkot Jia-mahasap, Pooriwat Muangwong, Piyapassara Torapichartrakul, Imjai Chitapanarux

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Objective:

To estimate the requirements for proton therapy at the Faculty of Medicine, Chiang Mai University.

Material and Methods:

Statistical data from patients treated with radiotherapy at the Division of Radiation Oncology, Department of Radiology, Faculty of Medicine, Chiang Mai University, were collected for the year 2024. The ASTRO (American Society of Therapeutic Radiology and Oncology) model policy was applied to evaluate the data. (1) Patients with cancers that met the criteria for Group I of the model policy were selected. The required number of proton therapy cases was then calculated by entering these numerical data into the Radiotherapy Resources and Cost Calculator (RRCC) Version 24 (2024) and the methodology of Gupta et al. (2,3).

Results

In 2024, a total of 1,555 new patients received radiotherapy at the Division of Radiation Oncology, Department of Radiology, Faculty of Medicine, Chiang Mai University. From this cohort, patients who met the criteria for Group I of the ASTRO model policy were identified. (1) For adult cancers (excluding eye, pediatric, and hematological cancers), a proton therapy utilization rate of 13–16% was applied, based on the findings of Gupta et al. (3). This calculation yielded an estimated need for proton therapy in 364 to 398 patients.

Based on a typical workload of 300 patients per year per proton unit, the projected need for proton therapy at the Faculty of Medicine, Chiang Mai University, is estimated to be one unit.

Conclusion

The estimation of proton therapy needs indicates a requirement for one proton unit at our faculty. However, the feasibility of implementing proton therapy also requires consideration of other important factors, including investment costs, workforce requirements, and reimbursement policies.

Keywords: proton therapy, estimation, cancer, faculty

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3) Gupta A, Subramani V, Kumar R, Kareem R, Vishwanathan B, Sharma DN. Revolutionizing cancer treatment in India: Evaluating the unmet need, economics, and a roadmap for project implementation of particle therapy. Cancer. 2024 Jul 15;130(14):2528-2537. doi:10.1002/cncr.35233.

Table 1. Estimated number of proton therapy requirement in the faculty as ASTRO model Policy (1)

Cancer Types	Numbers	As requirements
Eye *	1	1
Hematological malignancies *	101	101
Pediatrics cancers *	105	105
Brain (primary tumors) **	45	6-8
Head and neck cancers (including nasopharynx) **	277	37-45
Lung/thorax tumors **	136	18-22
Kidneys (retroperitoneal tumors) **	5	1
Upper Gastrointestinal tumors (esophagus, liver, stomach) **	95	14-16
Pelvic Cancers (cervix, uterus, bladder, prostate, colon-rectum) **	570	75-92
Bone and Soft tissue tumors **	39	6-7
Total	1,374	364-398

*100% of them required proton therapy

**13-16% of them required proton therapy as Gupta et al. (3)

Dr. Ekkasit Tharavichitkul is a highly accomplished medical professional specializing in radiation oncology with a particular focus on brachytherapy for gynecologic cancer. He received his medical license from the Faculty of Medicine, Chiang Mai University, in 2000 and completed his Thai board certification in Therapeutic Radiology and Oncology in 2004. His career at the Department of Radiology, Faculty of Medicine, Chiang Mai University, began in May 2004, where he has held several key academic and administrative roles. He progressed from Assistant Professor to Associate Professor and, since October 2019, holds the title of Professor. Additionally, he served as the Assistant Dean from July 2014 to Jan 2017. He was the Associate Dean of the Faculty of Medicine, Chiang Mai University, from May 2017 to January 2025. Now, he serves as the assistant of the president since July 2025. With a strong focus on research, Dr. Tharavichitkul has an extensive list of international publications. His work includes studies on the effectiveness of different treatment regimens and the use of modern imaging technologies like trans-abdominal ultrasound (TAUS) and computed tomography (CT)-based brachytherapy.

INVITED SPEAKER: SP1_INV26

RESEARCH ON LARGE LANGUAGE MODELS AND BEYOND

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Abstract:
This talk will fist introduce the research interests in the natural language processing research group of the State Key Laboratory of Multimodal Artificial Intelligence Systems, Institute of Automation, Chinese Academy of Sciences, and then present some research work on large language models and their applications, such as the document image translation, multi-modal speech translation and others. And finally, the speaker will encourage innovative research that goes beyond LLMs.

Chengqing Zong received the Ph.D. degree in computer science from the Institute of Computing Technology, Chinese Academy of Sciences (CAS), China in March 1998. He is currently a professor with the State Key Laboratory of Multimodal Artificial Intelligence Systems, Institute of Automation, CAS. He is a Fellow of the IEEE, a Fellow of Association for Computational Linguistics (ACL), and a foreign member of the Academia Europaea. His research interests include fundamental research and development in NLP and cognitive language computing. As a principal investigator, he has led more than 10 projects supported by the Natural Science Foundation of China and others. He has authored and co-authored six books and more than 200 journal and conference papers. He is President of ACL. He served many top-tier conferences such as ACL-IJCNLP 2015 as the PC Co-Chair, IJCAI 2017, 2018 and AAAI 2019 as the Area Chair, and ACL-IJCNLP 2021 as the General Chair and so on. He has received many awards, including the Second Prize of the National Scientific and Technological Progress Award of China in 2015, one of the country's most prestigious and influential honors.

INVITED SPEAKER: SP1_INV27

CHINA'S PROGRESS IN LARGE LANGUAGE MODELS

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Abstract:
China has rapidly emerged as one of the leading global hubs for large language model (LLM) development, leveraging its vast data resources, advanced research institutions, and growing ecosystem of AI-driven enterprises. Over the past few years, Chinese companies and research labs have released a series of competitive LLMs demonstrating significant progress in natural language understanding, reasoning, and multimodal integration. These advancements are supported by investments in high-performance computing infrastructure and cross-sector applications spanning education, healthcare, finance, and public services. At the same time, China's progress reflects unique characteristics: emphasis on linguistic and cultural adaptation for Chinese language processing, a push toward open-source collaboration alongside proprietary innovation, and increasing efforts to address efficiency, safety, and governance challenges. This talk will explore the trajectory of China's LLM development, compares its approaches to global trends, and discusses the implications for technological competition, cooperation, and the future of artificial intelligence worldwide.

Yang Feng is professor at Institute of Computing Technology, Chinese Academy of Sciences (ICT/CAS) where she got her PhD degree. She worked with Prof. Trevor Cohn and Dr. Kevin Knight in University of Sheffield and Information Sciences Institute, University of Southern California from 2011 to 2014. Now she leads the natural language process group in ICT/CAS and her research interests include artifical intelligence and natural language processing, mainly focusing on large language models and machine translation. She is the recipient of the Best Long Paper Award of ACL 2019.

INVITED SPEAKER: SP1_INV28

THAILAND LOCAL LARGE LANGUAGE MODEL: THE ThaiLLM

Chai Wutiwiwatchai*
Executive Director of National Electronics and Computer Technology Center (NECTEC)
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Abstract:
Building a strong and sustainable AI ecosystem is not just about technology it's about openness, collaboration, and inclusivity. In Thailand, one of the most important foundations for this ecosystem is the development of ThaiLLM, a local large language model designed to reflect our language, culture, and values. Powered by high performance computing infrastructure — LANTA, Thailand's national computing facility, ThaiLLM leverages world-class computational resources to make advanced AI tools accessible to researchers, developers, businesses, and communities. This session will explore how ThaiLLM can empower innovation, ensure digital independence, and position Thailand as a leading contributor to the global AI landscape.

Dr. Chai Wutiwiwatchai received his Ph.D. in Computer Science and Engineering from Tokyo Institute of Technology, Japan. His current position is the Executive Director of National Electronics and Computer Technology Center (NECTEC) under National Science and Technology Development Agency (NSTDA) of Thailand. His expertise covers Digital Signal Processing, Human-Computer Interaction, and Artificial Intelligence. According to his success, he has been recognized as one of 66 young leaders shaping Thailand's future given by Bangkok Post in 2014, and also received the runner-up award of the Outstanding Technologist from the Foundation for the Promotion of Science and Technology under the Patronage of H.M. the King in 2015. At present, he serves on many important committees such as the Electronic Transactions Development Agency, Digital Government Development Agency, Broadcasting and Telecommunications Research and Development Fund for Public Interest. He has also taken a vital part in driving the Sustainable Manufacturing Center at Eastern Economic Corridor of Innovation (EECi) since 2019 as well as the Thailand National AI Strategy since 2022.

INVITED SPEAKER: SP1_INV29

BUSINESS TRANSFORMATION THROUGH AGENTIC AI

Thadpong Pongthawornkamol*
Managing Director and Head of Machine Learning team at Kasikorn Business-Technology Group (KBTG)
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Abstract:
As enterprises face unprecedented pressure to scale efficiently while maintaining competitive advantage, agentic AI has recently emerged as the transformative technology reshaping business operations. Unlike standard generative AI systems that simply respond to prompts, agentic AI operates autonomously, making independent decisions, orchestrating complex workflows, and continuously learning from outcomes. Organizations implementing agentic AI are achieving measurable results in terms of return on investment, productivity gain, and operational cost reduction. This keynote will explore the strategic imperatives driving this transformation, examine real-world implementation frameworks that move beyond isolated use cases to process-wide reinvention, and provide actionable insights for executives navigating the shift from AI experimentation to enterprise-wide orchestration. Yet, realizing this potential requires visionary leadership to navigate ethical considerations, data governance, and organizational change. Additionally, Leaders must understand how autonomous systems will fundamentally reshape competitive dynamics, operational models, and workforce collaboration in the age of intelligent automation.

Dr. Thadpong Pongthawornkamol is the Managing Director and Head of Machine Learning team at Kasikorn Business-Technology Group (KBTG), Thailand. Under his lead, KBTG's team of data scientists, machine learning engineers, and AI research engineers has been using Data Science, Machine Learning and AI to transform the organization. So far, the team has made technical accomplishment on many fronts such as advanced marketing analytics, deep image processing, and Thai natural language processing (Thai NLP).
Prior to his current job, Dr. Thadpong Pongthawornkamol has spent his adventurous years in US, working as a Software Engineer in a variety of Wall Street and Silicon Valley technology companies including Bloomberg and Google. His main interests include data analytics, artificial intelligence, and software engineering.

INVITED SPEAKER: SP1_INV30

CHINA's AIRBORNE GEOPHYSICAL SURVEY IN EAST ANTARCTICA

Xueyuan Tang*
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Abstract:
China's Antarctic ice sheet airborne geophysical survey utilizes the country's first polar fixed-wing aircraft, "Snow Eagle 601," as its mainly platform. This scientific program efficiently probes the internal structure, subglacial topography, and geological features of the East Antarctic ice sheet by systematically integrating advanced sensors, including ice-penetrating radar, gravity, magnetometers, and laser altimeters. Since 2015, China has conducted seven airborne geophysical surveys. This series of investigations aims to reveal the stability of the ice sheet and its potential impact on global sea-level change. Since its implementation, the survey has achieved a series of milestone accomplishments. Its primary achievement is leading the systematic exploration of Princess Elizabeth Land in the East Antarctic ice sheet, an internationally recognized major data gap (covering approximately 1000,000 square kilometers). Through extensive airborne survey lines, the program has successfully produced high-resolution three-dimensional subglacial topographic maps of the region. These maps reveal complex landforms hidden beneath ice thousands of meters thick, including vast canyons, stretching mountain ranges, and extensively distributed subglacial lakes and water systems. These discoveries not only fill a critical gap in Antarctic mapping but also provide indispensable fundamental data for understanding the evolutionary history, dynamic processes, and geological tectonic background of the East Antarctic ice sheet. In terms of specific scientific discoveries, the survey team conducted precise mapping of the Antarctic subglacial lake Qilin Lake (also known as Kirin Lake), located in Princess Elizabeth Land. Using ice-penetrating radar data, key parameters were accurately determined, including a maximum ice thickness over the lake exceeding 3,400 meters, a lake surface area of approximately 340 square kilometers, and a maximum water depth of about 200 meters. It has been demonstrated that this is a stable water body of tectonic origin. It identifies an ideal target for future drilling to explore extreme environments for life in subglacial lakes and paleoclimate records. China will plan to conduct scientific drilling on this lake during the 2025-2027 Antarctic research seasons.Furthermore, through participation in international cooperative projects like the SCAR RINGS Program, the high-precision ice thickness and subglacial topographic data obtained, particularly observations of key vulnerable areas like the ice sheet grounding zone and the ice shelves, provide solid support for the global scientific community to predict ice sheet changes and build accurate numerical models. Technologically, China's detection capabilities have continuously innovated and deepened, evolving from single airborne remote sensing detection to successful coordinated observations combining airborne gravity and magnetic surveys with active-source seismic exploration in the Antarctic interior. This marks China's Antarctic airborne geophysical survey as having transitioned from "filling in the blanks" to a new stage of "deepening understanding."The next steps will continue to focus on deepening international cooperation, expanding exploration areas, and intensifying research on frontier scientific issues related to the subglacial environment and ice sheet's stability.

Prof. Dr. Xueyuan Tang is a researcher at the Key Laboratory of Polar Science of Ministry of Natural Resources, Polar Research Institute of China (PRIC). He has played a pivotal role in advancing China's polar science through long-term monitoring programs and extensive field-based research. His primary research focuses on ice and snow processes and their relationship with climate change.

INVITED SPEAKER: SP1_INV31

CHINA's POLAR VISION: A JOURNEY OF DISCOVERY AND GLOBAL RESPONSIBILITY

Jiang Peng*
Polar Research Institute of China, China
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Abstract:
China has emerged as a leading nation in polar research, driven by a vision that integrates scientific discovery, environmental stewardship, and international collaboration. Over the past decades, China has made significant investments in polar infrastructure, including research stations, icebreakers such as Xuelong and Xuelong 2, and advanced observation systems that enable year-round exploration in both the Arctic and Antarctic regions. This presentation highlights China's evolving polar strategy—rooted in scientific curiosity and shaped by the growing awareness of the global implications of polar change. Through multidisciplinary expeditions, long-term monitoring, and cross-sector partnerships, Chinese scientists have contributed to breakthroughs in cryospheric studies, climate modeling, biodiversity, and environmental protection. The talk will also explore China's role in fostering regional and global cooperation, including joint missions with countries such as Thailand. In aligning with the principles of peaceful use, scientific openness, and sustainability, China's polar endeavors exemplify a broader commitment to the shared future of the Earth and all its inhabitants.

Prof. Dr. Jiang Peng is a Senior Research Fellow at the Polar Research Institute of China (PRIC), where he contributes to leading-edge polar science initiatives. With a strong background in astronomy, he has coordinated numerous national and international projects to assess environmental change and environmental shifts in the Arctic and Antarctic. He also plays an instrumental role in collaborations across institutions and countries, fostering cooperative research programs and innovative observational campaigns. His expertise contributes to bridging cutting-edge scientific research with practical applications for sustainable development in the polar regions.

INVITED SPEAKER: SP1_INV32

THAILAND AND POLAR RESEARCH: A DIALOGUE ON HISTORY, COLLABORATION, AND THE FUTURE

Suchana Chavanich,[1,2,*] Voranop Viyakarn[2]
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[2] Aquatic Resources Research Institute, Chulalongkorn University, Bangkok, Thailand
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Abstract:
Thailand, though geographically distant from the polar regions, has played an increasingly active role in advancing polar research and fostering international collaboration. A significant milestone was marked when Her Royal Highness Princess Maha Chakri Sirindhorn became the first Thai to visit Antarctica, an event that inspired the establishment of the Polar Science Consortium of Thailand under Her Royal Highness's initiative. This program has since become the cornerstone of Thailand's engagement in polar science, linking national research capacity with global scientific efforts. Over the past decade, Thai researchers have contributed to studies on a variety of polar research areas. These efforts have not only expanded the nation's scientific frontiers but also underscored the global interconnectedness of polar change and tropical ecosystems. This presentation provides an overview of Thailand's evolving polar research journey from Antarctica to Arctic, including ongoing collaboration with China. Thailand seeks to play a stronger role in the global polar community by actively engaging in international polar associations and forums, while contributing to education, outreach, and policy dialogue. Through linking tropical and polar perspectives, Thailand strengthens scientific understanding and promotes joint efforts to tackle climate change.



Figure 1. Her Royal Highness Princess Maha Chakri Sirindhorn at Polar Research Institute of China in Shanghai in 2013.

Prof. Dr. Suchana Chavanich is a Professor at the Department of Marine Science, Faculty of Science, Chulalongkorn University, and Deputy Director of the Aquatic Resources Research Institute. She is internationally recognized for her pioneering research on coral restoration and polar science in Thailand, contributing to the global understanding of polar ecosystems and climate change. Prof. Chavanich has led numerous international collaborations, including under UNESCO-IOC/WESTPAC, as well as joint initiatives with China through the Polar Science Consortium of Thailand established under Information Technology Foundation under the Initiative of Her Royal Highness Princess Maha Chakri.

INVITED SPEAKER: SP2_INV01 & SP2_INV02

FLAVOR AND FRAGRANCE WITHOUT BORDERS: FROM ORIGIN TO GLOBAL MARKET

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Abstract:
This conference features panel discussions that highlight both market perspectives and technical expertise in the Thai flavor and fragrance sector, bridging local origins with global opportunities. The first session, Global Market Insight: Thai Flavor & Fragrance, brings together experts from THANN and the Thai–China Flavours and Fragrances Industry Co., Ltd. (TCFF) to discuss the role of fragrance, spa, and wellness in shaping regional market trends. The panel will explore how Thai heritage, natural resources, and branding strategies drive competitiveness while addressing sustainability and consumer demand across Asia. The second session, Production and Quality Control of Essential Oils, features representatives from TCFF and the Kasetsart Agricultural and Agro-Industrial Product Improvement Institute (KAPI) providing insights into raw material sourcing, extraction processes, and in-process quality management. Emphasis will be placed on meeting diverse international standards for essential oils, highlighting the integration of advanced scientific approaches and industry best practices. Together, these sessions present a comprehensive view of how Thailand can strengthen its position in the global flavor and fragrance industry by connecting cultural identity, market innovation, and technical excellence. The panel discussions will be conducted in Thai language.

Assoc.Prof.Dr. Sittiwat Lertsiri, Vice President, Mahidol University
Dr. Bangon Kietthanakorn, Managing Director, Thai - China Flavours and Fragrances Industry Co., Ltd
Dr. Udomlak Sukatta, Deputy Director of Administration, Kasetsart Agricultural and Agro-Industrial Product Improvement Institute, Kasetsart University
Thitipat Suppattranont, Founder of Thann Managing, Director, Thann-Oryza Co., Ltd.

INVITED SPEAKER: SP3_INV01

STUDY ON SURFACES AND INTERFACES OF PEROVSKITE SOLAR CELLS

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Abstract:
Perovskite solar cells represent a highly promising next-generation photovoltaic technology. A key challenge to be addressed is how to enhance the operational stability of these devices while maintaining their high efficiency. The surfaces within each layer and the interfaces between layers in perovskite solar cells critically determine the transport of photogenerated carriers and non-radiative recombination, thereby significantly influencing both the efficiency and stability of the devices.
This report will present our research group's recent progress in controlling internal grain boundaries, passivating surface defects, and reconstructing interfaces in perovskite films. Initially, we controlled the internal grain boundaries of perovskite films by employing seed-assisted perovskite crystallization and moisture-promoted perovskite film growth, resulting in high-quality perovskite films. Subsequently, we developed methods utilizing ion diffusion assistance and vapor diffusion assistance to achieve efficient migration of passivators within the perovskite films, establishing a novel one-step post-treatment process capable of simultaneously passivating multiple interfaces in perovskite solar cells. Furthermore, to improve the quality of the perovskite/transport layer interface, we removed the surface defect layer of the perovskite film via nanoscale polishing, followed by molecular passivation of the newly exposed surface, thereby achieving surface reconstruction of the perovskite solar cell. Finally, by introducing an ultra-thin interlayer that facilitates charge transport while blocking ions, we significantly enhanced the stability of high-efficiency devices. Our research has yielded a certified efficiency of 26.1% for single-junction perovskite solar cells and a certified efficiency of 33.1% for perovskite/silicon tandem solar cells.

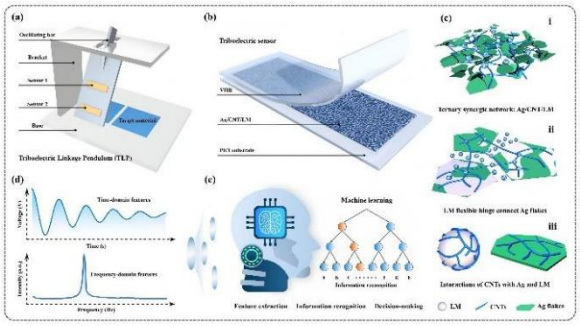
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INVITED SPEAKER: SP3_INV02

MICRO-NANO ENERGY CONVERSION APPLIED IN FLEXIBLE ELECTRONICS AND SOLAR WATER PURIFICATION

Yanfen Wan,[1,2,*] Zuoliang Wang,[1,2] Guomin Ye,[1] Peng Yang[1]
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Abstract:
Innovative applications of micro-nano energy conversion have revolutionized the field, making tremendous strides over the past decades. This presentation reports our group's recent advances in applying these energy conversion in two different fields involving self-powered wearable systems and high-efficiency solar-driven water purification technologies. In the first section, our research integrates flexible electronics with triboelectric sensing through the use of liquid metals, nanofibers, and composite structures, thereby facilitating multimodal information acquisition with low power consumption. These devices demonstrate impressive performance metrics, including an output voltage of 215.1 V, a pressure response range from 0 to 745.3 kPa, a stretchability of 404.7%, and a recognition accuracy of up to 99.5%. These advancements highlight the significant potential for self-powered wearable electronics, human-machine interaction, and intelligent sensing applications in health monitoring, virtual reality, and industrial inspection(Figure 1). The second section delineates our work on interfacial solar water purification and clean energy co-generation. To overcome the efficiency bottlenecks of traditional desalination, we employed multidimensional structural designs—including a 3D cup-shaped structure with superior thermal management, a spatially patterned structure enabling heat recovery, and a biomimetic multistage evaporation system—to achieve efficient water evaporation, latent heat recycling, and simultaneous power generation. (Figure 2). Our research underscores the transformative potential of micro-nano energy conversion across disciplines. By bridging the gap between high-performance nanogenerator and sustainable solar thermal applications, we provide a possible avenue on an integrated solutions to the development of water-energy-power nexus challenges.

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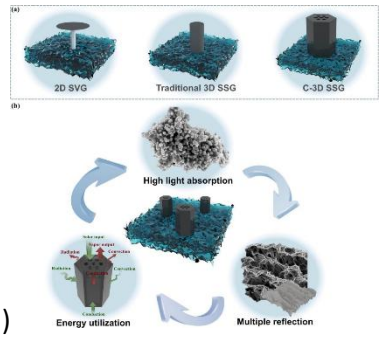
(2) 

Figure 1. Design scheme diagram explanation of the sensor / **2.** Schematic diagram of 3D cup-shaped structure energy management.

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INVITED SPEAKER: SP3_INV03

SYNERGISTIC PHOTOCATALYSIS AND IN-LIQUID PLASMA FOR EFFICIENT CO_2 CONVERSION

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Abstract:

The urgent demand for efficient and sustainable CO_2 conversion technologies has driven the development of novel photocatalytic and plasma-based approaches. In this study, environmentally friendly materials composed of earth-abundant elements were applied to explore solar photocatalytic and in-liquid plasma processes for CO_2 reduction. Titanium-based photocatalysts, while effective for water splitting, lack sufficient reduction potential for CO_2 conversion. To overcome this limitation, we developed semiconductor diamond photocatalysts decorated with silver (Ag) nanoparticles, enabling selective single electron transfer (SET) CO_2 reduction. The high conduction band of diamond facilitated the generation of CO_2^- intermediates, which were stabilized by Ag, resulting in almost threefold and fiftyfold higher reduction activity compared with conventional Ag electrochemical reduction and diamond photoelectrochemical reduction, respectively. This process exhibited improved selectivity, efficiency, and remarkable resistance to hydrogen evolution side reactions.

In parallel, an in-liquid plasma method was investigated to achieve CO_2 conversion without the need for external hydrogen. By introducing microwaves into aqueous solutions, plasma was generated inside solvent bubbles, where the solvent itself served as a proton and electron source. This method enabled the direct formation of valuable chemicals, such as CO, methanol, and ethanol, with conversion rates strongly dependent on reactor design, operating conditions, and solvent type.

Together, these results demonstrate complementary pathways of diamond-based SET photocatalysis and in-liquid plasma conversion for advancing efficient, selective, and sustainable CO_2 utilization toward solar energy conversion and chemical production.

TBA

INVITED SPEAKER: SP3_INV04

In_2O_3 BASED CATALYSTS FOR CO_2 HYDROGENATION TO METHANOL

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Abstract:
CO_2 catalytic hydrogenation to methanol is promising for CO_2 utilization. In_2O_3-based catalysts are attracting much attention because of their high methanol selectivity. However, a low CO_2 conversion rate limits the overall methanol yield. Herein, we developed the interface of $CoIn_2$ alloy and In_2O_3 oxide as a $CoIn_2/In_2O_3$ catalyst and successfully achieved high performance for CO_2 hydrogenation to methanol. Experimental and theoretical results indicated that the alloy/oxide interface is stable during the reaction atmosphere; the high performance arising from the electronic interaction between $CoIn_2$ and In_2O_3, which improves the electron density at the $CoIn_2$ interface, facilitates H_2 dissociation, CO_2 adsorption, and the hydrogenation of formate intermediates to methanol, which justifies the sustained high methanol selectivity and production rate. The optimized catalyst showed a methanol selectivity up to 74% and a high methanol space-time yield up to 0.69 $g_{MeOH}g_{cat}^{-1}h^{-1}$ at 5.0 MPa, H_2/CO_2 = 3:1, 300 °C and 36000 mL$g_{cat}^{-1}h^{-1}$. In addition, Co/In_2O_3 catalysts often undergoing structural transformation during a prolonged induction period. And $Co_3InC_{0.75}$ is frequently observed after this process, yet its catalytic role has remained elusive due to the lack of phase-pure materials and mechanistic clarity. Herein, I will also report the synthesis of highly crystalline, phase-pure $Co_3InC_{0.75}$ via a one-step gas-phase carburization method from CoInOx mixed oxides. Catalytic tests reveal that $Co_3InC_{0.75}$ acts as an active phase for CO_2 selective hydrogenation, achieving a methanol space-time yield of 0.69 $g_{MeOH}g_{cat}^{-1}$ $h^{-1}$with a selectivity of 70.1% at 280 °C, 5 MPa, H_2 : CO_2 ratio of 3:1, and a gas hourly space velocity of 24,000 $cm^3_{STP}g_{cat}^{-1}h^{-1}$, and remains stable over 100 hours of continuous operation. *In situ* characterizations and theoretical studies confirm that the carbide surface promotes direct CO_2 dissociation and sequential hydrogenation via a RWGS-mediated pathway. This work identifies $Co_3InC_{0.75}$ as a previously overlooked active phase and expands the design landscape for carbide-based CO_2 hydrogenation catalysts.

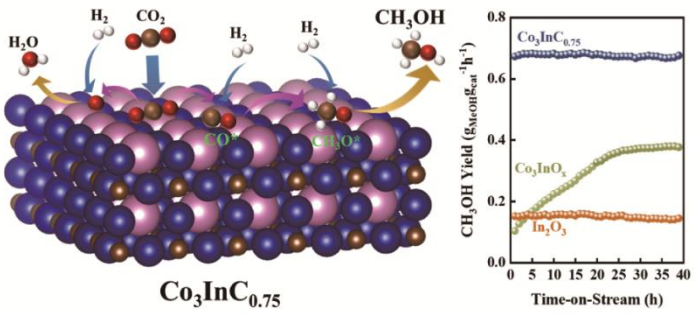


Figure 1. The $Co_3InC_{0.35}$, In_2O_3 and Co_3InO_x for CO_2 hydrogenation to methanol.

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INVITED SPEAKER: SP3_INV05

UNRAVELING ELECTROCHEMICAL COMPLEXITY OF 2D MATERIALS: A JOURNEY TO THE CENTER OF TUNGSTEN DISELENIDE (WSe_2)

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School of Bio-Chemical Engineering and Technology, Sirindhorn International Institute of Technology, and Research Unit in Sustainable Electrochemical Intelligent Thammasat University, Pathum Thani, 12120, Thailand
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Abstract:
Two-dimensional transition metal dichalcogenides (2D TMDs) display rich electrochemical phenomena that are highly sensitive to their synthesis conditions and structural parameters. In this work, we leverage our expertise in liquid-phase exfoliation (LPE) to dissect how the interplay of exfoliation energy, solvent environment and flake size dictates the electrochemical performance of WSe_2 across hydrogen evolution catalysis and supercapacitive energy storage. Moderate sonication power (~90 W) during LPE produces WSe_2 nanosheets with a higher proportion of W–Se bonds and fewer selenium vacancies, yielding superior HER activity in both acidic and basic media. By contrast, high-power exfoliation (≈814 W) introduces more W–O bonds and defects, diminishing catalytic performance and underscoring the importance of local atomic arrangement beyond mere flake size. We further demonstrate that solvent choice strongly influences oxidative stability: N-methyl-2-pyrrolidone (NMP) facilitates high yield but promotes oxidation, whereas an environmentally benign IPA/DI water mixture preserves the hexagonal WSe_2 lattice and achieves overpotentials as low as -0.209 V vs RHE after electrochemical activation. Finally, controlled centrifugation enables precise selection of flake sizes; the smallest flakes (~106 nm) exhibit enhanced pseudocapacitance and wettability, allowing WSe_2 to function as both electrode material and conductive binder. Incorporating 10 % WSe_2 binder into activated-carbon electrodes raises capacitance by ~35 %, reduces charge-transfer resistance by ~76 % and improves self-discharge by ~9 % while maintaining ~90 % capacitance retention after 5000 cycles. These findings reveal that judicious control of LPE parameters and solvent systems can unlock multifunctional performance in WSe_2, offering a roadmap for sustainable development of high-efficiency catalysts and energy storage devices.

TBA

INVITED SPEAKER: SP3_INV06

EVALUATION OF PEMWE CORROSION CONDITIONS AND ADVANCED COATINGS FOR BIPOLAR PLATE

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Abstract:
Proton Exchange Membrane Water Electrolysis (PEMWE) is a promising technology for clean hydrogen production, but its high cost remains a barrier to commercialization. A major contributor is the bipolar plate, which accounts for up to half of the stack cost. This is due to the extreme conditions of high voltage and strong acidity at the PEMWE anode, where Pt and Ti materials are typically employed. However, recent studies have indicated that the voltage and electrochemical potential at the anode bipolar plate deviate from previously estimated values. Building on these findings, this study measures the electrochemical potential of PEMWE bipolar plates in a commercial system through a simple experimental setup. An ion-bridge using a Nafion film was fabricated, and an electrochemical potential measurement device was developed that can be readily applied to various types of cells. Through this approach, the decoupling between the voltage and the electrochemical potential in PEMWE bipolar plates was found to exceed 0.6 V.
Furthermore, leveraging these insights, a study was conducted to replace conventional Ti–Pt bipolar plates with stainless steel–based alternatives. Stainless steel is more cost-effective and exhibits superior machinability compared to Ti, which provides significant advantages for fabricating the complex flow field geometries within PEMWE. However, because stainless steel cannot readily withstand the harsh anode environment, a sputtering-based coating technique was employed. By optimizing this coating process, a bipolar plate material capable of replacing conventional Ti was successfully developed, and it exhibited excellent performance in practical cell applications. In particular, the stainless steel–based coated bipolar plate maintained stable operation and demonstrated outstanding durability over 50 hours of continuous cell performance testing.

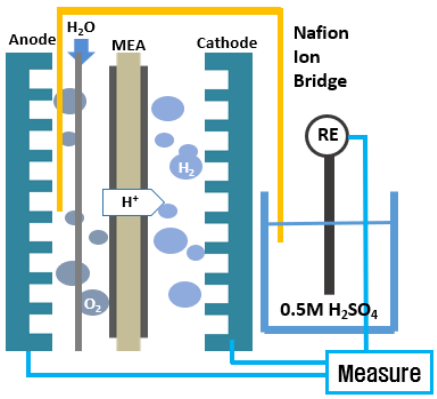


Figure 1. Three-electrode experimental setup for measuring the electrochemistry of the bipolar plate.

TBA

INVITED SPEAKER: SP3_INV07

HYDROGEN-BASED ENERGY STORAGE

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Abstract:
According to greenhouse gas emission and limitation of fossil fuel, renewable and clean energy resources are significantly of interest. One of the most promising choices is hydrogen fuel cells due to their high energy efficiency with zero emission. Hydrogen storage systems operating under ambient conditions with suitable inlet pressures and flow rates as well as acceptable capacities are required for full performance operation of fuel cells. Our group has been working on room temperature hydrides-based hydrogen storage materials and systems. We focus on not only hydrogen sorption properties in laboratory scale but also upscaling to hydrogen storage tanks and coupling with proton exchange membrane (PEM) electrolyzer and PEM fuel cell stack. Moreover, heating and cooling achieved from endo/exothermic reactions during de/rehydrogenation of hydride materials can be used as thermal storage and cooling supplies. In the present work, a stationary hydrogen-based energy storage system is proposed for household uses. PEMFC stack with at least 500 W electrical power supplied with hydrogen from room temperature hydride tanks is integrated with heating/cooling storages. Optimization of the integrated system is carried out to obtain the best electrical and thermal energy outputs.

TBA

INVITED SPEAKER: SP3_INV08

UREA-DRIVEN UNIFORM Sn DEPOSITION FOR LONG-LIFE Sn-I FLOW BATTERIES

Ruiqin Zhang*
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Abstract:
Tin (Sn)-based redox flow batteries (RFBs) hold promise for high energy density and cost-effectiveness, yet they face significant challenges due to the formation of "dead Sn" during the charging process. This issue leads to reduced coulombic efficiency and short cycle life. To address this, we introduced urea as an electrolyte additive, which forms a stable layer on graphite felt and guides uniform Sn deposition. Urea, at an optimal concentration of 0.1 M, lowers the nucleation overpotential and enhances the interaction between $Sn(OH)_6^{2-}$ and the graphite surface, resulting in fine, evenly distributed Sn particles.
Electrochemical tests, including voltage-time plating analysis and cyclic voltammetry, confirm that urea facilitates easier Sn nucleation and faster redox kinetics. Scanning electron microscopy (SEM) and X-ray diffraction (XRD) analyses show uniform Sn deposition in the urea-modified electrolyte, contrasting with large Sn bulks in pristine electrolytes. X-ray photoelectron spectroscopy (XPS) further validates enhanced interfacial bonding.
The urea-modified Sn-I RFB exhibits superior performance, with higher areal capacity (46.2 mAh cm^{-2}), average discharge voltage (1.18 V), and stable coulombic efficiency (92% over 420 hours, >200 cycles). This study demonstrates the potential of urea as a low-cost additive to significantly improve the performance and cycle life of Sn-based RFBs, paving the way for their further development and commercialization.

TBA

INVITED SPEAKER: SP3_INV09

REGULATION OF ACTIVE SITE MICROENVIRONMENT IN METAL-LOADED RE-MOFs FOR ENHANCED CATALYTIC HYDROGENATION PERFORMANCE

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School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, P. R. China
*e-mail: hygao@ustb.edu.cn

Abstract:
The hydrogenation of dicyclopentadiene (DCPD) to tetrahydrodicyclopentadiene (THDCPD), a key component of high-performance aviation fuels, represents an effective strategy for upgrading low-value petroleum resources and enhancing their utilization efficiency. However, the intrinsic chemical reactivity and high thermal sensitivity of DCPD often induce undesired side reactions such as over-hydrogenation, depolymerization, or polymerization, leading to reduced target product selectivity and increased production costs. To address these challenges, we developed a series of rare-earth metal-organic framework (RE-MOF)-based catalysts with highly dispersed metal active sites through acid-assisted defect induction and heteroelement modification strategies. By regulating the microenvironment of active sites with MOFs, we significantly enhanced DCPD hydrogenation performance under mild conditions.
Using an acid-assisted coordination defect induction strategy, mesoporous Ce-PyDC MOFs containing abundant open metal sites (OMS) and N-functionalities were synthesized. Highly dispersed Pt nanoclusters (NCs) were subsequently incorporated to form Pt NCs@Ce-PyDC catalysts, where the cooperative interaction between OMS and N sites optimized the Pt active site microenvironment. This catalyst achieved 100% DCPD conversion and 99.9% THDCPD selectivity at 50 °C and 2 MPa. Additionally, a defect engineering-element modification strategy was employed to introduce abundant defects in UiO-66 MOFs and decorate Ni nanoparticles (NPs) with La, forming a non-noble metal Ni/La NPs@UD catalyst. The low-electronegativity alkaline La modifier tuned the Ni active site microenvironment, achieving 100% DCPD conversion and 99.9% THDCPD selectivity at 70 °C and 1 MPa, with no performance degradation after 10 consecutive cycles. These findings demonstrate the potential of defect engineering and elemental modification in MOF-based catalysts for developing efficient, sustainable processes for aviation fuel production.

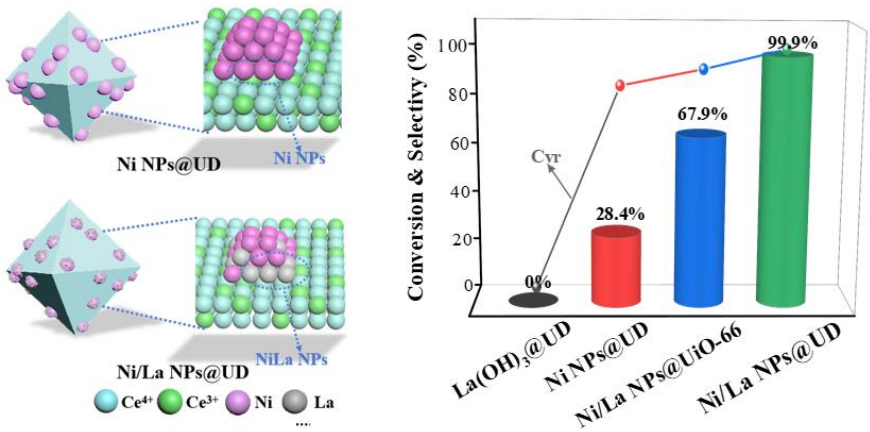


Figure 1. Schematic illustration of Ni NPs@UD, Ni/La NPs@UD and their catalytic hydrogenation performance.

TBA

INVITED SPEAKER: SP3_INV10

PYRITES CATHODES AS HIGH ENERGY DENSITY LITHIUM METAL BATTERY

Hongyu Liu, Chuntao Ma, Shuai Li, Liping Wang*
School of Materials and Energy, University of Electronic Science and Technology of China, Chengdu 611731, China
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Abstract:
Conversion-type transition metal-based materials are considered promising cathodes for lithium metal batteries due to their low cost, abundant availability, and high theoretical energy density[1]. However, they suffer from a rapid capacity decay caused by transformation into two inhomogeneous phases during discharge. Here, we use a nature mineral pyrite FeS_2 with ultra low-cost as a typical cathode. We develop a series of strategies to unlock its longevity, 1) fabricating a 3D ionic-electronic network via fabricating new chelating-type binders and compatible electrolytes (Figure 1) [2-3]; 2) introducing a pulse discharge current to induce homogeneous phase nucleation-growth for discharge products [4]. Consequently, we can achieve micro-sized FeS_2 an ultra-long cycling life to be 10000 cycles.

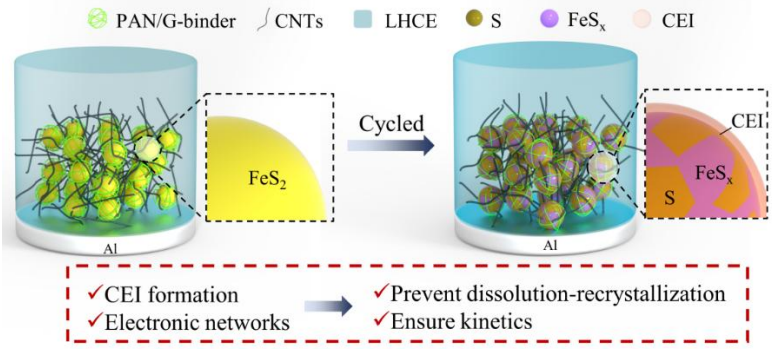


Figure 1. 3D ionic-electronic network for long cycling life FeS_2.

Keywords: Pyrite, conversion-type cathode, lithium metal battery

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2. Zhendong Li, Ge Zhou, Shuai Li, Hongyu Liu, Liping Wang*, Hong Li*, Unlocking cycling longevity in micro-sized conversion-type FeS2 cathode, *Joule*, 7(11) (2023) 2609-2621.
3. Hongyu Liu, Zhenrui Wu, Hao Wang, Xiaobin Niu, Hong Li, Liping Wang*, Chelating-Type Binders toward Stable Cycling and High-Safety Transition-Metal Sulfide-Based Lithium Battery, *ACS Energy letters*, 2024, 9 (9) 4666–4672.
4. Chuntao Ma, Yuhao Ma, Shuai Li, Hongyu Liu, Hao Wang, Dong Yan, Xiaobin Niu, Hong Li, Liping Wang*, Pulse Current Induced Homogenous Phase Nucleation for High-Performance Conversion-Type Cathodes, *ACS Nano*, 2025, 19, 6, 6563–6570.

Dr. Liping Wang is currently a professor at the University of Electronic Science and Technology of China. She obtained her PhD in 2011 through a joint program between the Laboratoire de réactivité et chimie des solides at Université de Picardie Jules Verne (France) and the Institute of Physics, Chinese Academy of Sciences. Her research experience includes serving as a post-doctoral fellow at the Max Planck Institute of Colloids and Interfaces (Germany) in 2012, followed by work as a research associate at Brookhaven National Laboratory (United States) from 2013 to 2014.Her current research focuses on sustainable high-energy-density lithium batteries.

INVITED SPEAKER: SP3_INV11

DEVELOPMENT OF NEXT GENERATION ENERGY STORAGE TOWARDS SUSTAINABLE, HIGH ENERGY AND SAFE BATTERY SYSTEM

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National Energy Technology Center, National Science and Development Agency
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Abstract:
Energy storage is one of the key technologies for achieving a sustainable and carbon-neutral energy future. Advancements in storage technologies require a combination of high energy density, low cost, high safety, and circularity. This presentation highlights recent global trends in next-generation electrochemical storage systems, focusing on both material innovations and sustainable processes. Examples of our research at NSTDA will be presented, including high-energy-density chemistries such as anode-free lithium-ion and lithium–sulfur batteries, which aim to maximize energy per unit mass while reducing inactive material content. Complementary studies on improving safety through the development of sodium-ion chemistries and non-flammable electrolytes will also be discussed. Finally, we will provide insights into new direct recycling processes for lithium-ion batteries, which offer a promising pathway to reduce cost and energy consumption, enhance material recovery, and minimize environmental impact.

TBA

INVITED SPEAKER: SP3_INV12

CONCEPTUAL DESIGN OF A SOLID-STATE ELECTROLYTE FOR ENHANCED SAFETY IN LITHIUM-BASED BATTERIES

Sangchai Sarawutanukul, Atiweena Krittayavathananon, Harnchana Gatemala, Sunee Wongchitphimon, Komkrit Suttipomparnit*
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Abstract:
The policy supporting electric vehicle (EV) adoption in Thailand significantly boosted sales in 2023. However, the market has slowed down in 2024 and 2025, partly due to consumer concerns about the safety of lithium-ion batteries, which remain vulnerable to thermal runaway and fire hazards. Therefore, advancing safer battery technologies has become essential. This work presents a conceptual design of a solid-state electrolyte (SSE) for lithium-based batteries, aiming to enhance safety and reliability. The study provides an overview of solid-state battery development and proposes a conceptual design that can withstand nail penetration tests without voltage drop, temperature rise, or explosion. This approach offers a potential pathway for future commercialization of safer and more resilient battery systems.

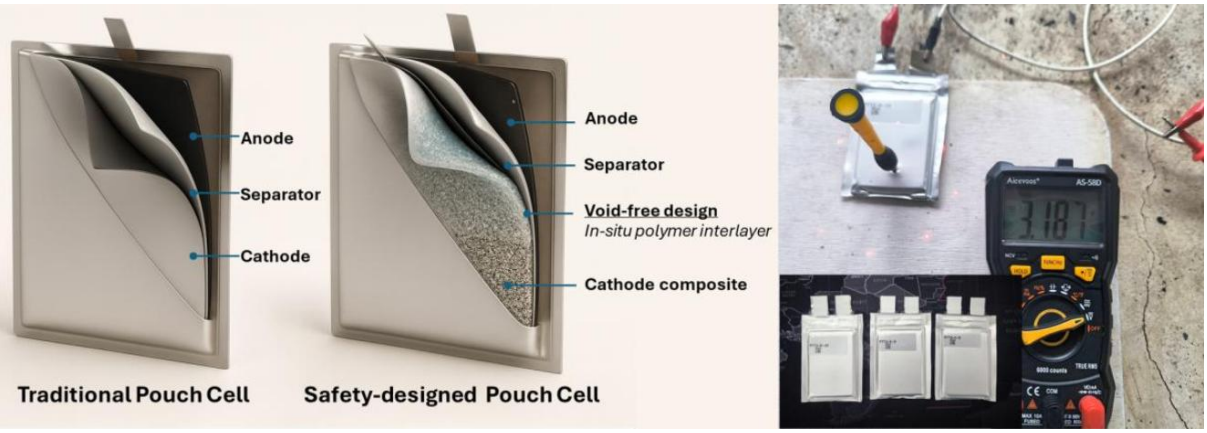


Figure 1. illustrates a schematic solid-state design and a simulated nail penetration test on a pouch cell solid-state battery with enhanced safety.

TBA

INVITED SPEAKER: SP3_INV13

SUPERSTRUCTURE DESIGN FOR OXYGEN REDOX IN Li-RICH CATHODES

Fuda Yu*
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Abstract:
Lithium-rich oxygen-redox transition metal (TM) oxide cathodes ($Li_{1+x}TMO_2$), which rely on cationic and anionic co-redox to reach attractive reversible capacity (>250 mAh/g), have been regarded as an up-to-date candidate for high energy density cathode materials of Li-ion batteries. Nevertheless, it suffers from several intrinsic problems that limit its practical application, such as structural degradation and irreversible oxygen release. On the structural level, the instability of the $LiTM_6$ hexagonal honeycomb superstructure is the origin of capacity/voltage attenuation. Finding solutions directly regulating the $LiTM_6$ superstructure (or TM-O polyhedron units) and O-redox chemistry will be the key to overcoming this challenge.
In this work, we successfully triggered the strong π-type interaction between O 2p orbitals and Ni t_{2g} orbitals by regulating Ni atoms occupying in Li-rich materials, which enables the charge transfer from the ligand to the metal. And we proposed the mechanism that delithiation induced NiO_6 octahedral symmetry breaking during electrochemical process is expected to regulate the relative positions of transition metals and oxygen energy levels, thus achieving stable anionic redox without irreversible O_2 release. This work is expected to provide guidance for further understanding of the TM-O covalency, and pave the way for the design of Li-rich materials with stable oxygen redox.

TBA

INVITED SPEAKER: SP4_INV01

VALORIZATION OF AGRICULTURAL RESIDUES INTO BIO-BASED CHEMICALS THROUGH GREEN CATALYTIC TRANSFORMATION

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Abstract:
The growing global concern over the depletion of non-renewable resources has intensified efforts to utilize renewable feedstock for the sustainable production of chemicals and materials. Agricultural residues such as rice straw, sugarcane leaves, bagasse, and empty palm fruit bunches are recognized as renewable biomass that can be replenished within a short period. These residues can be fractionated into high-purity lignin, cellulose, and hemicellulose, which serve as valuable precursors for the synthesis of bio-based solvents and platform chemicals. Through green catalytic processes, lignocellulosic components can be transformed into compounds such as phenolic derivatives, levulinic acid, alkyl levulinates, alkyl lactates, and alcohol sugar like sorbitol derived from glucose.
In addition to lignocellulosic biomass, triglyceride-based residues—comprising fatty acids and glycerol—offer another renewable source for producing value-added chemicals including short-chain fatty acids, diacids, fatty alcohols, biodiesel, and bio-jet fuels. Interestingly, glycerol, a major by-product of biodiesel production, can react with lignocellulose-derived compounds such as alkyl levulinate, furfural, and vanillin to yield glycerol ketal solvents. These bio-based solvents exhibit promising potential for use in oil color painting applications, providing an eco-friendly and health-conscious alternative to conventional petroleum-based solvents.

TBA

INVITED SPEAKER: SP4_INV02

DESIGNING ADVANCED CATALYSTS FOR A MULTI-FEEDSTOCK BIOREFINERY: CONVERTING BIOMASS AND BIO-DERIVED FEEDSTOCKS INTO BIOCHEMICALS

Nuttapat Thiensuwan,[1,2] Atikhun Chotirattanachote,[1,2] Supphathee Chowamalee,[1,2] Gali Mansir,[1,2] Thawanrat Kobkeatthawin,[2] Chawalit Ngamcharussrivichai[1,2,*]

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Abstract:

A sustainable biorefinery relies on the continued advancement of catalytic technologies that can transform diverse renewable feedstocks into high-value chemicals in accordance with the principles of Green Chemistry and Engineering. Within the broader Southeast Asian landscape, Thailand offers abundant multi-feedstock resources such as lignocellulosic biomass, consisting of cellulose, hemicellulose, and lignin, as well as glycerol, a bio-derived by-product from the biodiesel and oleochemical industries. The valorization of these renewable carbon feedstocks presents tremendous potential for generating platform molecules and functional products serving the polymer, fuel, and specialty chemical sectors. Recent progress in catalyst design has focused on developing multifunctional and structurally tunable systems capable of driving complex biomass transformations. The carbohydrate fractions of lignocellulose can be selectively converted to 5-hydroxymethylfurfural and subsequently oxidized to 2,5-furandicarboxylic acid, a renewable monomer for bio-based polyesters and high-barrier packaging. The lignin fraction provides aromatic frameworks that can be transformed into cyclohexane and cyclic hydrocarbons for use as sustainable fuels and intermediates, while glycerol serves as a versatile C3 platform for producing 1-propanol, light olefins, and short-chain polyglycerols. These transformations are enabled by advanced zeolite, mixed metal oxides, bifunctional, and metal-supported catalysts that integrate tailored acid–base properties, controlled metal dispersion, and porosity to achieve superior activity, selectivity, and durability under energy-efficient operating conditions. Collectively, these innovations exemplify the pivotal role of catalyst development in realizing multi-feedstock biorefineries, reinforcing Thailand's Bio-Circular-Green (BCG) economy, and advancing global low-carbon chemical manufacturing.

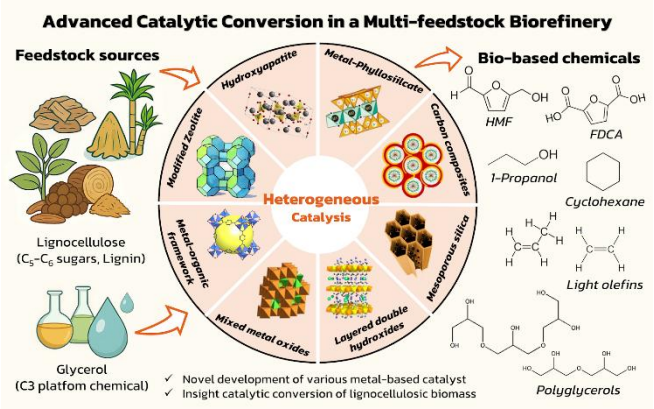


Figure 1. Multi-feedstock biorefinery pathways facilitated by advanced heterogeneous catalytic systems to produce biochemicals.

INVITED SPEAKER: SP4_INV03

FACILE AND COST-EFFECTIVE NI-BASED CATALYSTS FOR HYDROCONVERSION OF PALM OIL DERIVATIVES TO BIO-JET FUELS

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Abstract:

In response to the International Air Transport Association (IATA) target to reduce greenhouse gas emissions, the production of sustainable aviation fuels (SAF) from renewable oils has gained significant attention. However, bio-jet fuels commonly exhibit poor cold-flow properties due to their high n-alkane content. This study investigates the hydroconversion of palm-oil-derived feedstocks, including palm olein and palm fatty acid distillate (PFAD), to produce iso-alkane-rich bio-jet fuels using cost-effective Ni-based catalysts supported on zeolite materials. Hydroconversion of palm olein over 10 wt% Ni/NH_4-Beta catalyst at 360 °C and 40 bar H_2 for 4 h yielded 20.8 wt% bio-jet fuel with an iso/n-alkane ratio of 1.67. Differential scanning calorimetry confirmed that fuels with iso/n-alkane ratios > 1.0 exhibited no detectable freezing point, while a 50/50 (v/v) blend with Jet A-1 showed a freezing point of −80 °C—well below the ASTM D1655-04a limit (−47 °C). To overcome limitations arising from the small pore size and high acidity of the parent zeolite, beta zeolite was modified via etching in 0.25 M HF/NH_4F solution to generate a hierarchical Beta-0.25 structure with enhanced mesoporosity and moderated acidity. The resulting Ni/Beta-0.25 catalyst produced 43.4 wt% bio-jet fuel containing 22.1 wt% iso-alkanes at 340 °C for 5 h, achieving an iso/n-alkane ratio of 2.61. The 50% (v/v) biofuel/Jet A-1 blend exhibited a freezing point of −58.9 °C and a heating value of 43.7 MJ/kg. Furthermore, PFAD was successfully converted to bio-jet fuel over NiCu/desilicated Beta catalysts. At 320 °C and 30 bar H_2 for 2 h, the addition of 2 wt% Cu increased the iso/n-alkane ratio from 1.86 to 3.66 and improved the jet-fuel yield from 40.8 to 46.3 wt%. The synergistic Ni–Cu interaction suppressed hydrogenolysis and coke formation, offering a practical and low-cost pathway for producing high-quality SAF from palm-oil derivatives.

TBA

INVITED SPEAKER: SP4_INV04

TRANSFORMING AGRICULTURAL FEEDSTOCKS INTO BIOFUELS AND BIOCHEMICALS THROUGH CHEMICAL PATHWAY IN THE BIOREFINERY FRAMEWORK

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Abstract:
The increasing demand for sustainable energy and green chemicals has driven the development of integrated biorefineries that convert agricultural feedstock into high-value products. Within this framework, chemical pathways play a crucial role in transforming renewable resources into biofuels and biochemicals that can effectively replace fossil-derived counterparts while minimizing environmental impacts. This presentation highlights recent advances in two key areas of biorefinery innovation: biosurfactant production from palm oil and ethanol conversion into sustainable aviation fuel (SAF).
Biosurfactants derived from palm oil, particularly methyl ester sulfonate (MES), represent a highly promising class of biodegradable and environmentally friendly alternatives to conventional petroleum-based surfactants. Their excellent surface-active properties, chemical stability under diverse conditions, and low toxicity make them suitable for a wide range of applications, including green cleaning solutions. Utilizing palm oil as a renewable feedstock not only valorizes an abundant agricultural resource but also enhances economic opportunities by supporting regional bio-based industries. This approach contributes simultaneously to environmental sustainability, by reducing reliance on fossil-derived chemicals, and to socio-economic development, by adding value to agricultural production chains.
In parallel, ethanol serves as a versatile platform molecule with multiple conversion pathways. Among these, the ethanol-to-jet (ETJ) process is of particular importance, producing SAF capable of lowering greenhouse gas emissions in the aviation sector while remaining compatible with existing fuel infrastructure. Ethanol can also be converted into bioethylene and other intermediates, expanding the product portfolio of the biorefinery. Advancing technologies within the biorefinery concept enhances resource efficiency, diversifies high-value products, and accelerates the transition toward a circular and sustainable bioeconomy. The presentation will emphasize recent technological progress, challenges, and opportunities for industrial implementation of these chemical transformation pathways.

TBA

INVITED SPEAKER: SP5_INV01

GENE EDITING: FROM MOLECULAR SCISSORS TO THERAPEUTIC APPROACHES

Passanan Singpan,[1] Wasinee Wongkummool,[1,5] Passawee Pathumthes,[1] Pirut Tong-ngam,[1] Kanit Bhukhai,[2] Chokedee Wongborisuth,[3] Thunwarat Suriyan,[1] Thongperm Munkongdee,[1] Thidathip Wongsurawat,[6] Piroon Jenjaroenpun,[6] Amornrat Tangprasittipap,[3] Chonticha Saisawang,[1] Natee Jearawiriyapaisarn,[1] Kittiphong Paiboonsukwong,[1] Duantida Songdej,[4] Suthat Fucharoen,[1] Apichart Suksamran,[7] Suradej Hongeng,[4] Emanuel Payen[9], Alisa Tubsuwan[1,*]

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Abstract:

Gene editing technologies have transformed biomedical research by enabling precise modifications of the human genome. Among these, the CRISPR/Cas9 system—often described as "molecular scissors"—has made it possible to correct disease-causing mutations with remarkable efficiency and simplicity. In this study, the CRISPR/Cas9 system was applied to correct the β-thalassemia mutation at codon 41/42 in patient-derived hematopoietic stem cells. Gene correction restored β-globin expression and improved red blood cell pathology in vitro, with ongoing in vivo studies in mouse models to evaluate long-term efficacy. In parallel, we established a high-throughput screening platform to identify small molecules that enhance homology-directed repair (HDR). Early results demonstrate reproducible increases in editing efficiency, providing proof-of-concept for future optimization. Together, these studies highlight how molecular scissors can be translated into therapeutic approaches, bridging fundamental science with clinical relevance.

Assistant Professor Alisa Tubsuwan was born in Surrat Thani, Thailand in 1982. She received the bachelor's degree in Medical Technology from Faculty of Associated Medical Sciences, Chiang Mai University, Thailand in 2004, and her Ph.D. in Bioschemistry from Mahidol University in 2012. Following his academic achievements, AT worked at the Laboratoire de Thérapie Génique et Cellulaire, Service des Thérapies Innovantes, UMR_E007, Institut François Jacob, CEA de Fontenay-aux-Roses, France, and Bioneer in Hørsholm, Denmark. Since 2013, she has been a faculty member at the Institute of Molecular Biosciences, Mahidol University, Thailand. Her research interests Her research focuses on using induced pluripotent stem cells (iPSCs) and CRISPR/Cas9 genome editing to model genetic diseases and uncover their underlying mechanisms. By integrating patient-derived iPSCs with precise gene-editing tools, she aims to study disease pathology, identify therapeutic targets, and develop strategies for translational applications in genetic disorders.

INVITED SPEAKER: SP5_INV02

METABOLIC ENGINEERING OF HIGH-VALUE TRITERPENOIDS BIOSYNTHESIS IN PLANTS USING GENOME EDITING

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Abstract:
Plants produce a wide variety of specialized compounds, often called secondary metabolites. These plant-specific metabolites serve different biological functions and are used in everyday products such as medicines, dietary supplements, flavorings, and food additives. However, plant metabolism can vary significantly depending on lineage, organs, tissues, and cell types, and the levels of these metabolites in raw plant materials are often very low. Therefore, developing reliable biotechnological methods to produce these bioactive plant compounds is crucial for sustainably utilizing their natural resources. In this talk, I will share our current research focused on developing biotechnological platforms to produce health-promoting plant-derived triterpenoids through metabolic engineering in plant tissue cultures using genome editing.
Glycyrrhizin, a type of triterpenoid glycoside known as triterpenoid saponins, is the main active compound in the thick roots of licorice plants (*Glycyrrhiza* spp. in the family Fabaceae), which are used worldwide in herbal medicines and sweeteners. The rising demand for licorice threatens wild populations, so a sustainable supply of glycyrrhizin is essential. To develop an alternative method that does not depend on wild plants, we attempted to produce glycyrrhizin using hairy root cultures, which can be easily cultivated without hormones and are genetically modifiable through insertion of foreign genes via *Agrobacterium rhizogenes*. Despite these benefits, hairy root cultures have rarely been used for glycyrrhizin production because they typically have very low glycyrrhizin levels compared to wild licorice roots.
We aimed to enhance glycyrrhizin production by blocking competing pathways with CRISPR/Cas9-mediated genome editing. *CYP93E3* and *CYP72A566* double-knockout (KO) hairy roots were produced, showing significant glycyrrhizin accumulation. Additionally, we sought to further increase glycyrrhizin synthesis by combining *CYP93E3* and *CYP72A566* double-KO with overexpression of the biosynthetic gene *CYP88D6,* which controls a bottleneck step in the pathway, resulting in even greater accumulation. Our results provide a basis for sustainable glycyrrhizin production through hairy root culture.

Professor Hikaru Seki was born in Hyogo, Japan, in 1971. He earned his Ph.D. from Okayama University in 1999. He then conducted postdoctoral research at Okayama University (1999-2000, JSPS Postdoctoral Research Fellow), Max-Planck-Institute for Plant Breeding (2000-2002, JSPS Overseas Research Fellow), and RIKEN Plant Science Center (2002-2007, Research Scientist). After spending three years as a Contracted Associate Professor at the Kihara Institute for Biological Research at Yokohama City University, he joined the Department of Biotechnology at the Graduate School of Engineering at Osaka University in 2010, where he has continued his work. His research interests include biosynthesis, regulation, and metabolic engineering of beneficial plant-derived terpenoids using microbial and plant cells.

INVITED SPEAKER: SP5_INV03

EFFECTS OF *OsGTL1* GENE EDITING IN RICE

Widya Fajariani,[1,2] Kansinee Hungsaprug,[2] Anchalee Chaidee,[2] Peter G. Lynagh,[3] Putut R. Purnama,[4] Luca Comai,[3] Supachitra Chadchawan[2,*]

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Abstract:

CRISPR/Cas-based genome editing has transformed plant biotechnology by enabling the generation of genetically edited, transgene-free crops. Nevertheless, conventional gene knockouts may result in undesirable pleiotropic effects or even lethality. As an alternative, promoter editing provides a powerful approach to dissect gene regulatory mechanisms and fine-tune gene expression to achieve beneficial traits. In rice, *GT2-LIKE1* (*GTL1*), a predicted drought-responsive gene, functions as a transcriptional repressor of *Stomatal Density and Distribution 1* (*SDD1*), thereby influencing stomatal development. Deletion of specific regulatory motifs reduced *GTL1* expression during early leaf development. These alterations resulted in reduced plant height and lower stomatal density, while photosynthetic rate remained unaffected. Importantly, reduced transpiration was observed, leading to improved water use efficiency (WUE). The edited promoter alleles exhibited incompletely dominant inheritance for plant height, and recessive inheritance for stomatal density. Collectively, these findings highlight the pleiotropic role of *OsGTL1* regulation and demonstrate that promoter editing can enhance WUE without compromising photosynthetic capacity, offering a promising strategy for developing climate-resilient rice cultivars.

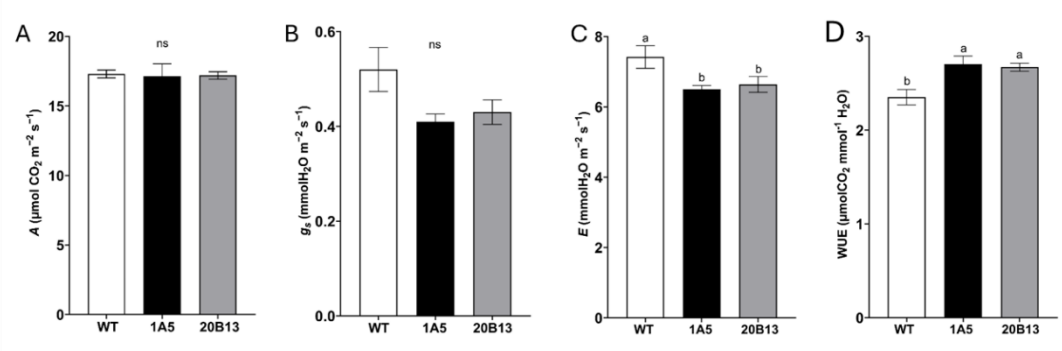


Figure 1. Photosynthesis characteristics, net photosynthesis rate (A), stomatal conductance (B), transpiration rate (C) and water use efficiency (D) of wild type (WT) and *OsGTL1* promoter edited line (1A5 and 20B13)

Professor Supachitra Chadchawan was born in Bangkok, Thailand in 1969. She received the bachelor's degree in science from Department of Botany, Faculty of Science, Chulalongkorn University, Thailand in 1990 and received Ph.D. degree in Botany from University of Washington, Seattle, USA in 1995. Her research interest is to investigate plant gene functions, especially the genes related to abiotic stresses and plant gene modulation for better agronomic traits.

INVITED SPEAKER: SP5_INV04

ENGINEERING UNICELLULAR YEAST TO ACHIEVE MODULAR MULTICELLULARITY

Fankang Meng,[1,2] William M. Shaw,[1,2,3] Yui Kei Keith Kam,[1,2] Tom Ellis[1,2,*]
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Abstract:
Coordination of behaviour in multicellular systems is one the main ways that nature increases the complexity of biological function in organisms and communities. While Saccharomyces cerevisiae yeast is used extensively in research and biotechnology, it is a unicellular organism capable of only limited multicellular states. Here we expand the possibilities for engineering multicellular behaviours in yeast by developing modular toolkits for two key mechanisms seen in multicellularity, contact-dependent signalling and specific cell-to-cell adhesion. MARS (Mating-peptide Anchored Response System) is a toolkit based on surface-displayed fungal mating peptides and G protein-coupled receptor (GPCR) signalling which can mimic juxtacrine signalling between yeasts. SATURN (Saccharomyces Adhesion Toolkit for multicellUlar patteRNing) surface displays adhesion-proteins pairs on yeasts and facilitates the creation of cell aggregation patterns. Together they can be used to create multicellular logic circuits, equivalent to developmental programs that lead to cell differentiation based on the local population. Using MARS and SATURN, we further developed JUPITER (JUxtacrine sensor for Protein-protein InTERaction), a genetic sensor for assaying protein-protein interactions in culture, demonstrating this as a tool to select for high affinity binders among a population of mutated nanobodies. Collectively, MARS, SATURN, and JUPITER present valuable tools that facilitate the engineering of complex multicellularity with yeast and expand the scope of its biotechnological applications.

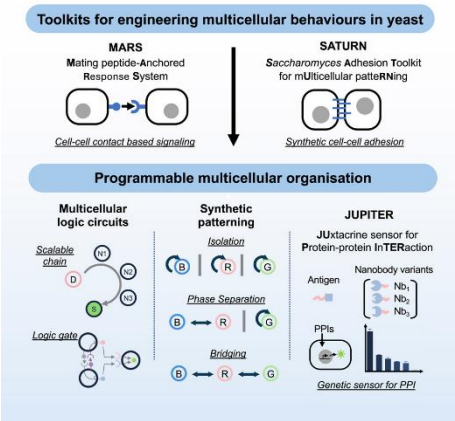


Figure 1. MARS and SATURN systems for yeast.

Tom Ellis is Professor in the Department of Bioengineering and Co-Director of the Centre for Synthetic Biology at Imperial College London. Tom has a degree in Molecular Biology from Oxford University and a PhD from Cambridge University. After university Tom worked in a biotech company in London, then spent 2 years as a postdoc at Boston University before starting his own research group in 2010 at Imperial College London. His group work on synthetic biology with their research treating DNA as the programming language for life. The Ellis Lab specialises in developing synthetic biology tools for yeasts and bacteria and they apply these in projects to make recoded organisms that can make and release therapeutics, sense and respond as living sensors and can autonomously grow new functional materials.

INVITED SPEAKER: SP5_INV05

MAPPING THE INTERACTIONS BETWEEN VITELLOGENIN AND ITS RECEPTOR FOR DEVELOPMENT OF OOCYTE-TARGETING PROTEIN DELIVERY IN SHRIMPS

Natapong Jupatanakul,[1,*] Channarong Sartsanga,[1] Tararat Jantra,[1] Jutharat Pengon,[1] Chatpong Pethrak,[1] Rapeepun Vanichviriyakit,[2] Supannee Taweechai,[1] Kittitat Suksirisawat,[1] Phonchanan Pakparnich,[1] Saranya Thaiudomsup,[1] Piyachat Sanguanrat,[1] Jiraporn Srisala,[1] Siriwan Khidprasert,[3] Kallaya Sritunyalucksana,[1,*] Bunpote Siridechadilok[1,*]

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Abstract:

Shrimp aquaculture has become one of the leading drivers of global seafood production, with total farmed output reaching approximately 5.6–5.7 million metric tons in 2023 and expected to rise above 6 million metric tons by 2025. However, this expansion faces mounting challenges, including the intensification of disease outbreaks, the impacts of climate change, and a narrow genetic base in domesticated broodstocks. Gene editing technology has the potential to accelerate genetic improvement programs to enhance shrimp traits such as growth, reproduction, survival, and disease resistance. Receptor-mediated endocytosis of vitellogenin through its receptor expressing on oocytes represents a potential solution for delivery of gene editors into oocytes. The results of using AlphaFold to map the interactions between shrimp vitellogenins and their receptors and to generate a peptide that can mediate protein delivery into shrimp oocytes will be presented.

Dr. Bunpote was born in Bangkok, Thailand. He received the bachelor's degree in Biochemistry from Brown University, Rhode Island, USA. He received Ph.D. in Molecular and Cell Biology from University of California, Berkeley. He started his independent research career at National Center for Genetic Engineering and Biotechnology (BIOTEC), Thailand. His research group utilizes molecular biology tools, deep mutational scanning, and deep learning to dissect immune antagonism by dengue vaccine for vaccine development and to develop programmable antiviral platform.

INVITED SPEAKER: SP6_INV01

EXPLORATION OF ELECTRONIC STATES IN QUANTUM MATERIALS

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Abstract:
Using photoemission spectroscopy, we explore the electronic structures of quantum materials, including transition metal dichalcogenides, oxides, and graphite/graphene. If time permits, the discussed quantum states will include: a) type-I and type-II three-dimensional bulk Dirac fermions, as well as ladders of topological surface states in $PdTe_2$; b) gap opening at nano-scale meta-surfaces of graphite; and c) the evolution of the chemical potential in doped Mott insulators. Potential applications of these phenomena may relate to topological quantum devices, advanced electronics, and enhanced battery capacity, respectively.

Associate Professor Worawat Meevasais is currently a faculty member at the School of Physics, Institute of Science, Suranaree University of Technology, Nakhon Ratchasima. He received his PhD from Stanford University, and is an expert on quantum materials. He received numerous research awards, including National Outstanding Researcher Award.

INVITED SPEAKER: SP6_INV02

RESEARCH ACTIVITIES ON QUANTUM COMMUNICATION IN THAILAND

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Abstract:
Quantum physics was discovered by notable physicists at the beginning of the 20th century. It unveils the veracity of nature on a minuscule level and in a manner that contradicts common intuition. Despite presenting itself as the opposite of the common notion, it has been empirically demonstrated to exist in nature over the course of the century. By comprehending the properties of the electromagnetic spectrum and atomic structures, significant advancements in science and technology can be achieved. Furthermore, the practical utilization of quantum physics in fields such as NMR, laser science, and microelectronics offers numerous advantages. This emerging paradigm holds immense potential and is supported by substantial evidence. However, many quantum experts considered this evolution to be the first instance of quantum evolution, based on quantum technology. It encompasses the period from the early 1900s to just before the late 1900s. The fusion of quantum technology and information science in the late 20th century is anticipated to usher in a new era of technology. In this new era, we are witnessing a remarkable shift in influence, marked by the emergence of more advanced sensors, highly secure communication, and incredibly powerful computers.
In this presentation, I will focus on the application of this technology in communication, its underlying principle, the progress made globally, and how our Thai quantum team is keeping up with this worldwide trend.

Assistant Professor Pruet Kalasuwan currently is a faculty member at the Division of Physical Science, Faculty of Science, Prince of Songkhla University. He earned his PhD in Physics from the University of Bristol, UK. He is an expert on experimental quantum communication and photonics systems.

INVITED SPEAKER: SP6_INV03

QUANTUM SECURED COMMUNICATIONS

Poompong Chaiwongkhot[1,2,*]

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Abstract:

Quantum computing is no longer a distant dream, it's a technological wave that's about to redefine how we protect and exchange information. This talk explores the coming impact of quantum computing on communication security, beginning with a simple question: *what really keeps our digital world safe today?* From there, we'll journey through the principles of cryptography and see how quantum algorithms threaten to unravel them almost overnight.

We'll discuss why Post-Quantum Cryptography (PQC) and Quantum Key Distribution (QKD) are emerging as the twin pillars of a secure future; one built on new mathematics, the other on the laws of physics themselves. Along the way, we'll connect these concepts to real-life implications, from banking and healthcare to national defense and everyday privacy.

We will also take a look at global actions driving the quantum transition, and how Thailand is stepping forward to build readiness through research, collaboration, and national strategy. We'll end with a practical reflection: what can each of us do, today, to prepare for a world where quantum meets communication?

Dr. Poompong Chaiwongkhot earned his PhD in Physics from the University of Waterloo. He is currently a senior research fellow and co-founder at Quantum Technology Foundation (Thailand). His research interest lies in quantum communications, and quantum cryptography.

INVITED SPEAKER: SP6_INV04

VECTOR MAGNETOMETRY WITH NITROGEN-VACANCY CENTERS IN DIAMOND

Sorawis Sangtawesin*
School of Physics, Institute of Science, Suranaree University of Technology, Nakhon Ratchasima 30000, Thailand
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Abstract:
Magnetometry plays a crucial role in precision sensing, with nitrogen-vacancy (NV) centers in diamond revolutionizing the field by enabling highly sensitive, nanoscale magnetic field detection for applications in quantum technology, materials science, and biomedical imaging. We present vector magnetic field imaging techniques using optically detected magnetic resonance (ODMR) spectroscopy of the NV center electronic transitions. The different orientations of NV axes within the ensemble result in distinct, non-linear Zeeman splitting of the spin transitions that arise from the interaction of an external magnetic field and the NV center crystal field. We demonstrate vector magnetic field calculations and utilize the NV center to visualize the magnetic field emanating from a permanent magnet. In the future, we will apply the methods to perform micron-scale magnetic field imaging. Additionally, we will discuss the impact of surface electronic and magnetic noise on such measurements and present examples of pristine diamond surface preparations for micro- and nanoscale quantum sensing.

Assistant Professor Sorawis Sangtawesin currently is a faculty member at the School of Physics, Institute of Science, Suranaree University of Technology, Nakhon Ratchasima. He received his PhD in Physics from Princeton University. He is an expert on Nitrogen-vacancy (NV) center in diamonds, realizing qubits and operations on qubits in these NV systems.

INVITED SPEAKER: SP6_INV05

QUANTUM SIMULATION AND SENSING WITH RYDBERG ATOMS

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Quantum Simulation Research Laboratory, Department of Physics and Materials Science, Faculty of Science, Chiang Mai University, Chiang Mai, 50200, Thailand
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Abstract:
Rydberg atoms have emerged as a powerful platform for both quantum simulation and quantum sensing. Their strong, tunable long-range interactions and extended lifetimes open new possibilities for exploring the dynamics of strongly correlated many-body systems. At the same time, the large electric polarizability of Rydberg states makes them highly sensitive probes for detecting weak electric fields. In this talk, I will present the use of Rydberg–Rydberg interactions in realizing many-body spin models, and I will highlight how Rydberg atoms can function as atom-based electric field sensors through techniques such as electromagnetically induced transparency and Autler–Townes splitting. I will conclude with an overview of current efforts in Rydberg and cold neutral atom research in Thailand.

Dr. Nithiwadee Thaicharoen earned her bachelor's and master's degree in Physics from the Department of Physics and Material Science at Chiang Mai University. She completed her PhD in Physics at the University of Michigan, Ann Arbor. She is currently a faculty member at the Department of Physics and Material Science at Chiang Mai University. She works on experimental atomic, molecular and optical physics, focusing on Rydberg atoms.

INVITED SPEAKER: SP6_INV06

TORUS BIFURCATION OF A TIME CRYSTAL IN AN ATOM-CAVITY SYSTEM

Phatthamon Kongkhambut[1,2,*]

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*Work conducted at the University of Hamburg

Abstract:

A time crystal is a dynamical phase of matter characterized by many-body interaction-sustained dynamics that remain robust against temporal perturbations. Time crystals (TCs) can be either discrete or continuous, depending on whether they break discrete or continuous time-translation symmetry. Here, we employ a quantum gas setup consisting of a Bose–Einstein condensate strongly coupled to a high-finesse optical cavity to study the formation of a continuous time crystal (CTC). In the transversely pumped atom–cavity scenario, the phase transition between the normal phase (NP) and the superradiant phase (SP) appears as a pitchfork bifurcation from a trivial to a nontrivial fixed point. Building on this framework, we show that the emergence of a CTC can be understood as a Hopf bifurcation between the SP and a limit cycle (LC) as the light-matter interaction is increased. In our recent work, we observe an instability of a dissipative CTC that evolves into a time-crystalline state with two distinct oscillation frequencies. Using a mean-field approach and Floquet analysis, we confirm that this transition represents a many-body realization of a torus bifurcation between a limit cycle (LC) and a limit torus (LT). This constitutes the first experimental observation of a torus bifurcation in a quantum gas system. Our work advances the field of neutral-atom quantum simulation and opens new directions for exploring complex dynamical phenomena.

Dr. Phatthamon Kongkhambut obtained her PhD in Physics from the University of Hamburg. She is currently a faculty member at the Department of Physics and Material Science at Chiang Mai University. She works on experimental quantum optics and quantum simulation.

INVITED SPEAKER: SP7_INV01

PROGRAMMABLE MULTICHANNEL LIGHTING FOR ACCURATE SPECTRAL CONTROL AND DAYLIGHT EMULATION

Steve Paolini*
Telelumen LLC
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Abstract:
Conventional lighting systems typically emit white light at a fixed correlated color temperature (CCT), but the spectral power distribution (SPD) underlying this output is often unspecified. While some systems allow CCT tuning or RGB-based chromaticity adjustment, these approaches still yield only one spectral solution for a given color point, limiting flexibility in reproducing complex spectral environments.
Spectrally programmable lighting systems overcome this limitation by incorporating multiple independently controllable spectral channels (e.g., 5, 8, or 24), enabling precise control over the emitted SPD. This allows for the generation of a wide range of spectra corresponding to the same CCT or chromaticity, making these systems particularly well-suited for simulating natural light sources, most notably, the highly variable SPD of daylight.
To inform the design of such lighting systems, we have conducted thousands of spectrometer measurements of daylight across a range of geographic locations and environmental conditions. This global dataset has been instrumental in guiding the development of both hardware and control algorithms. Applications of this technology include circadian lighting, sleep/wake studies, and imaging systems such as digital cameras and display devices.

Steve Paolini, President Telelumen LLC
Steve earned a BSEE from Penn State University in 1981 and joined Hewlett Packard, Optoelectronics Division. While at HP he held a variety of engineering and management positions in California, Japan, and Malaysia. In 2000 he joined Lumileds as a founding member. In 2007 he founded Telelumen, where he is currently the President. He was also the CTO at Lunera Lighting and the CTO at NEXT Lighting. He speaks frequently on a variety of topics related to solid state lighting, particularly daylight replication and spectrum. He holds 27 issued patents.

INVITED SPEAKER: SP7_INV02

PERSONAL LIGHT DOSIMETRY: CHALLENGES, OPPORTUNITIES, AND EMERGING AI APPLICATIONS

Vineetha Kalavally*
Electrical and Robotics Engineering Department, Intelligent Lighting Laboratory, School of Engineering, Monash University, Jalan Lagoon Selatan, Bandar Sunway
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Abstract:
Personal light dosimetry has advanced with the recognition that circadian and non-visual responses depend on α-opic metrics, reflecting the spectral sensitivities of melanopsin and cone photoreceptors. While wearable sensors enable large-scale monitoring of light exposure, their limited spectral resolution necessitates computational enhancement. Recent developments in artificial intelligence (AI) have enabled accurate reconstruction of spectral power distributions (SPDs) from low-resolution sensor data, facilitating reliable estimation of α-opic quantities. Additionally, AI approaches have been employed to design personalized light exposure schedules ("light diets") that promote circadian alignment and well-being. This presentation reviews current AI-driven methods in personal light dosimetry, emphasizing their integration into wearable sensing, spectral reconstruction, and circadian modeling frameworks. Emerging opportunities in personalized health and adaptive workplace lighting are highlighted, underscoring AI's transformative role in understanding and optimizing human light exposure.

Dr Vineetha is currently an Associate Professor at the School of Engineering. She leads a research group focused on Solid State Lighting. In her role as the director of the 'Intelligent Lighting Laboratory', she has created a research environment that thrives on industry engagement, interdisciplinary involvement and international collaborations. She has achieved high quality research outcomes such as publications in Q1 journals and the securing of two large industry grants.

Dr Vineetha has pioneered teaching and learning approaches using flipped classrooms, interactive teaching using audience response systems, and virtual reality tools in laboratory training. She is currently a co-investigator in an ongoing learning space development project – Smart Lab for Engineering Design (SLED) – the first of its kind on both the Malaysian and Australian campuses and a chief investigator in another study on the - Impact of lighting on learning in classrooms. In her role as the Course Coordinator for the Electrical and Computer Systems Engineering, she endeavors to improve the rigor in a diverse set of course management processes with the aim of improving student learning experience.via supercritical fluids, Pretreatment of lignocellulosic biomass and Supercritical fluids extraction.

INVITED SPEAKER: SP8_INV01

UNIVERSALITY AND DIVERSITY IN COLOR PREFERENCE FOR ART PAINTINGS

Shigeki Nakauchi*
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Abstract:
Color is one of the visual features that most influences individuals' preferences, for example, when choosing clothes, or when imagining the nature of a company from its logo, color greatly influences people's decisions. Art paintings, on the other hand, are considered to purely reflect the artist's taste or preference for colors, and therefore diversity is naturally expected. This talk will cover our recent studies on universality and diversity in color preference for the color composition of art paintings. We have measured preferences for the color composition of paintings by manipulating correlated color temperature (CCT) of the illuminants for the appreciation of paintings, and by rotating the color gamut of paintings (original versus hue-rotated versions). In short, diversity in preference was limited; rather, there seems to be a universal among observers; people may share a sense of what makes certain color combinations aesthetically pleasing. A discussion on which color features play a role in aesthetic judgement of the color composition of paintings will be open to the audience.

Shigeki NAKAUCHI received his Ph.D degree in information and computer sciences from Toyohashi University of Technology in 1993. He is currently Vice President and a professor of the Department of Computer Science & Engineering, Toyohashi University of Technology, Japan. His research interests include color & material perception, face & emotion, preference & aesthetic judgements, and imaging technology.

INVITED SPEAKER: SP9_INV01

HYDROGEN LINE EMISSION FROM ACCRETION SHOCK ON FORMING GAS-GIANT PLANETS

Yuhiko Aoyama*
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Abstract:
The discovery of exoplanets has revolutionized planet-formation studies. The detection of more than five thousand exoplanets with diverse properties has provided crucial insights into planetary formation mechanisms. Furthermore, beyond statistics, recent instruments now enable direct observations of forming planets. Since many formation processes cannot be inferred from evolved systems alone, such observations are key to understanding early evolution of planets.
Giant planets, the most massive members of planetary systems, strongly influence planetary-system architectures and are also the easiest to detect. Indeed, forming giant planets have been detected in hydrogen-line emission. Because hydrogen-line emission require high temperatures (≥5000 K), it directly traces gravitational energy released by accretion. However, the emission mechanism at accreting planets remains debated (Figure 1). At accreting stars, post-shock gas is too hot to emit lines directly; instead, its radiation heats the pre-shock gas, yielding hydrogen lines as secondary emission. By contrast, in planets, the lower free-fall velocity (~60 km/s for Jupiter) can yield post-shock temperatures ideal for direct hydrogen-line emission (~5×10^4 K for Jupiter). This distinction is crucial, since the conversion efficiency from accretion energy to line emission differs greatly.
To understand the hydrogen-line emission from accreting giant planets, we model accretion-shock heated gas with non-LTE excitation and ionization of hydrogen and radiative transfer of hydrogen lines. We find that hydrogen-line emission dominates post-shock radiation for velocities of 30–200 km/s; below 30 km/s H_2 dissociation limits emission, while above 200 km/s hydrogen becomes nearly fully ionized. These results suggest that the hydrogen lines observed in planets likely originate directly from the accretion shock. Current observations of accreting planets cannot yet distinguish direct versus secondary emission, but our shock models reproduce observed hydrogen lines of accreting low-mass stars and brown dwarfs, except for Hα. The excess Hα likely reflects contamination from secondary emission, which may also contribute to hydrogen-line emission in planets.

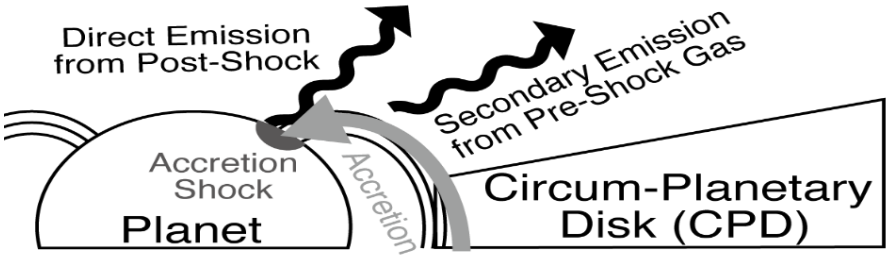


Figure 1. Schematic image of accreting planets and accretion emissions.

TBA

INVITED SPEAKER: SP9_INV02

COSMIC RAYS: WHERE THEY COME FROM AND HOW THEY GET HERE

David Ruffolo*
Department of Physics, Faculty of Science, Mahidol University, Thailand
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Abstract:
Cosmic rays are high energy particles or gamma rays from space, and pose an important hazard to humans and instruments in space. Key populations include Galactic cosmic rays, mostly accelerated by past supernova explosions, and solar energetic particles accelerated by solar storms, which are associated with numerous "space weather" effects on human activity. The acceleration and transport mechanisms relate to space plasma processes, especially turbulent magnetic fluctuations. I will briefly summarize our design and construction of high energy particle detectors for space missions, and results from ground-based detectors that we operate in Thailand and Antarctica. With the LHAASO detector in China, we use gamma-ray detection to explore Galactic sources of PeV-range cosmic rays ("Pevatrons") and have discovered solar storm effects on the most energetic cosmic rays to date. In the field of space plasma physics, we have recently proposed a theory of magnetic switchbacks in the solar wind, examined the origin of solar wind fluctuations using data from NASA's Parker Solar Probe, and discovered a flow crossover in the fundamental process of magnetic reconnection.



Professor Dr. David Ruffolo was born in Iowa City, Iowa, USA in 1968. He received bachelor's degrees in Physics and Mathematics from U. Cincinnati, USA in 1985. He received a Ph.D. in Physics in 1991 from U. Chicago, USA. From 1991-2003, he worked at the Department of Physics, Faculty of Science, Chulalongkorn University, Thailand, and since then at the Department of Physics, Faculty of Science, Mahidol University, Thailand. He won the 2017 Outstanding Thai Scientist Award and 2022 Outstanding Researcher Award. His research interests cover high energy particles from space, i.e., cosmic rays, including their detection, transport theory, and data analysis, and space plasma physics, including solar wind turbulence and magnetic reconnection.

INVITED SPEAKER: SP9_INV03

LIVES AND EXPLOSIVE DEATHS OF MASSIVE STARS: HOW WE ARE MADE OF STARDUST

Samaporn Tinyanont*
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Abstract:
Massive stars are critical constituents of the Universe. Massive stars live fast and die young, producing the first elements heavier than helium in the Universe. Their spectacular deaths in core-collapse supernovae synthesize more heavy elements and disperse all nucleosynthetic products into the interstellar medium to form subsequent generation of stars. Despite their importance, many facets of the massive stars' evolution are still uncertain. I will discuss the diversity of core-collapse supernovae only uncovered in the past decade thanks to wide-field and high-cadence transient surveys. I will highlight surprises from infrared observations, particularly from James Webb Space Telescope (JWST), including the large dust mass found in interacting supernova SN 2014C. I will present the current instrumentation effort at NARIT to build a robotic spectrograph to rapidly classify and systematically observe core-collapse supernovae. Finally, I will conclude by discussing the outlook of the field at the dawn of the large deep transient survey from Vera Rubin Observatory.

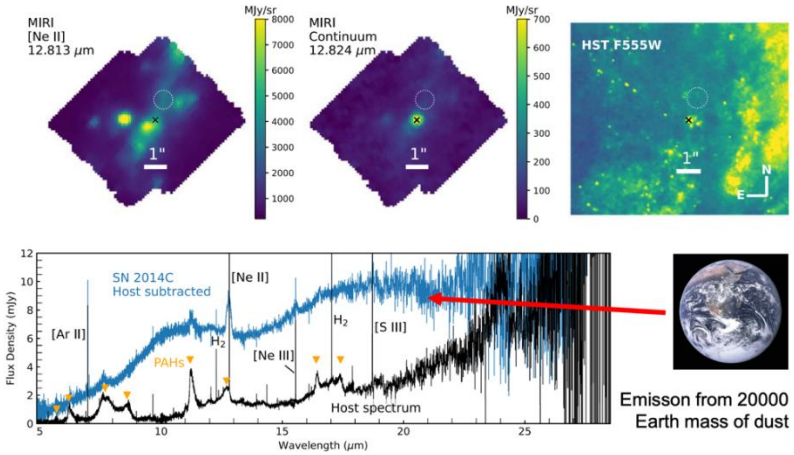


Figure 1. Top left to right: JWST observations of SN 2014C at the ionized neon 12.813 μm line and the dust continuum at 12.824 μm, compared with Hubble Space Telescope image in the visible. Bottom: Extracted infrared spectrum of SN 2014C, showing a dust continuum consistent with emission of 20,000 earth mass worth of carbonaceous and silicate dust.

Dr. Samaporn Tinyanont received his Bachelor of Science in Physics from Harvey Mudd College, California, USA in 2015; and his Master of Science and Doctor of Philosophy from California Institute of Technology in 2017 and 2020, respectively. His PhD advisors were Prof. Dimitri Mawet and Prof. Mansi Kasliwal. He was a postdoctoral scholar at the University of California, Santa Cruz from 2020 to 2023. Since 2023, he is a Researcher at the National Astronomical Research Institute of Thailand. He works primarily on observations of the explosive deaths of massive stars in core-collapse supernovae in the optical and infrared wavelengths. His work includes astronomical instrumentation to catch exploding stars in the act.

INVITED SPEAKER: SP9_INV04

THAI–CHINESE COLLABORATION ON COSMIC RAY SURVEYS AND DEEP-SEA NEUTRINO TELESCOPES

Waraporn Nuntiyakul*
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Abstract:
As part of a Thai–Chinese scientific partnership, two ship-borne latitude surveys were conducted using the semi-leaded Changvan neutron monitor aboard the Xue Long (Snow Dragon) icebreaker during voyages to Zhongshan Station in Antarctica (2018–2019). These campaigns, in collaboration with the Polar Research Institute of China (PRIC), marked Thailand's first mobile cosmic ray measurements and contributed to the global dataset of geomagnetic cutoff--dependent neutron monitor observations. Comparisons with earlier surveys (1994–2007), using Mawson neutron monitor station as a land-based reference, revealed rigidity-dependent linear relationships and spectral crossover features linked to opposite solar magnetic polarities. These results, published in The Astrophysical Journal (Poopakun et al., 2023), highlight the scientific value of semi-leaded configurations in capturing cosmic ray spectral variations. Building on this success, Chiang Mai University has expanded its Thai–Chinese collaboration to include large-scale neutrino observatories under the South China Sea through engagement with the TRIDENT and HUNT collaborations. This talk will briefly update on the collaboration status, student engagement, and some preliminary results from these deep-sea neutrino initiatives, outlining a new frontier for Thai participation in high-energy astroparticle physics.

TBA

INVITED SPEAKER: SP9_INV05

THE EXTREME OBJECTS AT HIGH REDSHIFTS

Teeraparb Chantavat*
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Abstract:
This talk will discuss the application of Extreme-Value Statistics (EVS) to the statistical distribution of astronomical objects. This method provides a prediction of the most extreme objects we are expected to find given a survey. I will present several examples, including the most massive Population III stars and the most luminous galaxies.

Assistant Professor Dr. Teeraparb Chantavat was born in Chiang Mai, Thailand, in 1983. He received his Master of Physics (MPhy) with Distinction from the Department of Physics and Astronomy, the University of Manchester, United Kingdom in 2006. He received his DPhil in Astrophysics in 2011 from the University of Oxford, United Kingdom. From 2011 to the present, he has worked at the Institute for Fundamental Study, Naresuan University.

INVITED SPEAKER: SP10_INV01

STRUCTURAL INSIGHT INTO THE CATALYTIC MECHANISM AND INHIBITOR DEVELOPMENT OF L-FUCOSE-RELATED ENZYMES

Chun-Hung Lin*
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Abstract:
L-Fucose is an important monosaccharide decorating the nonreducing end of oligosaccharides and glycan chains of glycoproteins and glycolipids. Fucosylation, the incorporation of L-fucose, is involved in various biological processes. For instance, fucosylated glycans have been recognized as an invading strategy for pathogenic bacteria to either avoid the host immune surveillance by mimicking host polysaccharides or mediate the host–microbe adhesion. L-Fucosyltransferases catalyze the incorporation of L-fucose into the glycan chains from the donor substrate: GDP-β-L-fucose (GDP-fucose), the activated form of L-fucose. We herein report the structural studies of the bifunctional L-fucokinase/GDP-β-L-fucose pyrophosphorylase (FKP) from *Bacteroides fragilis* that catalyzes the conversion from L-fucose to GDP-fucose. We obtained the first X-ray crystal structures of FKP in complex with substrate–product, leading to the dissection of both activity domains and corresponding catalytic mechanisms. The N-terminal domain of FKP (FKP-NTD) has a single α/β domain and a β-helix-containing domain, whereas the C-terminal domain (FKP-CTD) folds into two α/β domains and the linker comprises three α-helices. The β-L-fucose-1-phosphate (fucose-1-P) and GTP bound separately to the active sites of fucokinase (located at FKP-CTD) and pyrophosphorylase (FKP-NTD), and a third nucleotide-binding site is adjacent to the β-helix (also in FKP-NTD). Additionally, we will also discuss the mechanistic details and important residues involved in the catalysis and binding.
Furthermore, L-fucosidase represents a class of glycosidases to catalyze the hydrolytic removal of L-fucose. We will present nine X-ray crystal structures of L-fucosidase from *Thermotoga maritima* (TmF) in complex with iminocyclitols **1–9**, which have K_i values spanning the *micro*- to *pico*-molar ranges and up to 10^6-fold variation in potency. These inhibitors are C1- or C5-substituted fuconojirimycin (FNJ) derivatives. Compounds **2–6** show time-dependent, slow-binding inhibition events that undergo progressive tightening of the enzyme–inhibitor complex from a low-nanomolar K_i value to a picomolar K_i*. Compound **2** is the most powerful glycosidase inhibitor known (K_i* = 0.47 pM), whereas compound **9** is the least potent (K_i = 6.0 μM). Particularly, two loops located near the active site were found to move inward toward the α-fucosidase active site to produce a closed conformation of complexes with inhibitors. We will demonstrate how the loops contribute to the binding and inhibition potency.

Prof. Chun-Hung Lin received his B.S. in chemistry from National Taiwan University in 1990. He then went to US to pursue his Ph.D. at the Scripps Res Institute with Dr. Chi-Huey Wong. After obtaining Ph.D. in chemistry in 1995, he spent another two years for postdoctoral training at Harvard Med School (1995-97) under the guidance of Dr. Christopher T. Walsh. He then started his independent career in Academia Sinica. His research interest is to develop inhibitors and probes that are associated with gut bacteria and host-microbe interplay.

INVITED SPEAKER: SP10_INV02

MULTIFUNCTIONAL MAGNETIC MATERIALS AS PHOTOCATALYSTS, FROM COMPOSITE MATERIALS TO HIGH ENTROPY MATERIALS

Numpon Insin,[1,2,*] Nisanart Charoenlap,[3] Sakulsuk Unarunotai,[1] Tirajate Tulanon,[1] Padtaraporn Chanhom,[1] Chawanakorn Puangkaew,[1] Abdurrahman Ihsanuddin,[1] Maythada Ruamjaithanakul,[1] Mehak Un Nisa[1]

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[3] Laboratory of Biotechnology, Chulabhorn Research Institute, Bangkok, 10210, Thailand

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Abstract:

Magnetic materials with multifunctional characters have been prepared in our research group for applications as photocatalysts with facile recovery and reuse by magnetic separation. We have synthesized nanocomposites of iron oxides-silica-titania (TSI) and used them for photodegradation of organic pollutants in contaminated water. The nanocomposites also exhibited antibacterial properties. We also demonstrate the enhancement in selectivity by combining Molecularly Imprinted-Polymer (MIP) onto the photocatalyst composites and found out that the catalyst can selectivity degrade target molecules such as aflatoxin contaminated in food. Recently, we prepared various high entropy materials that combine magnetic responsive and catalytic properties in a single phase. The magnetic high entropy oxides, nitrides and sulfides exhibit good catalytic performance with magnetic separation for recovery and reusability of the materials.

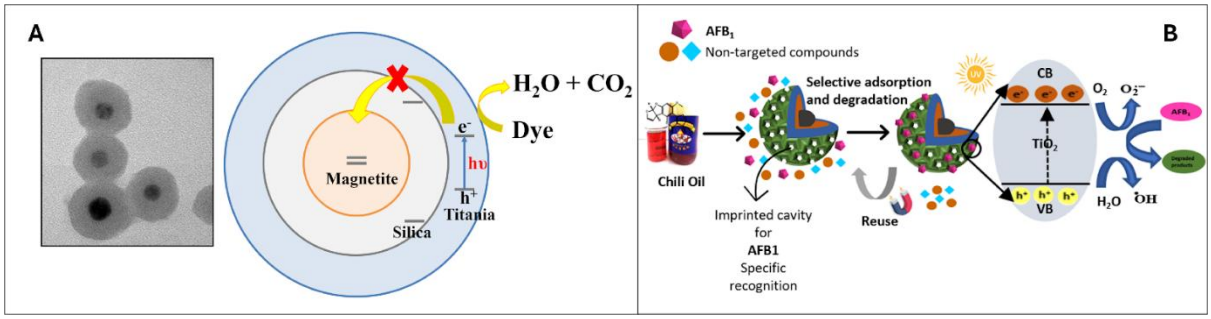


Figure 1. TEM image and diagram of iron oxides-silica-titania (TSI) nanocomposites for dye photodegradation (left) and MIP-TSI nanocomposites for selective photodegradation of aflatoxin (right).

Assistant Professor Numpon Insin was born in Sakon Nakhon in 1980. He received the bachelor's degree in science from Department of Chemistry, Faculty of Science, Chulalongkorn University, Thailand in 2003. He received Ph.D. in Chemistry (Inorganic Chemistry) in 2011 from Massachusetts Institute of Technology, USA. From 2011 to present, he works at Department of Chemistry, Faculty of Science, Chulalongkorn University, Thailand. His research interests include synthesis of inorganic nanomaterials and their catalysis, environmental and biological applications.

INVITED SPEAKER: SP10_INV03

DECODING STRUCTURES AND DYNAMICS IN FUNCTIONAL FRAMEWORK MATERIALS FOR A NET-ZERO FUTURE

Tatchamapan Yoskamtorn,[1,2] Guangchao Li,[2] Xin-Ping Wu,[3] Shik Chi Edman Tsang,[2,*]

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Abstract:

Unravelling the structures and dynamics of functional framework materials such as metal-organic frameworks (MOFs) and zeolites under guest-induced environments is central to advancing next-generation nanomaterials for renewable energy storage and catalysis. In this context, the integration of in situ diffraction and spectroscopy with theoretical modelling offers a uniquely powerful route to probe these systems under realistic conditions and at molecular resolution. Synchrotron X-ray diffraction (SXRD), neutron powder diffraction (NPD), and quasielastic neutron scattering (QENS) together enable precise insights into structural evolution and dynamic processes, while infrared spectroscopy (IR) and inelastic neutron scattering (INS) provide complementary information on host-guest interactions and surface reaction chemistry. In this study, we highlight three representative examples from our recent work: (i) responsive behaviour of defect-engineered Zr-based MOFs for ammonia (NH_3) storage, (ii) NH_3-driven diversification of relaxation pathways in MOFs, and (iii) thermally induced adsorption sites within zeotype frameworks. Across these cases, comprehensive analyses of guest-induced structural transformations, surface adsorbates, and underlying reaction mechanisms reveal new dimensions of functionality that emerge at the molecular scale. Our findings not only deepen the crystallographic understanding of dynamic porous and catalytic systems but also demonstrate how guest-responsive properties can be harnessed for energy-relevant applications. These insights underscore the pivotal role of advanced crystallographic and spectroscopic methods in shaping the design of framework materials for a net-zero future.

Since February 2024, Dr Tatchamapan Yoskamtorn has held the position of lecturer in Inorganic Chemistry at the Department of Chemistry, Faculty of Science, Chulalongkorn University. After completing her DPhil in Inorganic Chemistry under Professor Edman Tsang at the University of Oxford in 2021, she worked as a postdoctoral researcher at the SCG-Oxford Centre of Excellence in Chemistry, where she studied the chemical recycling of thermoplastic wastes into value-added products. Her current research centres on green and sustainable chemistry, specifically the design and development of multifunctional materials such as metal-organic frameworks, zeolites, and metal oxides, for applications in waste-to-fuel and waste-to-energy catalysis. To fully understand the interplay between structure, dynamics, and activity in these materials, advanced integrated techniques such as synchrotron and neutron diffraction, neutron scattering, and Rietveld refinement have been applied extensively in her studies.

INVITED SPEAKER: SP10_INV04

REDEFINING LABORATORY CRYSTALLOGRAPHY: HIGH-INTENSITY SILVER RADIATION AND ADVANCED DETECTION FOR PRECISION STRUCTURAL ANALYSIS

Prathapa Siriyara Jagannatha,[1,*] Michael Ruf,[2] Tobias Stürzer,[3] Carsten Wolf,[3] Martin Adam[3]
[1] Bruker India Scientific Pvt. Ltd., Bengaluru, India
[2] Bruker AXS LLC, Madison, USA
[3] Bruker AXS SE, Karlsruhe, Germany
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Abstract:
The outstandingly high intensity of the IμS DIAMOND II Ag micro focus sources is currently redefining laboratory-based X-ray crystallography. It is common sense that silver radiation is offering substantial advantages over traditional Molybdenum (Mo) sources. With a shorter wavelength of 0.56 Å, Ag-Kα radiation enables very high-resolution structure determination, deeper sample penetration, and significantly reduced absorption—critical for precision structure determination, especially samples involving heavy elements. With up to twice the intensity of traditional rotating anode systems, the IμS DIAMOND II Ag source significantly broadens the range of samples that can benefit from its capabilities and enables the routine use of Ag radiation in home laboratories. The technology achievement on the source end is matched with the new PHOTON IV HE photon-counting detector. This detector is optimized for hard X-ray radiation and delivers an exceptionally high quantum efficiency close to 100% for Ag radiation.
This source-detector combination guarantees enhanced signal-to-noise ratios, minimized radiation damage and the highest data quality addressing persistent challenges in crystallographic data acquisition, including extinction effects, background scatter, and data completeness in low-symmetry or high-pressure experiments.
A series of case studies will highlight the synergistic benefits of combining high-energy Ag radiation with advanced PHOTON IV HE detection technology. The presentation will include classic examples, such as heavy-element (Pb, Eu, W) complexes and high-pressure crystallography. We will address hot topics in crystallography, such as Pair Distribution Function (PDF) analysis and complete the presentation with examples for accurate absolute structure determination in light-atom compounds. It should be noted that this analysis prior to the introduction of the IμS DIAMOND II has been hindered by the weak anomalous scattering signals produced by Ag radiation. The new technology accelerates data collection, improves structural precision, and opens new avenues for research in quantum chemistry, battery materials, and complex inorganic and even organic systems.

Dr. Prathapa Siriyara Jagannatha is currently working as Product Manager and Application Scientist for SC-XRD at Bruker India Scientific Pvt. Ltd. He obtained his Ph.D. in Crystallography from the University of Bayreuth, Germany, where his doctoral thesis, *"Dynamic Charge Densities of Amino Acids and Proteins,"* focused on accurate charge density studies. He has accumulated more than 18 years of extensive experience in the field of single-crystal X-ray diffraction (SC-XRD).
Dr. Jagannatha's professional journey includes a prestigious Claude Leon Foundation Postdoctoral Fellowship at the University of the Witwatersrand, Johannesburg, South Africa. Prior to joining Bruker, he worked as an X-ray diffraction technician at the Institut Català d'Investigació Química (ICIQ), Tarragona, Spain.
He has authored more than 40 publications, reflecting his expertise and significant contributions to the fields of crystallography and X-ray diffraction.

INVITED SPEAKER: SP10_INV05

MY LAST EXPERIMENT

Santi Pailoplee*
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Abstract:
As a scientist, research and experimentation have always been inseparable parts of my life. Just as others in the scientific community, I have spent decades designing and conducting experiments, each intended to answer questions, reduce uncertainties, and contribute new knowledge to society. These experiments became the foundation upon which I built my career, my reputation, and my academic recognition. For more than half of my lifetime, the results of such work elevated me step by step, both in terms of professional qualifications and in my standing within the academic society. Eventually, I reached the goals that I had once set for myself. With those milestones achieved, I came to a point where the doubts and restlessness that had once driven me were finally quieted. I felt a sense of fulfilment. I had already proven myself, already loved myself enough through this pursuit of science.
Yet with the time that remains to me in this role as a scientist, I chose to design one last experiment. Unlike the earlier ones, this experiment is deeply personal, and the research problem I posed was simple yet profound:

"How much benefit and happiness can one human life create for others as a whole?"

To test this, I decided to place myself into the very framework of the experiment, making my own life the sample under study. The process has already begun some time ago, quietly but steadily. Of course, there are aspects of this design that lie beyond my control. The axis of time, represented by the X-axis in the metaphorical graph of my life, is something I cannot determine. I do not know how long the experiment will be allowed to run. But what I can hope for is that the Y-axis—the measure of achievement, of positive impact, of generosity—will rise as steeply as possible. My aspiration is that the slope of this curve will reflect a life lived with meaning, one that provides value and joy to others. When the time comes that I am no longer here, the conclusion of this last experiment will be drawn. It will not be I who writes it, but those who experienced the results, those who received the gifts of time, kindness, or knowledge that I tried to offer. My hope is that they may find the answer to the research question in the simple truth that:

" Those who give, shall always be loved "

Santi Pailoplee, Ph.D., is a geoscientist at the Center of Excellence in Morphology of Earth Surface and Advanced Geohazards in Southeast Asia (MESA CE), Chulalongkorn University, Thailand. His expertise spans geohazard assessment, tectonic stress analysis, geomorphology, and geoarchaeology, with a focus on understanding human-environment interactions and preserving cultural heritage. He has authored numerous publications and led projects integrating GIS, fieldwork, and historical data. Beyond research, Dr. Pailoplee actively mentors students, supports academic initiatives, and promotes public understanding of earth sciences. His work bridges rigorous science with societal relevance.

INVITED SPEAKER: SP12_INV01

"TRUST ME, I'M A SCIENTIST." WHY SCIENCE COMMUNICATION MATTERS

Julia Rizzo*
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*e-mail: Julia.rizzo@laimburg.it

Abstract:
In times of rapid scientific and technological advances, public trust in science depends not only on what researchers discover, but also on how they share their discoveries.
This keynote explores the importance of Science Communication as a key driver for Civic Science Literacy, emphasizing why it matters that scientists themselves take an active role in this process. Building public trust begins not only with explaining science in an accessible manner, but also with sharing it openly and authentically.
Drawing from personal experience as Head of Science Communication at Laimburg Research Centre, a research institute for agriculture and food technologies in Italy, the talk provides practical guidance for scientists, communicators, and institutions on how to engage diverse audiences.
The keynote challenges to move beyond the notion of "the general public," and instead recognizes the diversity of audiences—from professional stakeholders to citizens with specific interests. Participants will take away actionable strategies for communicating emerging discoveries in ways that build trust, foster collaboration, and strengthen the connection between science and society.
The talk also reflects on the role of research institutions in supporting scientists' communication efforts and promoting Civic Engagement with science—for instance, through initiatives such as the Science Ambassador Academy, an institutional program designed to train scientists in effective communication and public engagement.
Because visibility is not vanity: it's knowledge transfer, awareness-building, and both a gift and a responsibility to society.

Dr. Julia Rizzo is Head of Science Communication at the Laimburg Research Centre, where she leads a multidisciplinary team dedicated to making agricultural and food research accessible to diverse audiences. She oversees the Centre's communication strategy and corporate identity, coordinating activities across media relations, publications, social media, and visual storytelling. Before joining Laimburg, she worked in product and brand management and gained experience in corporate communication and event management within the pharmaceutical industry, developing communication projects for scientific and institutional contexts. Julia Rizzo holds a Master's degree in Science Communication and a degree in Biology from Sapienza University of Rome.

INVITED SPEAKER: SP12_INV02

ASTRONOMY AS A TOOL FOR SCIENCE COMMUNICATION: THE NARIT MODEL

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Abstract:
This talk explores the unparalleled effectiveness of astronomy as a tool for public science communication, arguing that its inherent capacity to inspire awe and curiosity makes it a unique gateway to broader scientific literacy. Astronomy is inherently engaging, non-controversial, and touches upon universal human questions, making it an ideal platform to teach the scientific method, critical thinking, and advanced STEM concepts (including physics, engineering, and data science).
The presentation will use the National Astronomical Research Institute of Thailand (NARIT) as a primary case study. Recognized as a world leader in astronomy public outreach, NARIT demonstrates a strategic, scalable model for national engagement. Key to its success is a focus on decentralization, achieved through a national network of Regional Observatories for the Public, and the creation of a sustainable educational ecosystem via its School Telescope Network and comprehensive teacher training programs.
Crucially, the NARIT model emphasizes inclusivity, developing targeted resources like astronomical vocabulary in Thai Sign Language to ensure the cosmos is accessible to all. By showcasing NARIT's impact—reaching hundreds of thousands of participants annually and fostering national capacity building—this talk provides a blueprint for leveraging the power of the stars to build a more scientifically literate and engaged global society.

Born in 1964, Dr. Saran Poshyachinda developed a passion for astronomy early in life, inspired by stargazing through his uncle's telescope; he wanted to be a scientist. Due to the limited infrastructure for astronomical research in Thailand at that time, he decided to continue his studies in Chemistry and later earned a Ph.D. in Polymer Science in the UK. Returning to Thailand, he took part in the establishment of the National Metal and Materials Technology Center (MTEC) and the National Science and Technology Development Agency (NSTDA). Despite working on instrumenting and setting up laboratories, his passion for astronomy remained, keeping astronomy as his favourite hobby.
His dedication to astronomy led him to key roles in founding Thailand's National Astronomical Research Institute of Thailand (NARIT), established in 2004 and he became the Executive Director of NARIT from 2017 to 2025. With NARIT, Dr. Saran had overseen major astronomical research initiatives, such as building the Thai National Telescope, the Thai National Radio Telescope, regional observatories, and the Thai Space Consortium. He has led eclipse expeditions globally and championed astronomy education and outreach in Thailand and across Southeast Asia, which promotes public understanding of astronomy and encourages youth to pursue STEM careers. In 2019, the IAU honoured his efforts in promoting public interest in astronomy and advancing astronomical research by naming minor planet 2000 EJ148 after him.

INVITED SPEAKER: SP12_INV03

EVALUATING IMPACT IN SCIENCE ENCULTURATION IN MALAYSIA

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Abstract:
Programmes aimed at cultivating STI, spearheaded by MOSTI, constitute strategic national initiatives involving significant resource investments—including financial allocations, technical expertise, and workforce mobilisation. Despite their scope and national relevance, no comprehensive evaluation has been conducted to systematically assess the effectiveness of these programmes in enhancing public awareness, scientific literacy, and societal acceptance of STI. The implementation of the Impact Assessment Study of MOSTI's STI Enculturation Programme 2025 is therefore critical to ensure that the government's investments yield optimal returns for the rakyat and the nation. This study includes a comprehensive assessment of the implementation of STI cultural programmes led and funded by MOSTI and agencies under its supervision. This assessment aims to examine the programme's achievements in terms of impact on target groups, alignment with national policies and directions, and the effectiveness of the use of allocated resources. In general, the scope of the study emphasises an assessment of the current status, results and impact of STI cultural programs in the context of creating an STI-literate society and supporting Malaysia's goal of an innovation-driven economy. This study adopts a Logic Model framework to guide the planning, implementation and evaluation of STI enculturation programmes. The model provides a visual representation of how programme inputs, activities, outputs, outcomes and impacts are interconnected to achieve defined objectives.

Dr. Fung Hon-Ngen is currently a Senior Lecturer at the Department of Science and Technology Studies, Faculty of Science, Universiti Malaya and teaches in the Master of Science Communication and Public Engagement as well as the Master of Sustainability Science programme offered in the Department. His research interest is in Responsible Innovation, Science Communication and STI Policy. Dr Fung is active in training and consultancy and has been involved in projects for the Malaysian Ministry of Science, Technology and Innovation; Ministry of Health, Ministry of the Economy, ASEAN, Lund University and the International Decade of Sciences for Sustainable Development under UNESCO.

INVITED SPEAKER: SP12_INV04

PROMOTING PUBLIC ENGAGEMENT IN FRONTIER SCIENCE THROUGH SCIENCE COMMUNICATION RESEARCH AND DEVELOPMENT: THE PHILIPPINE EXPERIENCE

Mark Ivan C. Roblas*
Philippine Council for Industry, Energy and Emerging Technology Research and Development, Department of Science and Technology / College of Media and Communication, University of the Philippines – Diliman
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Abstract:
As scientific frontiers continue to develop across disciplines, fostering public engagement has become essential for inclusive and sustainable development. In the Philippines, the Department of Science and Technology (DOST) has taken a pivotal role as an enabler of science communication, driving initiatives that connect scientific advancement to societal needs.
This paper presents the Philippines' experience in promoting public engagement in frontier science through science communication research and development in a bid to enhance public trust, participation, and understanding of science. It highlights DOST's Science Communication Agenda, which emphasizes evidence-based strategies, capacity building, and the integration of local and indigenous knowledge in communicating science. The paper also discusses the Science Communication Roadmap, developed by the Philippine Council for Industry, Energy and Emerging Technology Research and Development, a strategic framework that seeks to institutionalize science communication practice across research institutions, government agencies, academia, and media.
The paper also outlines ways forward in promoting frontier science through public engagement via international collaboration, positioning the Philippines within a regional and global context. By engaging with ASEAN, Asian, and global partners, DOST aims to strengthen transnational collaboration, co-develop communication models, and share best practices in promoting public engagement with frontier science.
The Philippine experience demonstrates how policy support, research-driven strategies, and international cooperation can synergize to advance science communication as a vital component of national and global development.

Mark Ivan Roblas is an accomplished science communication specialist with significant experience in science communication planning, science journalism, events management, and data journalism. He works as the Head of the Information Group, designing and monitoring communication strategies for the Philippine Council for Industry, Energy and Emerging Technology Research and Development. He also led the Science Explorer, the Philippines' first mobile science learning facility that provides interactive science activities for students to entice them to be scientists in the future. Currently, he is a PhD student at the College of Media and Communication, University of the Philippines - Diliman. He was recently elected as a member of The Network for the Public Communication of Science and Technology, the largest international organization of science communication researchers and practitioners.

INVITED SPEAKER: SP13_INV01-SP13_INV07

THE CONCEPT OF NATURE-BASED SOLUTIONS (NbS) AND THEIR IMPLEMENTATION AT THE INTERNATIONAL LEVEL

Andreas A. Hutahaean*
Institut Pertanian Bogor (IPB University), The Indian Ocean Rim Association (IORA)

THE CONCEPT OF NATURE-BASED SOLUTIONS (NbS) AND THEIR IMPLEMENTATION AT THE REGIONAL LEVEL

Pakkasem Tongchai*
International Union for Conservation of Nature (IUCN Thailand)

THE IMPLEMENTATION OF NbS IN NATIONAL POLICY

Wongkot Wongsapai*
The Office of National Higher Education Science Research and Innovation Policy Council (NXPO)

NbS TECHNOLOGY FOR CLIMATE MITIGATION

Jeark Principe,[1,*] Nuntikorn Kitratporn, [2,*] Atthaphon Ariyarit, [3,*] Sirilak Chumkiew[3,*]
[1] University of Philippines Diliman
[2] The Geo-Informatics and Space Technology Development Agency (GISTDA)
[3] Suranaree University of Technology

NbS PROJECT IMPLEMENTATION IN FOREST ECOSYSTEM

Prateep Duengkae*
Kasetsart University

NbS PROJECT IMPLEMENTATION IN FRESHWATER ECOSYSTEM

Pannawee Mekwichai*
Ubon Ratchathani University

NbS PROJECT IMPLEMENTATION IN MARINE AND COASTAL ECOSYSTEM

Vanyarat Kongsap*
Prince of Songkla University

INVITED SPEAKER: SP14_INV01

INSIGHTS AND PERSPECTIVES ON MICROWAVE-CO_2-H_2O SYNERGY FOR BIOMASS VALORIZATION

Armando T. Quitain,[1,*] Nao Takata,[2] Kota Nishimure,[2] Risa Fukuda,[2] Jakaria Rambli,[2] Suttichai Assabumrungrat,[3] Tetsuya Kida[4]

[1] School of Social Innovation, Graduate School of Social and Cultural Sciences, Kumamoto University, Kumamoto, Japan

[2] Graduate School of Science and Technology, Kumamoto University, Kumamoto, Japan

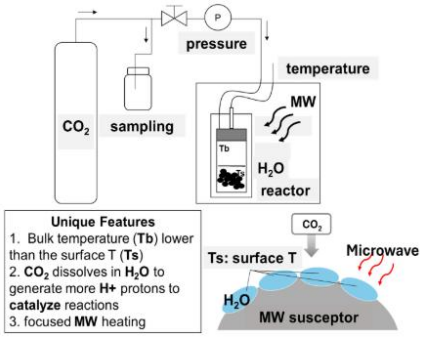
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Abstract:

The synergy between microwaves (MW), carbon dioxide (CO_2) and water (H_2O) is an emerging area of interest in various fields such as green chemistry, materials science, environmental engineering, and chemical processing. The combination of these three components can lead to unique physical and chemical behaviors, especially under MW controlled conditions. This talk highlights insights and perspectives of our novel and unique "MW-CO_2-H_2O reaction system" as applied specifically to conversion of biomass into valuable chemicals. The advantages of this novel approach include: (1) the CO_2-H_2O interaction provides additional protons to aid catalysis; (2) it uses environmentally friendly and efficient MW energy for more targeted heating; and (3) the CO_2 phase can aid the selective separation of non-polar products. In our recent studies, this has been applied to the conversion of biomass into hydrochars, the efficient conversion of glycerol into GTBEs, the selective cleavage of glycosidic bonds in bioflavonoids and the conversion of sugars into useful chemicals such as 5-HMF and low-molecular-weight carboxylic acids. The synergy between MW, CO_2 and H_2O arises from the selective use of microwaves, the generation of reactive species and non-thermal reaction pathways. This enables the energy-efficient and sustainable transformation of biomass into valuable products that will support the future of the non-petroleum-based chemical industry.



Professor Armando T. Quitain received his PhD in Chemical Engineering from Nagoya University on a MEXT scholarship in 2000. He is currently a professor at Kumamoto University. His research interests focus on the development of green technologies based on microwave carbocatalysis, hydrothermal and supercritical fluids for biomass conversion. He recently led an e-ASIA Joint Research Project on alternative energy (bioenergy) and is currently working as a co-PI on the SATREPS project, which focuses on developing a hydrothermal-based algal biorefinery. He continues to collaborate with European and ASEAN researchers on biomass valorization in order to support the SDGs and carbon neutrality. He has also been developing student exchange programs to cultivate future STI leaders who will promote sustainability in the Japan-ASEAN region and beyond.

INVITED SPEAKER: SP14_INV02

SURFACE-FUNCTIONALIZATION OF MXENE WITH CATECHOL LIGNADS: GREENER PREPERATION AND VARIOUS APPLICATIONS

Insik In,[1,2,*] Soorathep Kheawhom[2]

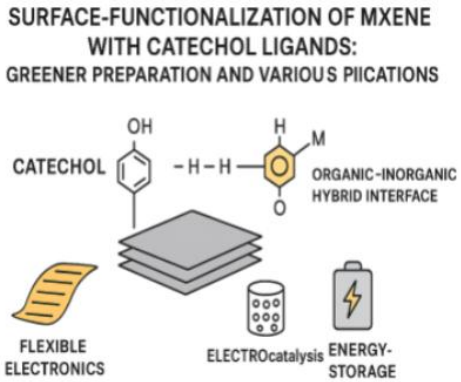
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Abstract:

Catechol ligands offer a promising greener approach for surface functionalization of MXene (e.g. $Ti_3C_2T_x$), enabling improved stability, processability, and multifunctionality. In this work, we report a mild, aqueous-based functionalization of MXene nanosheets using catechol derivatives, where catechol moieties spontaneously bind to the MXene surface via metal–oxygen coordination as well as charge–transfer interactions (supported by UV-Vis and DFT calculations). This functionalization leads to increased interlayer spacing, enhanced colloidal stability, and reduced oxidation of MXene in ambient or aqueous environments. To demonstrate versatility, catechol-modified MXene is incorporated into poly(vinyl alcohol) (PVA) hydrogels to produce self-healable, oxidation-resistant strain sensors that exhibit rapid response, excellent mechanical resilience, and stable electrical performance. Additional applications explored include immobilization of fluorescent dyes for imaging, organic solvent dispersion for film fabrication, and enhanced electrochemical performance in supercapacitors or electrocatalysis through improved active-site exposure and surface protection. Challenges such as controlling ligand packing density, ensuring long-term environmental durability, and scaling up the greener functionalization process are discussed. Overall, catechol ligand functionalization represents an effective, eco-friendly strategy to unlock new capabilities of MXene materials for diverse applications.



Professor Insik In received his Ph.D. in Chemistry from the Korea Advanced Institute of Science and Technology (KAIST), South Korea. He conducted visiting scholar research at the Tokyo Institute of Technology in 2002 and the University of Wisconsin–Madison from 2004 to 2007. He is currently a Professor at the Korea National University of Transportation, South Korea. His research focuses on the surface functionalization of two-dimensional transition metal carbides and nitrides (MXenes), emphasizing controlled dispersion, enhanced electrical conductivity, and their applications in energy and electronic systems. To date, he has published more than 280 SCI-indexed papers and has achieved an *h*-index of 56. Professor In also serves as the Director of the Department of IT-Energy Convergence (Graduate School) and the Chemical Industry Institute (2018–2027). In addition, he is the Chief Technology Officer (CTO) of MXEra Co., Ltd., a company in South Korea specializing in the mass production and commercialization of MXenes.

INVITED SPEAKER: SP14_INV03

UTILIZING BIO-BASED FEEDSTOCKS IN A MODULAR CONTINUOUS FLOW SYNTHESIS SYSTEM

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Abstract:

Continuous flow synthesis has emerged as an efficient and versatile platform for a wide range of organic transformations, with recent expansions into photocatalysis and biocatalysis. The modular nature of flow reactors allows reconfigurable systems for diverse synthetic routes. In this talk, I will highlight our group's work on integrating flow photocatalysis, flow biocatalysis, and in-line separation to achieve sequential multi-step synthesis. In particular, we apply reaction engineering principles to design chemo-enzymatic processes for the synthesis of indole-3-acetic acid, a key pharmaceutical intermediate, with features such as in-line gas removal (*Green Chem.*, 2025, 27, 793–803). These modular flow systems offer promising opportunities to advance sustainable process engineering through flexible, efficient, and environmentally friendly chemical synthesis.

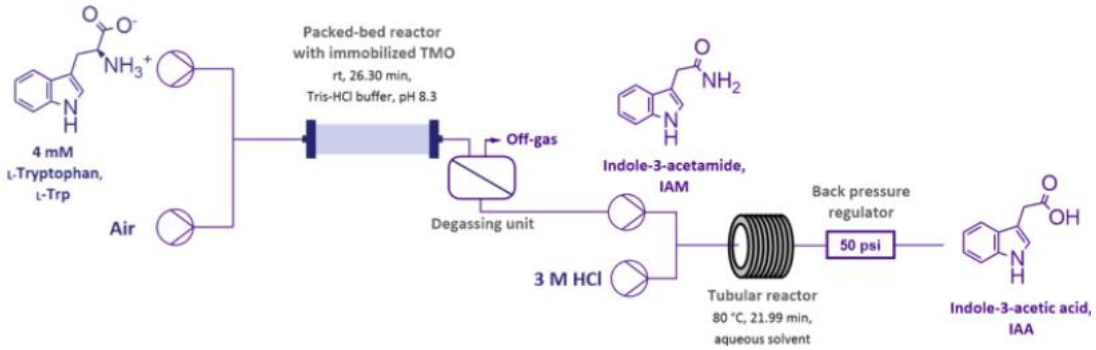


Figure 1. Chemo-enzymatic synthesis of indole-3-acetic acid (*Green Chem.*, 2025, 27, 793–803)

Dr. Nopphon Weeranoppanant is an Associate Professor in the Department of Chemical Engineering at Chulalongkorn University, Thailand. He earned his B.S. from Columbia University and his M.S. and Ph.D. from the Massachusetts Institute of Technology (MIT). Prior to his current position, he served as Director of Research at Zaiput Flow Technologies (USA) and was a faculty member at Burapha University and VISTEC, both in Thailand. Dr. Weeranoppanant has received numerous awards, including Emerging Investigator recognition from *Reaction Chemistry & Engineering* (2019) and the *Journal of Flow Chemistry* (2020), and he was named to the Class of Influential Researchers by *ACS Industrial & Engineering Chemistry Research* (2023). He currently leads a research group focused on sustainable process engineering, with an emphasis on flow chemistry, bioprocesses, and novel separations.

INVITED SPEAKER: SP14_INV04

SUPERCRITICAL CO_2 EXTRACTION OF OILS FROM OIL BIOMASS SOURCES: A SUSTAINABLE VALORIZATION APPROACH

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Abstract:
Supercritical CO_2 extraction has emerged as a promising green technology for obtaining oils from alternative sources such as oilseeds, food residues, and insects. Compared with conventional solvent-based methods, supercritical CO_2 provides selective extraction under mild operating conditions, allowing better retention of thermolabile bioactive compounds while avoiding the use of toxic organic solvents. This technique yields crude oils with desirable physicochemical and functional properties and contributes to environmental sustainability through lower solvent residues, improved energy efficiency, and reduced ecological impact. In addition, supercritical CO_2 facilitates the valorization of underutilized biomass by transforming low-value by-products into oils with potential applications in food, nutraceutical, cosmetic, and pharmaceutical sectors. With the growing demand for sustainable production, supercritical CO_2 extraction offers a practical approach that combines efficient oil recovery with circular bioeconomy strategies, supporting both resource utilization and the development of health-focused products.

Associate Professor Dr. Rattana Muangrat, Division of Food Process Engineering, Faculty of Agro-Industry, Chiang Mai University, Chiang Mai, 50100, Thailand. From 2003 to present, she worked at Division of Food Process Engineering, Faculty of Agro-Industry, Chiang Mai University, Thailand. Her research interests focus on traditional, innovative, and sustainable extraction processes, including supercritical CO_2 extraction and drying techniques.

INVITED SPEAKER: SP14_INV05

A SUSTAINABLE SYMPHONY OF VALORIZING AGRO-INDUSTRIAL WASTE: THE CIRCULAR BIOECONOMY AND BIOREFINERY PROCESS

Siti Zullaikah,[1,*] Amiruddin Zakaria,[1] Hari Kimsamto,[1] Kee Woei Ng[2]
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Abstract:
In the pursuit of a sustainable future, bioeconomy and biorefineries have emerged as key agents of change. Environmental concerns, resource scarcity, and the growing demand for renewable and bio-based products are shaping this sustainable framework. One example of agro-industrial waste that remains underused but is widely available in Indonesia is rice bran. It has significant potential in the biorefinery and bioeconomy sectors due to its rich content of bioactive compounds and nutrients, with an annual production capacity of 5.14 million tons. Crude rice bran oil (CRBO) has a mix of saturated and unsaturated fatty acids, and higher levels of unsaponifiable matter, which provide various health benefits; however, due to the presence of active lipase right after milling, free fatty acids (FFA) levels rise, making CRBO unsuitable for human consumption and an uneconomical process for edible oil. Therefore, CRBO can serve as a feedstock for biodiesel and a high-value emulsifier because of its rich bioactive compounds. Defatted rice bran (DRB) is rich in protein, which consists of albumin, glutelin, globulin, ad prolamin. These components include both non-essential and essential amino acids. Rice bran protein (RBP) has high biological value and digestibility, and it is hypoallergenic. This makes it a good option for food products aimed at people with allergies. RBP also shows potential as an ingredient in nutritional plant-based foods because of its balanced amino acid profile, along with its antioxidant, antidiabetic, and anticancer properties that contribute to its functionality and health benefits. Alkaline and various deep eutectic solvents (DES) were used as solvents to extract protein from DRB with microwave-assisted extraction (MAE). The optimal extraction conditions using alkaline-MAE and DES-MAE resulted in RBP recovery of 47.76% and 39.96%, respectively. To improve the functional properties of concentrated RBP, physical and chemical modifications were needed. The residue, which concentrates on carbohydrates and fiber, can be used for bioplastics and biomedical applications. Rice bran biorefinery and bioeconomy for a sustainable future are illustrated in Figure 1.



Figure 1. Rice bran biorefinery.

Professor Siti Zullaikah was born in Tuban, Indonesia, in 1978. She obtained her bachelor's degree in chemical engineering from the Department of Chemical Engineering, Faculty of Industrial Technology and Systems Engineering, Institut Teknologi Sepuluh Nopember (ITS), Indonesia, in 2000. She was awarded a Master of Engineering (MT) in chemical engineering in 2003 and a Doctor of Philosophy in chemical engineering in 2009 from the National Taiwan University of Science and Technology (NTUST) in Taiwan. From 2009 to the present, she has been employed at the Chemical Reaction Process and Biomass Conversion Laboratory, Department of Chemical Engineering, ITS, Energy and Mineral Resources Studies Research Center, and the Sustainable Infrastructure & Environment Studies Research at DRPM ITS. Her research interests are in the domain of biofuels production and engineering, biomass processing and biorefinery, and oils and lipid processing and modification.

INVITED SPEAKER: SP17_INV01

CHINA'S ACTION TO ENHANCE CIVIC SCIENTIFIC LITERACY : POLICY ENVIRONMENT, PRACTICES, AND ASSESSMENT

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Abstract:
It introduces the favorable policy environment for promoting science popularization in China, as well as the remarkable achievements attained through a series of initiatives aimed at improving civic scientific literacy. In terms of monitoring and evaluation, 14 national surveys on civic scientific literacy have been successfully conducted, with the assessment indicator system continuously improving and featuring characteristics such as being in line with the times and internationally comparable. Furthermore, in response to the demands of the digital era, China has also carried out survey on the citizens' digital literacy. These practices and assessments have contributed to promoting the all-round development of individuals, driving sustainable economic and social development.

He got Ph.D. from Chinese Academy of Sciences. He is a Researcher in China Research Institute for Science Popularization (CRISP). His current research interests are the evaluation of civic scientific literacy and digital literacy, the study of informatization of science popularization and science communication. He is the main author of the book Science Popularization in the age of informatization (in Chinese).

INVITED SPEAKER: SP17_INV02

A NATIONAL SURVEY ON THE SCIENTIFIC LITERACY OF PRIMARY AND SECONDARY SCHOOL STUDENTS IN CHINA: FRAMEWORK, FINDINGS, AND IMPLICATIONS

Li Xiuju*
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Abstract:
The investigation of scientific literacy among primary and secondary school students is crucial for enhancing the quality of science education and cultivating future innovative talent. China Research Institute for Science Popularization (CRISP) developed a novel assessment framework for the scientific literacy of primary and secondary school students. This framework defines scientific literacy as the integrated ability to apply scientific knowledge to solve problems, engage in scientific inquiry and critical analysis, and maintain a positive attitude towards science. The assessment model is centered on scientific competence, uses scientific knowledge as a medium, and accounts for the impact of scientific attitudes. The survey tools, featuring authentic contexts and anchor items for longitudinal comparability, were deployed in a nationwide study over three consecutive years. Findings indicate a consistent upward trend in student scientific literacy. Students scored high on interest, confidence, and identification with science, but their aspiration for scientific careers remains notably low. These findings provide vital empirical evidence for the continuous improvement of science education in China and offer clear guidance for future educational reforms aimed at effectively inspiring students to commit to scientific pursuits.

She got Ph.D. in Education from Beijing Normal University in China. She is a Researcher at the China Research Institute for Science Popularization (CRISP). Her current research interests include the assessment of scientific literacy among adolescents, young people learning science in informal education settings, and students' understanding of science. She has published over 50 academic papers in Chinese and English. She is the planner and a principal editor of the Blue Book on Science Education, a report published biennially since 2015. She has also authored and edited a series of works in the fields of adolescent scientific literacy assessment and extracurricular science education.

INVITED SPEAKER: SP17_INV03

CHANGE AGENTS AS CATALYSTS FOR COMMUNITY-BASED OYSTER PRODUCTION ENTERPRISE: A CASE STUDY IN TRAT PROVINCE

Sarawut Siriwong,[1,*] Waraporn Bunlum,[2] Thawat Matte,[3] Buncha Nilkerd,[1] Choochai Ruangcharoon,[1] Vimonrat Boonratanakom[1]
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[2] Bangkok Airways Public Company Limited
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Abstract:
This case study examines how the development of local change agents enhanced the success of a community-based project to establish an oyster production enterprise in Trat province, eastern Thailand. The initiative began by engaging local stakeholders to understand the context of the problem regarding oyster production and marketing, gather local knowledge, and identify root causes. Based on these inputs, the project team proposed desired outcomes that balanced technical feasibility with community aspirations. A local activist was selected and trained as a change agent, equipped with a science, technology, and innovation (STI) mindset to strengthen problem-solving capacity and promote innovative approaches within the community. As both a trained facilitator and a trusted community member, the change agent played a dual role—bridging communication between researchers and residents, while also mobilizing local participation and building trust. This combination of technical training and embedded social relations proved to be a key success factor. The case demonstrates that empowering change agents can not only support the effective implementation of community projects but also lay the foundation for sustainable local business units and local livelihoods, in this case, oyster production, that contribute to both economic opportunity and social cohesion.

Dr. Sarawut Siriwong is a marine scientist specializing in coastal resources management. He was born in Krabi, Thailand, in 1977. He received a bachelor's degree in Science from the Department of Biology, Faculty of Science, Prince of Songkla University, Thailand, in 2000. He received the Master of Science (Aquatic Science) from Buphapa University in 2005. He received the Doctor of Philosophy from the Department of Biology, Faculty of Science, Prince of Songkla University, Thailand, in 2017. From 2021 to present, he served as Dean of the Faculty of Marine Technology, Burapha University. His research interests are in Marine and Coastal resources management and Coral reef ecology.

INVITED SPEAKER: SP17_INV04

CHANGE AGENTS AS CATALYSTS FOR COMMUNITY-BASED BAMBOO UTILIZATION: A CASE STUDY IN KORAKOT BAMBOO HANDICRAFTS

Korakot Aromdee,[1,*] Rochana Tangkoonboribun,[2] Nattawan Mokkapan[2]
[1] KORAKOT INTERNATIONAL LIMITED PARTNERSHIP, Thailand, and Faculty of Fine and Applied Arts, Bangkokthonburi University
[2] Expert Center of Innovative Agriculture, Thailand Institute of Scientific and Technological Research
e-mail: korakot.thasanee@gmail.com

Abstract:
Bamboo is known for its rapid growth rate, with some species growing up to 35 inches (91 cm) per day, or about 1.5 inches per hour. This makes it one of the fastest-growing plants on Earth. Thailand boasts around 40 different bamboo species, with some growing over 30 meters tall. Bamboo's strength, similar to steel, makes it a popular choice for construction, while its versatility extends to furniture, food, and other products. The development of Thai handicrafts and its export potential through the lens of the KORAKOT brand. The brand "KORAKOT" is a world renowned bamboo handicraft. Famous brands such as Hermes, Dior and Louis Vuitton uses items from KORAKOT to decorate their shops. Master pieces of KORAKOT can be found decorating various restaurants, hotels, and five stars resorts around the world. The brand has been invited to display at the MAISON & OBJET, France, which is one of the biggest product design exhibition in the world. Moreover, Mr. Korakot also creates jobs for his community by taking young decedents of the Ban Laem fishing community under his wings. These youths has absorbed the technique of netmaking, trawl-making, traditional pontoon-making. he able to increase the income for community members, he is also able to preserve local cultural legacy for future generations. Mr. Korakot has pointed out the connection between the makings of fishery tools by members of Ban Laem with other communities in Phetchaburi. Renowned for its durability, versatility, and sustainability, bamboo serves as a fundamental material in creating traditional and contemporary Thai artisan products. Emphasizing sustainable practices and innovative design, Koragot's success demonstrates bamboo's capacity to enhance eco-friendly export goods, promote local craftsmanship, and support Thailand's economic growth. This is a small example of fascinating local wisdoms. If they can be utilized to the fullest of their potential they could improve the livelihood of the community, also known as "Creative Economy".

Korakot Aromdee, the boy from the shores of Ban Laem. Korakot love most about his childhood was the "kite" made by his grandfather. His grandfather was a great kite racer of Ban Laem, Phetchaburi. Equipped with their excellent knowledge on wind characteristics and wind flow, the people of Ban Laem are expert kite makers. The art of binding and tying ropes of fishing tools and kites from the basis for Mr. Korakot's bamboo art with the "KORAKOT" brand.

INVITED SPEAKER: SP17_INV05

TRANSFORMING PINEAPPLE FIELD WASTE INTO CLIMATE-POSITIVE MATERIALS: A VISION FOR COMMUNITY-BASED SCIENCE POPULARIZATION

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Department of Chemistry and Center of Excellence for Innovation in Chemistry,
Center of Sustainable Energy and Green Materials, Faculty of Science, Mahidol University, Nakhon Pathom, Thailand
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Abstract:
This contribution showcases an ongoing initiative that transforms agricultural waste—specifically pineapple leaves—into high-value, climate-positive materials. With a pilot production line already established at pineapple plantations, our team produces pineapple leaf fiber (PALF) using scalable, farmer-friendly methods. These fibers are used to manufacture alternative leather and are under development as reinforcement in biocomposites for designer applications such as sunglasses and office products.
The initiative goes beyond technical innovation. It serves as a platform for science popularization by demonstrating how materials science and sustainability can be integrated into real-world solutions that benefit local communities. Farmers, designers, and small producers are engaged as co-creators, turning waste into value-added products that contribute to carbon sequestration and local economic development.
Looking ahead, the versatility of PALF-reinforced composites opens up possibilities across a wide range of applications — including outdoor furniture for parks and schools, office accessories, interior surfaces, and durable household items. Each of these long-lasting products functions as a carbon pool, helping reduce atmospheric CO_2 while replacing conventional, fossil-based materials. By envisioning PALF as a material platform rather than a single product solution, this work promotes a scalable model for sustainable material innovation that links climate action with community empowerment.
This initiative exemplifies how accessible, application-driven science can foster environmental awareness, promote circular economy thinking, and support the environmental, social, and economic pillars of sustainable development. It invites wider participation and dialogue on making science and technology relevant and actionable at the community level.

Associate Professor Taweechai Amornsakchai was born in Si Sa Ket, Thailand, in 1966. He received his school education in Chanthaburi before earning his bachelor's degree in Industrial Chemistry from King Mongkut's Institute of Technology Ladkrabang in 1989, and his Ph.D. in Polymer Physics from the University of Leeds, UK, in 1994. Since then, he has been with the Department of Chemistry, Faculty of Science, Mahidol University, Thailand. He is currently the President of the Polymer Society of Thailand. His research focuses on the structure and properties of polymer materials and the utilization of pineapple field waste—including leaf fiber and stem starch—for the development of sustainable biobased materials and composites.

INVITED SPEAKER: SP17_INV06

DEVELOPING A SUSTAINABLE GOAT AND SHEEP FARMING NETWORK WITH CIRCULAR ECONOMY FOR NEW LIVESTOCK INDUSTRIES

Winai Kaewlamun,[1,*] Kitti Supchukun,[2] Sarawanee Khunmanee,[1] Pachara Pearodwong,[1]
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Abstract:
This project aims to develop a model network for goat and sheep farming in the highlands of Nan Province, Thailand, using the concept of circular economy to support sustainable local development. It shows how science popularization can help bring scientific knowledge to local people and turn it into practical actions. The project combines science, technology, and innovation with local knowledge to solve long-standing problems in livestock production. Its main goal is to improve production efficiency and product value, while also building the skills of new-generation farmers. By starting with a clear understanding of the local context, the project supports young agricultural leaders to learn problem-solving, technical skills, and how to apply these skills in the field. Learning through real practice helps them create sustainable businesses that meet market needs. Scientific approaches are applied to improve efficiency, such as breed development, local feed optimization, and value addition through expanded market access. These efforts are supported by sustainable marketing strategies and technological tools tailored to rural contexts.
The project contributes to sustainability in three dimensions. Economically, it increases income and reduces poverty in highland communities. Socially, it strengthens capacity for long-term agribusiness through accessible scientific knowledge. Environmentally, it reduces resource overuse and supports eco-friendly production methods. By linking knowledge from production to market and working with local networks, this project improves productivity and strengthens the local economy. The model can be adapted to other provinces and shows that science popularization is an important tool for building strong and sustainable communities.

Asst. Prof. Dr. Winai Kaewlamun was born in Sisaket Province, Thailand, in 1978. He earned his Doctor of Veterinary Medicine (D.V.M.) from the Faculty of Veterinary Science, Chulalongkorn University, in 2003. He later completed two Ph.D. degrees: one in Theriogenology from the Faculty of Veterinary Science, Chulalongkorn University, and another in Animal Reproduction from the Doctoral Ecole ABIES, AgroParisTech, France, both in 2010. Assist. Prof. Dr. Kaewlamun joined the School of Agricultural Resources at Chulalongkorn University as a lecturer in 2011, where he has been working ever since. His research interests focus on the development of smallholder livestock farming, which involves area-based collaborative research. This includes fostering livestock development through participatory mechanisms, creating learning processes and platforms to enhance the competencies of farmers or target groups, and establishing an "Area Mechanism" to drive regional development.

INVITED SPEAKER: SP17_INV07

THE INTEGRATION OF DIGITAL TECHNOLOGY TO ASSIST FARMERS IN IRRIGATED ZONES, AIMING TO ENHANCE PRODUCTIVITY AND ENSURE SUSTAINABLE AGRICULTURAL OUTCOMES

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Abstract:
Agriculture in Thailand continues to face significant challenges due to limited adoption of digital technologies, both directly and indirectly. This has resulted in low productivity, unstable income, and unsustainable farming practices, particularly in irrigated zones. Recognizing these issues, the United Nations Development Programme (UNDP), in collaboration with Thailand's Royal Irrigation Department under the Ministry of Agriculture and Cooperatives, initiated a pioneering project aimed at transforming agricultural practices through digital innovation. The project integrates key digital technologies—including Internet of Things (IoT), Artificial Intelligence (AI), Drone-based monitoring, Normalized Difference Vegetation Index (NDVI), Cloud Computing, and Mobile Applications—to support farmers across 300,000 rai of irrigated land in Phitsanulok, Uttaradit, and Sukhothai provinces. By leveraging these technologies, the initiative seeks to enhance productivity, optimize resource usage, and promote sustainable agricultural outcomes. This model serves as a blueprint for future development, aiming to uplift farming communities and ensure long-term economic stability and environmental resilience in Thailand's agricultural sector.

Mr. Niti Mekmok was born in Bangkok, Thailand, in 1971. He earned his Bachelor's degree in Industrial Engineering from the Faculty of Engineering, Kasetsart University, Thailand, in 1993. In 2005, he received his Master of Business Administration (MBA) degree with First Class Honors from Shinawatra University. In 2008, he founded Synergy Technology Co., Ltd., a company that has been providing digital technology solutions to both domestic and international clients for over 17 years. He served as the President of the Thai IoT Association from 2020 to 2024, and currently holds the position of Honorary President of the association.

INVITED SPEAKER: SP17_INV08

HERBAL INNOVATION AND MULTI-STAKEHOLDER INTEGRATION FOR SUSTAINABLE AREA-BASED DEVELOPMENT: POLICY RECOMMENDATIONS FROM THE MAEMOK HERBAL VALUE CHAIN, LAMPANG PROVINCE

Siraya Janasak,* Suwannee Janta, Chadnaree Meesukho, Chiraprapa Khamrath, Ekasit Chaipin, Ratchadaporn Thongpaen, Woraya Chatuphatrangsri
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Abstract:
Maemok Herbal Valley represents an area-based research model that integrates multi-stakeholder collaboration with science, technology, innovation, and local wisdom to address poverty and promote sustainable development in Maemok Subdistrict, Thoen, Lampang Province. Initiated in 2021 under the poverty alleviation program supported by the PMU-A, the project aimed to analyze and develop precise mechanisms for poverty alleviation. Building upon the 2019 TPMAP database, poor households were jointly screened by government, academia, civil society, and local communities. Data collection through standardized questionnaires was processed via PPP Connext and analyzed using the Sustainable Livelihood Framework (SLF) to classify households into four levels of deprivation. Those with potential were included in a poverty reduction model designed through community asset and identity analysis in collaboration with network partners.
The model positioned **herbs as the key mechanism** to transform cultural and indigenous knowledge into economic resources. Through cooperation among researchers, government agencies, private sector, and the Maemok Herbal Agricultural Cooperative, 155 poor households were integrated into a Pro-poor herbal value chain. Activities covered three stages: upstream (herbal cultivation under PGS and GAP, organic fertilizer), midstream (processing, extraction, and technology transfer), and downstream (branding, product design, management, and marketing). Traditional herbal knowledge, including formulas and healing practices, was also documented and transmitted to younger generations, ensuring cultural preservation alongside economic growth.
In collaboration with Lampang Rajabhat University and the Innovative Cosmetic Solutions Center (ICOS) of the TISTR, the **Lanla** brand was established. Two prototypes—Aroma Massage Oil and Calming Herbal Cream—were developed from indigenous herbs (*Plantago major L*. and *Zingiber montanum*), with active compounds extracted and standardized under ASEAN Cosmetic GMP of ICOS. This advanced local herbs into competitive, innovation-driven products.
The outcomes have been scaled into policy. A provincial-level MOU was signed among Lampang PAO, 5 universities, and the other 3 organizations to institutionalize procurement of herbal products for 67 Subdistrict Health Promoting Hospitals (SHPHs), integrating them into the provincial public health and traditional medicine system, as a model for poverty reduction, community empowerment, and sustainable development.

Asst. Prof. Dr. Siraya Janasak is a lecturer in the Logistics and International Business Program at Lampang Rajabhat University. She was born in 1972 in Lampang Province. She graduated with a Bachelor's degree in Marine Science, followed by a Master's degree in Business Administration from Kasetsart University, and a doctorate in Business Administration from Ramkhamhaeng University. She began working on area-based research, focusing on poverty alleviation, from 2021 to the present, and has developed Thai herbal products under the brand name "**Lanla**".

INVITED SPEAKER: SP17_INV09

FROM CAMPUS TO COMMUNITY: ADVANCING LOW-CARBON FUTURES THROUGH UNIVERSITY-LED CLIMATE ACTION

Suneerat Fukuda,[1,*] Korb Limsuwan,[2] Suttichai Assabumrungrat,[3] Prasert Rerkkriangkrai[4]
[1] The Joint Graduate School of Energy and Environment (JGSEE), King Mongkut's University of Technology Thonburi (KMUTT), Thailand
[2] Office of Physical Resources Management, Chulalongkorn University, Thailand
[3] Department of Chemical Engineering, Chulalongkorn University, Thailand
[4] Department of Mechanical Engineering, Chiangmai University, Thailand
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Abstract:
This paper presents a strategic framework to promote low-carbon communities through university-based education and awareness-raising initiatives centered on carbon neutrality. As hubs of innovation and civic leadership, universities are ideal starting points for cultivating a culture of sustainability that extends beyond campus boundaries. The approach emphasizes translating complex science into accessible, actionable knowledge to bridge the gap between scientific understanding and community-level practices. Key components include curriculum integration, experiential learning through the university as a "living laboratory," and collaboration with local governments and the private sector to support real-world applications. The proposed model is scalable and transferable across institutions in Thailand through the Sustainable University Network (SUN Thailand), offering a pathway for wider societal transformation.
This framework draws on best practices from leading Thai universities. King Mongkut's University of Technology Thonburi (KMUTT) has implemented a "Carbon Neutral University" roadmap, incorporating energy-efficient infrastructure, renewable energy adoption, behavioral change campaigns "Green heart" across the campus and industry/community-based actions. Chulalongkorn University (CU) has advanced its goals through the "Chula Zero Waste" initiative and the development of the Chula Smart City, promoting circular economy practices and low-carbon innovations. Chiangmai University (CMU) targets "Carbon Neutrality by 2030" through clean energy deployment, forest carbon sinks, and regional community engagement. These case studies illustrate the pivotal role of higher education institutions in driving the transition toward a low-carbon future.

Assoc. Prof. Dr. Suneerat Fukuda received the BSc in Chemical Technology from Chulalongkorn University, Thailand in 1996, and the MSc and PhD in Chemical Engineering from Imperial College London, UK, in 1998 and 2002 respectively. From 2004 to present, Dr. Fukuda has worked at KMUTT, Thailand, and currently the Head of Advanced Fuel Processing Laboratory at JGSEE. Her research interests are in the field of energy technology and management, including solid fuel utilization for clean energy production, especially biomass, combustion/ gasification/ pyrolysis and development of sustainable biomass value chain. She is also leading the working group of "KMUTT's Race to Carbon Neutrality by 2040" and serving as a sub-committee for net zero emission of the Council of Engineers Thailand.

INVITED SPEAKER: SP17_INV10

ADVANCING AGRICULTURAL INNOVATION AND DAIRY SUSTAINABILITY IN THAILAND: A STRATEGIC MODEL FROM AIC CHULA SARABURI

Kittisak Ajariyakhajorn,[1,*] Thanasak Boonserm,[2] Sirirat Wataradee,[2] Theerawat Swangchan-Uthai,[3] Siriwat Suadsong[2]

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Abstract:

The Agritech and Innovation Center (AIC) of Chulalongkorn University in Saraburi, in collaboration with the Tropical Dairy Research and Technology Transfer Center (TDRC), drives a strategic initiative to enhance Thailand's agricultural competitiveness through innovation, academic integration, and community empowerment. Established under the Ministry of Agriculture and Cooperatives and aligned with Thailand's Bio-Circular-Green Economy (BCG) strategy, the program focuses on sustainable dairy farming, smart agriculture, and inclusive knowledge transfer across Saraburi and neighboring provinces. Key achievements include the development of research farms, mobile veterinary services, and hybrid learning platforms, alongside the annual AIC Chula Saraburi Expo. The initiative has engaged over 20 public and private organizations, reaching more than 10,000 farmers and stakeholders. In its second phase (2025–2027), the project aims to scale impact by strengthening academic-agricultural networks, increasing household income, and promoting food security. Target groups include 900 farmers, 3,000 students and citizens, and 30 agribusinesses, with projected economic value exceeding 1 billion THB annually—equivalent to a 20% rise in regional farm income. The program also reinforces Chulalongkorn University's academic mission by integrating field-based research and experiential learning, contributing to a regional knowledge ecosystem valued at over 500 million THB per year. Ultimately, the initiative positions the university as a national and ASEAN leader in agricultural innovation and sustainable development.

Associate Professor Dr. Kittisak Ajariyakhajorn is a Thai veterinary scholar and innovation leader, currently serving as Director of the Agritech and Innovation Center at Chulalongkorn University, Saraburi. Born on June 16, 1964, he earned his Doctor of Veterinary Medicine from Chulalongkorn University and later completed both his M.Sc. and Ph.D. in Veterinary Medicine at the University of Minnesota, USA. With over two decades of academic and administrative experience, he has held key roles including Director of the Veterinary Teaching Hospital in Nakhon Pathom, expert advisor to national livestock and dairy committees, and chair of multiple innovation-driven initiatives. His current research focuses on developing agricultural technologies and innovations to promote sustainable dairy community income, supported by government funding from Chulalongkorn University (2024–2026).

INVITED SPEAKER: SP17_INV11

GEOEDUCATIONAL PROMOTING ACTIVITIES AND IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT IN KHORAT UNESCO GLOBAL GEOPARK, THAILAND

Jaroon Duangkrayom[1,2,*] Pratueng Jintasakul[2]
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Abstract:
Khorat UNESCO Global Geopark is located in Nakhon Ratchasima Province, northeastern Thailand, and covers 3,167 km² across five districts. Geological significance includes the cuesta landscape and abundant Mesozoic and Cenozoic fossil areas. Since 2017, Khorat UGGp and partnership cooperation have developed educational activities for promoting knowledge among the youth and general public. Among the programs are 1) educational course training, 2) youth guide course training, 3) information and learning center construction in geopark schools, 4) youth and family academic camp, 5) youth volunteer, 6) geopark information for education and tourism promotion, 7) fossil festival, 8) local product innovations, 9) geopark youth ambassador club, and, most importantly, 10) Khorat Geopark local course curriculum. The implementation of the educational activity is under the development plan of Khorat UGGp. These activities have been provided for students from all levels, integrating and linking geological, ecological, archaeological, historical, traditional, and cultural aspects. The efforts concentrate on raising awareness about the conservation and protection of the local resources, particularly in significant locations, and integrating knowledge to develop these areas for sustainability that follows UNESCO Global Geopark concepts. As a result of these activities, participants will be able to share their experiences and use a portion of them for higher education and increased awareness, as well as truly generate additional income.

Asst. Prof. Dr. Jaroon Duangkrayom was born in Nakhon Ratchasima, Thailand, in 1980. He holds a B.Sc. in environmental science (resources management) from Nakhon Ratchasima Rajabhat University, in 2003, and an M.Sc. in geological science from Chiang Mai University, in 2007. In 2016, he earned his Ph.D. in paleontology and stratigraphy from the Institute of Vertebrate Paleontology and Paleoanthropology (IVPP) at the University of Chinese Academy of Science (UCAS), China. Since 2007, he has been a lecturer at Nakhon Ratchasima Rajabhat University and a researcher at the Northeastern Research Institute of Petrified Wood and Mineral Resource. Dr. Jaroon played a key role in the establishment of two UNESCO Global Geoparks: Satun Geopark (2016-2018) and Khorat Geopark (2018-present), where he served as the Deputy Director of Education and Information. He currently also serves as the vice president of the Khorat Geopark and Fossil Association and assistant dean of the Faculty of Science and Technology at his university. His published works in international journals focus on vertebrate paleontology, sedimentology, and geodiversity.

ORAL PRESENTATION SESSIONS

INFORMATION FOR ORAL PRESENTATION

Oral presentations are required to be made by PowerPoint, which should be controlled by the speaker. Embed font in PowerPoint or the use of PDF file is recommended for those who use special fonts or characters.

The normal oral presentation will be 12 to 15 min plus 3 to 5 min questions in English. There will be warning signals for the end of your presentation. Please strictly follow the schedule.

All speakers are required to load and check the files before the presentation.

A PC-compatible computer and a LCD projector will be provided.

POSTER PRESENTATION SESSIONS

INFORMATION FOR POSTER PRESENTATION

The poster must be in English. The content of the poster should cover title, objectives, methodology, results, discussions and conclusions. The poster board size should not exceed 90 cm width x 120 cm height.

Accessories (like adhesive tape) for setting up the poster will be provided by the organizer.

Poster attachment should be attached on November 11th, 2025 at 12:00 - 13:00 (for session) or November 12th, 2025 at 12:00 - 13:00 (for symposium) according to presentation code which will be notified both in the congress website and at the congress site.

Poster presenters are expected to appear in front of their posters during their scheduled sessions.

PRESENTATION AWARDS

PRESENTATION AWARDS

We are pleased to announce that there are awards for best poster and oral presentations in the STT51.

- Best Poster Awards will be given to the most outstanding poster presentation presented by a participant who has submitted an abstract or proceeding under poster presentation category of sessions and symposiums as a presenter. The winners will be selected from the presentation and Q&A of poster session by the committee of each academic session.
- Best Oral Presentation Awards: The winners will be selected by the committee in each session.
- Best Poster and Best Presentation Awards will be announced in Awarding Ceremony Session.
- The awards will only be given to students.
- Student presentations must be individual; group presentations are not permitted.

SESSION A - PHYSICS / APPLIED PHYSICS

ID	Presenter	Title
A_001_P	Nattnaphak Dararak	EFFECT OF PM2.5 AIR POLLUTION ON COSMIC RAY DETECTION AT PRINCESS SIRINDHORN NEUTRON MONITOR STATION, CHIANG MAI, THAILAND
A_002_P	Suphot Musiri	SCHWARZSCHILD QUASINORMAL MODES AS A SUMMATION OF CONFLUENT HYPERGEOMETRIC FUNCTIONS
A_003_P	Tananan Anansubying	FAST SIMULATION OF ATMOSPHERIC MUON AT SURFACE WITH CORSIKA USING GENERATIVE MODEL
A_004_P	Tarathep Kongtaveelert / Pannawish Pithpornchaiyakul	OPTIMIZATION OF TREE-LIKE FRACTAL CYLINDRICAL PIN TURBULATOR SPACING FOR ENHANCED HEAT TRANSFER IN SOLAR AIR HEATERS
A_005_P	Abdul Alfarasyi	TEMPERATURE-DEPENDENT ANNEALING STUDY OF PROTON-IRRADIATED APTS SENSORS FOR RADIATION-HARD APPLICATIONS
A_006_P	Marina Mani	DESIGNING INSTRUCTIONAL MEDIA USING THE VIRTUAL PHYSICS LABORATORY PROGRAM ON THE TOPIC OF DC ELECTRICITY
A_007_P	Apisara Harinthachart	COLOR IDENTIFICATION OF LIGHT AND PIGMENT BY USING OPTICAL SPECTROSCOPY
A_008_P	Paphangkorn Phetrak / Thunhirun Thongkundam / Nurulhuda Doloh	OFFICE SYNDROME THERAPY KIT WITH PORTABLE AUTOMATED ELECTRICAL STIMULATION
A_009_P	Saisudawan Suttiyan	NEAREST NEIGHBOR METHOD SOLVES TRAVELLING SALESMAN PROBLEMS TO ESTIMATE THE OPTIMAL MINIMUM ENERGY OF THE ISING MODEL
A_010_P	Sirawut Kulareerat / Suphitchaya Krachangmon	STUDY OF HORIZONTAL MOVEMENT IN *Periplaneta americana* TO DEVELOP A BIO-INSPIRED ROBOT
A_011_P	Premkamon Chandistavong	THE DEVELOPMENT OF AN EXPERIMENTAL ACTIVITY ON MEASURING WEIGHT IN AN ELEVATOR USING A SMARTPHONE
A_012_P	Nattanan Tungwongcharoen	OPTIMIZING ALCOHOL VAPOR DENSITY IN A DIY CLOUD CHAMBER FOR COSMIC RAY DETECTION
A_013_P	Chatuporn Nisaisue	INFLUENCE OF TRIPLET CONDENSATE ON ENHANCEMENT OF CRITICAL TEMPERATURE IN HYBRID FERROMAGNET-SUPERCONDUCTOR STRUCTURES
A_014_P	Nattamon Suwannaharn	EXPLORING NANOSCALE CHARACTERIZATION OF USING ABERRATION-CORRECTED (S)TEM: A STUDY ON SURFACE-TREATED METAL OXIDE PARTICLES AND OER ELECTROCATALYST
A_015_P	Butsakon Rattana	DEVELOPMENT OF A MODEL TO ESTIMATE MONTHLY AVERAGE DAILY CLOUD COVER USING SOLAR RADIATION DATA IN SONGKHLA PROVINCE
A_016_P	Kledsai Poopakun	INVESTIGATION OF CORRELATION BETWEEN GEOMAGNETIC-AND-SOLAR INDICES AND GROUND-BASED NEUTRON MONITOR COUNT RATE

ID	Presenter	Title
A_017_P	Adisorn Buranawong	EFFECT OF SPUTTERING CURRENT ON STRUCTURE AND OPTICAL PROPERTIES OF REACTIVE DC MAGNETRON SPUTTERED AlN THIN FILMS
A_018_P	Thawatchai Sudjai	APPLICATION OF MACHINE LEARNING TECHNIQUES FOR IMPROVING CENTROIDING ACCURACY OF CHARGE CLOUD FOOTPRINTS AT THE EDGES OF PIXELATED DETECTORS
A_019_P	Settawut Boonsuk	A PRELIMINARY STUDY OF 3D FACIAL RECONSTRUCTION IMAGE FOR FORENSIC SCIENCE APPLICATIONS
A_020_P	Sirawarit Chuethamchan	SEARCHING FOR NEUTRINO BY EVENT SELECTION WITH NEURAL NETWORK AT SCATTERING NEUTRINO DETECTOR AT THE LHC

SESSION B - BIOLOGICAL SCIENCES

ID	Presenter	Title
B_001_P	Petch Suthiporn	DIVERSITY OF WEED COMMUNITY IN ORGANIC AND CONVENTIONAL ORCHARDS IN PONG NAM RON DISTRICT, CHANTHABURI PROVINCE, THAILAND
B_002_P	Supakorn Ramana	ISOLATION AND IDENTIFICATION OF ENDOPHYTIC ACTINOBACTERIA FROM JAVA GINSENG (*Talinum paniculatum* (Jacq.) Gaertn.) WITH ANTI-QUORUM SENSING AND ANTI-BIOFILM ACTIVITIES
B_003_P	Piyamas Petcharoen	VISUALISATION OF LATENT DNA IN LIP-PRINTS WEARING LIPSTICKS
B_004_P	Yosiya Chanta	GLOBAL SPECIES DISTRIBUTION MODEL OF *Zanthoxylum rhetsa* DC. BASED ON MAXENT MODEL
B_005_P	Thanatcha Pongbanrai	POLYMORPHISM ANALYSIS OF LONGAN CULTIVARS USING TRANSCRIPTOME-BASED PRIMERS ASSOCIATED WITH FLOWERING BEHAVIOR
B_006_P	Kittisak Buddhachat	PHYTOCHEMICAL PROFILING AND CHONDROPROTECTIVE ACTIVITY OF *Centella asiatica* (L.) Urb. EXTRACTS FOR THE SELECTION OF ELITE ACCESSIONS
B_007_P	Krittawattana Somdee	THE EFFECTS OF MICROPLASTIC SIZE AND CONCENTRATION ON THE GROWTH, PHOTOSYNTHETIC PIGMENTS, AND ANTIOXIDANT ACTIVITY OF *Chlorella vulgaris* TISTR 8580
B_008_P	Priyakorn Rabaebloed / Suwaree Nithichotnuwat	EFFICACY OF ENDOPHYTIC FUNGI AGAINST DISEASE IN LETTUCE LEAF SPOT
B_009_P	Kittipong Chanworawit	BIOCONTROL POTENTIAL OF CHITINASE-PRODUCING ACTINOMYCETES FROM GIANT MUD CRAB (*Scylla serrata*) ON EGG HATCHING AND JUVENILE MORTALITY OF THE ROOT-KNOT NEMATODE (*Meloidogyne enterolobii*)
B_010_P	Kumpanat Pomlok	GENERATION OF TRUNCATED CD235a EXPRESSION CASSETTES FOR INVESTIGATING ITS ROLE IN MALARIA
B_011_P	Sunita Poudel	LEACHATE EFFECT OF *Chromolaena odorata* ON SEEDLING GROWTH OF *Aegle marmelos* UNDER SHADE AND DROUGHT

ID	Presenter	Title
B_012_P	Artit Apibanpathomrat	VALIDATION OF A COMMERCIAL ENZYME-LINKED IMMUNOSORBENT ASSAY FOR CORTICOSTERONE MEASUREMENT IN RICE FIELD FROG *Hoplobatrachus rugulosus* (Wiegmann, 1834)
B_013_P	Gyanu Thapa Magar	ADAPTIVE RESPONSE OF NATIVE *Geranium nepalense* TO INVASIVE *Ageratina adenophora* IN NEPAL
B_014_P	Patbawon Nualdua	EFFECTS OF NITROGEN SOURCES ON THE GROWTH OF *Lentinus polychrous* Lev.
B_015_P	Napaporn Jareonphon	AUTHENTICATION OF LONGAN HONEY BY QUANTITATIVE POLLEN ANALYSIS: FILTRATION AND *Lycopodium* MARKER-GRAIN METHODS COMPARED: A PILOT STUDY
B_016_P	Ratree Matsa	IDENTIFICATION OF REGULATION TARGETS of *Acinetobacter baumannii* HPAA AND PRELIMINARY INSIGHT INTO TRANSCRIPTION REGULATION
B_017_P	Nattikan Thongjui	EFFECT OF SECRETORY LEUKOCYTE PROTEASE INHIBITOR-DERIVED SHORT PEPTIDES (SDSPs) COATING ON TITANIUM ON ADHESION BY *Escherichia coli* AND *Staphylococcus aureus*
B_018_P	Phurinat Udomsopagit	Graphical User Interface (GUI) FOR 16S rDNA Sequencing Analysis RESULTS VISUALIZATION
B_019_P	Nida Singkorapoom	SITE DIRECTED MUTAGENESIS OF α-GLUCOSIDASE FROM *Weissella cibaria*
B_020_P	Worachit Suwannoppadol	AN IN VITRO ANTI-HYPERTROPHIC EFFECT OF *Calotropis* spp. LATEX EXTRACT ON ISOPROTERENOL-INDUCED HUMAN CARDIOMYOCYTES HYPERTROPHY
B_021_P	Nattha Khamchatturat	ANTIMICROBIAL EFFICACY AND COMPOSITIONAL ANALYSIS OF THREE THAI SALTS AGAINST *Pseudomonas aeruginosa*
B_022_P	Ankit Singh	SYNCHRONOUS MOVEMENT AND MORTALITY OF EARTHWORMS IN CENTRAL NEPAL
B_023_P	Thanatera Petchleung	ISOLATION OF HEAT-STABLE LYTIC BACTERIOPHAGES AGAINST CARBAPENEM-RESISTANT *Escherichia coli* FROM TROPICAL WASTEWATER IN THAILAND
B_024_P	Napasorn Tana-atsawapon	GREEN SYNTHESIS OF CERIUM OXIDE NANOPARTICLES AND ITS ANTIOXIDANT PROPERTIES
B_025_P	Junpanin Ratanachokthorani	COMPARATIVE SKIN HISTOLOGY OF FARMED FROG SPECIES IN THAILAND
B_026_P	Netnapa Chana	ENCAPSULATION OF *Mitragyna speciosa* (KRATOM) LEAF EXTRACTS IN CALCIUM ALGINATE MATRIX FOR ACETYLCHOLINESTERASE INHIBITION IN ALZHEIMER'S DISEASE TREATMENT
B_027_P	Theeraphat Singto / Natnaree Sookyuen / Watsakorn Chaisombhat	REGULATION ON BIOFORTIFICATION IN *BRASSICA JUNCEA* MICROGREEN USING GAMMA-AMINOBUTYRIC ACID (GABA) UNDER CONTROLLED ENVIRONMENTS
B_028_P	Natwalan Photphiphat / Anchayanit Poonsree / Pitchapa Keawmanee	MICROPLASTIC DETECTION IN FRESHWATER GASTROPOD FROM MUEANG NAKHON RATCHASIMA DISTRICT, NAKHON RATCHASIMA PROVINCE, COMMUNITY MARKETS
B_029_P	Tanaporn Khongtanapinit	METFORMIN INHIBITS GROWTH AND MIGRATION OF A549 LUNG CANCER CELLS AND INDUCES APOPTOSIS UNDER DIFFERENTIAL GLUCOSE CONDITIONS

ID	Presenter	Title
B_030_P	Nontanan Rittipakdee / Kantapat Phuchongsopapunt	ANTIBACTERIAL PROPERTY FROM COMBINATION OF SIAM WEED (*Chromolaena odorata*) AND GREEN CHIRETTA (*Andrographis paniculata*) EXTRACT
B_031_P	Panrape Teawsakul / Thanakorn Poompothingam	CRUDE EXTRACT FROM BACTERIA FROM RHIZOSPHERE SOIL OF BANANA FOR INHIBITING *Colletotrichum gloeosporioides* CAUSED OF ANTHRACNOSE IN CHILLI
B_032_P	Phatcharinthon Phimsri	ENCAPSULATED FERRITIN FOR CANCER THERAPY
B_033_P	Thanchanok Boonnarong	FEASIBILITY OF PHAGE OPA17-SUPPLEMENTED DIETS: STABILITY AND MICROBIAL DYNAMICS IN THE CULTURE SYSTEM OF *Litopenaeus vannamei*
B_034_P	Kanyapak Khaisri	GENE CHARACTERIZATION OF A PUTATIVE CIRCULAR DNA-ACTIVATING PROTEIN IN *Penaeus monodon*
B_035_P	Kaung Thant Sin	INVESTIGATION OF PLGA NANOPARTICLE-MEDIATED INHIBITION OF AMYLOID-BETA FORMATION
B_036_P	Supansa Rungruang	ANTIMICROBIAL RESISTANCE PROFILES OF CLINICAL *Burkholderia pseudomallei* ISOLATED FROM PATIENTS IN SUPHANBURI PROVINCE, THAILAND
B_037_P	Peemanut Phumma / Kongnahpat Jirojkhunathip	SCREENING NINE CHILLI VARIETIES FOR BIOFORTIFICATION AND ENHANCED NUTRITIONAL VALUES BY SOIL DRENCHING IRON APPLICATION
B_038_P	Kritayot Muangjunburee	EFFECTS OF COMBINED DROUGHT AND SULFUR STRESS ON ANTIOXIDANT ACTIVITY IN *Andrographis paniculata*.
B_039_P	Worraprot Theerachaisupakit	DISTINGUISHING SPOTTED BABYLON (*Babylonia areolata*) FROM SPIRAL BABYLON (*Babylonia spirata*) USING VGG16 TRANSFER LEARNING
B_040_P	Wasita Samerthung	IDENTIFICATION OF *Apis cerana* HONEY FROM NORTHERN THAILAND USING MELISSOPALYNOLOGY AND CHEMICAL COMPOSITION ANALYSIS
B_041_P	Thamasak Yeemin	COMMUNITY STRUCTURE AND ABUNDANCE OF BENTHIC INVERTEBRATES ON CORAL REEFS AND AN UNDERWATER PINNACLES AT KO KUT, THAILAND
B_042_P	Tanapol Boonjittham	GENETIC DIVERSITY OF *Apis cerana* BREEDING IN PHAYAO PROVINCE AND ASIAN HONEYBEE POPULATIONS IN THAILAND USING MITOCHONDRIAL DNA on $tRNA^{leu}$-COI GENE
B_043_P	Suphichaya Hongthanakornhirun	THE STUDY OF COMPLEX SUICIDE IN THAILAND: A 12-YEAR RETROSPECTIVE ANALYSIS
B_044_P	Makamas Sutthacheep	SPATIAL VARIABILITY OF CORAL RECRUITMENT AND REEF RESILIENCE ON SHALLOW REEF FLATS IN MU KO SURIN, PHANGNGA PROVINCE, ANDAMAN SEA
B_045_P	Korrawan Pipatanusone / Thunchanok Tannikorn	USING NATURAL ANTIOXIDANT FROM *Centella asiatica* EXTRACT FOR CRYOPRESERVATION OF *Caenorhabditis elegans*
B_046_P	Suttikamon Srithongsuk / Tatchtapong Boonthamtirawuti	EFFECTS OF SALT STRESS AND PLANT GROWTH-PROMOTING BACTERIA (PGPB) ON GROWTH AND ACCUMULATION OF PHENOLIC COMPOUNDS IN *Centella asiatica.*
B_047_P	Nattaya Jinsart	DISTINCT IMPACT ON VACUOLAR STRUCTURE BETWEEN THE YEAST MODELS FOR DIAMOND-BLACKFAN ANEMIA AND SHWACHMAN-DIAMOND SYNDROME
B_048_P	Lal Thapa	COW URINE ENHANCES GROWTH AND MYCORRHIZAE COLONIZATION IN TOMATO UNDER WATER-STRESSED CONDITION

ID	Presenter	Title
B_049_P	Somchart Maenpuen	EXPLORING THE EFFICIENCY OF BIOCOAGULANTS IN THE COAGULATION-FLOCCULATION PROCESS FOR MICROBIAL GRANULE FORMATION IN HYDROGEN PRODUCTION

SESSION C - CHEMISTRY

ID	Presenter	Title
C_001_P	Krittatham Uppagara	SYNTHESIS OF CU_2O/FE-DOPED CARBON DOTS WITH PEROXIDASE-LIKE AND PROTEASE-LIKE ACTIVITY FOR H_2O_2 DETECTION IN SEMEN SAMPLE
C_002_P	Kanruthay Ruktaengam / Kanokket Juehom	DEVELOPMENT OF PAPER SENSORS USING DYE COMPOUND TO DETECT DOPAMINE IN SWEAT FOR POINT-OF-CARE DIAGNOSIS OF PARKINSON'S DISEASE USING FLUORESCENT
C_003_P	Natnaree Rattanakunsong	DETERMINATION OF TOTAL FLUORIDE IN TOOTHPASTE VIA LIQUID-LIQUID EXTRACTION USING GAS CHROMATOGRAPHY COUPLED WITH FLAME IONIZATION DETECTOR
C_004_P	Natchaphon Sukphon / Pannatorn Sukanan	SIMULTANEOUS ELEMENTAL AND STRUCTURAL ANALYSIS OF HAIR SUBJECTED TO BLEACHING TREATMENTS
C_005_P	Songsuda Promthong	EVALUATION AND VERIFICATION OF EXTENDED USE OF CRM S3 AND CRM S6 FOR QUALITY MONITORING OF THE KINEMATIC VISCOSITY TESTING
C_006_P	Kawissara Kanjanahirun / Nanicha Kietrungnoppakun / Patcharanun Kiattiwattanakorn	A DOPAMINE LEVEL DETECTION SENSOR USING METAL NANOMATERIALS ON MOLYBDENUM DISULFIDE AND GRAPHENE OXIDE ELECTRODES FOR KIDNEY DISEASE RISK ASSESSMENT
C_007_P	Firhana Madsiri / Ibtisam Cheha	EDIBLE INSECT (*Lepidiota stigma*) COMPOSITION EVALUATION: NUTRIENTS, MINERALS, CHITIN, AND CHITOSAN
C_008_P	Airin Chaocharoenprakij	HYDROGEL MEMBRANE FOR FLUORESCENCE-INDUCED DETECTION OF OXYTETRACYCLINE
C_009_P	Kawisara Kommaless	A VOLTAMMETRIC SENSOR FOR CARBARYL DETECTION BASED ON AuNPs@OMC NANOCOMPOSITE MODIFIED GLASSY CARBON ELECTRODE
C_010_P	Banthida Suntornwohan	DROP-MIX-SEE: A CONVENIENT TEST KIT FOR ANALYSIS OF SALICYLIC ACID IN COSMETICS
C_011_P	Zaharaddeen Muhammad	ACTIVATED CARBON IMPREGNATED DEEP EUTECTIC SOLVENT FOR SELECTIVE LITHIUM EXTRACTION FROM SPENT TERNARY LITHIUM-ION BATTERIES
C_012_P	Neramit Nitichai	DEVELOPMENT OF FLOW INJECTION AMPEROMETRIC SENSOR BASED ON SCREEN-PRINTED CARBON ELECTRODE MODIFIED WITH rGO-PDDA@PtNPs COMPOSITE FOR THE DETERMINATION OF H_2O_2

ID	Presenter	Title
C_013_P	Kanchana Watla-iad	CHEMICAL PROFILING FOR THE DISCRIMINATION OF COFFEE BEAN CULTIVARS BY LC-QTOF-MS METABOLOMICS
C_014_P	Sowaluk Aubpatham	ACCURATED DETERMINATION OF COPPER, MANGANESE AND MAGNESIUM IN CONCENTRATED LATEX BY ASHING COUPLED WITH ICP-OES
C_015_P	Sirirat Tanchana	COMPARATIVE EVALUATION OF A RAPID PROTEIN ANALYZER AND A NITROGEN ANALYZER FOR PROTEIN DETERMINATION IN MILK AND MILK-BASED BEVERAGES
C_016_P	Kotchakorn Kummueang	DEVELOPMENT AND VALIDATION OF AN ICP-MS METHOD FOR DETERMINING CHROMIUM IN URINE FROM OCCUPATIONALLY EXPOSED WORKER
C_017_P	Papontee Raungnay / Satatorn Bowornnaowarak	AGGREGATION-BASED BIPHASIC FLUORESCENT RESPONSE OF SUGARCANE-DERIVED NITROGEN-DOPED CARBON DOTS TOWARD FORMALDEHYDE
C_018_P	Supaporn Chinpha	SELF-REFERENCING EXTERNAL STANDARD QNMR: ACCURACY EVALUATION USING BENZOIC ACID WITH GRAVIMETRIC VERIFICATION
C_019_P	Laiba Fayyaz	DEVELOPMENT OF TWO-DIMENSIONAL SILVER NITRATE COATED THIN LAYER CHROMATOGRAPHY FOR PERFUME FINGERPRINTING
C_020_P	Sirirat Phaisansuthichol	SYNTHESIS AND APPLICATION OF 3D GRAPHENE-BASED Fe_3O_4 NANOCOMPOSITE AS A MAGNETIC ADSORBENT FOR THE DETERMINATION OF PYRETHROIDS VIA MSPE-GC-ECD
C_021_P	Chawin Srisomwat	REAGENTLESS AND LABEL-FREE ELECTROCHEMICAL APTASENSOR USING POLYANILINE INCORPORATED WITH BATTERY-FREE NFC POTENTIOSTAT FOR ONE-STEP DETECTION OF SALIVARY CORTISOL
C_022_P	Watchara Kaewsuwan	METHOD DEVELOPMENT AND VALIDATION FOR THE DETERMINATION OF CAFFEINE IN COFFEE POWDER
C_023_P	Siriwan Pongprueksapattana	STUDY OF IODINE NUMBER, THERMAL DEGRADATION, RAMAN IN CHARCOAL SAMPLES
C_024_P	Thanomwan Kueasom	A NON-ENZYMATIC ELECTROCHEMICAL URIC ACID SENSOR BASED ON AuPtNPs@OMC NANOCOMPOSITE MODIFIED SCREEN-PRINTED ELECTRODE COUPLED WITH FLOW INJECTION SYSTEM
C_025_P	Manoch Thanomwat	IONIC LIQUID-BASED MICROEXTRACTION INTEGRATED WITH LC-MS/MS FOR TRACE AMPICILLIN ANALYSIS IN JUICE MATRICES
C_026_P	Thapat Jitthiang	DEVELOPMENT OF MULTIFUNCTIONAL COMPOSITE: GRAPHENE OXIDE/CdS@NiCuFe-LDH FOR REMOVING EOSIN YELLOW FROM WATER
C_027_P	Siriporn Janttarakeeree	SYNTHESIS OF CALCIUM HYPOCHORITE FROM EGGSHELL FOR USE AS A NATURAL BLEACHING AGENT
C_028_P	Sonchai Intacha	MULTIFUNCTIONAL SnS@GO NANOHYBRID: DUAL ADSORPTION–PHOTOCATALYSTS FOR EFFICIENT RHODAMINE B REMOVAL
C_029_P	Phitchayaphak Saenplee	DUAL ADSORPTION–PHOTOCATALYSIS OF NUCLEAR FAST RED DYE BY CaFe-LDH AND CaFe-LDO

ID	Presenter	Title
C_030_P	Kona Sumi	$CsPbBr_3$ QUANTUM DOT–POLYOXOMETALATE HYBRIDS FOR VISIBLE-LIGHT-DRIVEN SOLAR ENERGY CONVERSION AND STORAGE
C_031_P	Lalita Radtanajiravong	GREEN SYNTHESIS OF PYRROLIDINE DERIVATIVES VIA 1,3-DIPOLAR CYCLOADDITION IN HYDROPHOBIC DEEP EUTECTIC SOLVENTS
C_032_P	Ratchaneekorn Kaewpraju / Parinda Soragul	DEVELOPMENT OF SKIN LOTION FROM THE PEELS OF *Passiflora edulis* Sims AND *Hylocereus undatus*
C_033_P	Chisanu Krongyut	CHEMOENZYMATIC SYNTHESIS OF 3-HALOCHROMONES VIA OXIDATIVE α-HALOGENATION OF ENAMINONES IN TPGS-750-M MICELLES
C_034_P	Parichat Thepthong	EXTRACTION OF ANTIOXIDANTS FROM COCOA SHELL USING AQUEOUS TWO-PHASE SYSTEM OF KH2PO4-ETHANOL WITH ULTRASOUND-ASSISTED EXTRACTION
C_035_P	Nontaphat Thongsang	EFFECT OF BENZENE INCORPORATION INTO CROWN ETHERS AND THEIR LITHIUM BINDING ABILITY
C_036_P	Patcharakorn Raksasee / Safira Minham	SCREENING OF THAI MEDICINAL PLANTS FOR ANTIMICROBIAL AND ANTIOXIDANT ACTIVITIES: POTENTIAL APPLICATION IN CHITOSAN-BASED HYDROGEL FOR ORAL CARE
C_037_P	Nalittha Kaewfaed	ANTIOXIDANT POTENTIAL OF *Mimusops elengi* FLOWER EXTRACT: A BIOASSAY-GUIDED ISOLATION APPROACH
C_038_P	Pansachon Intamalee	SYNTHESIS OF CAERULOMYCIN A ANALOGUES
C_039_P	Kasidth Rungbannaphan / Pornchanok Thipsurat	FABRICATION OF POLYVINYL ALCOHOL AND SODIUM ALGINATE HYDROGELS WITH BIURET REAGENT FOR PROTEIN DETECTION IN AQUEOUS GELATIN AND UREA SOLUTION
C_040_P	Panita Kongsune	NITROGEN-DOPED COFFEE GROUNDS DERIVED ACTIVATED CARBON FOR ELECTROCHEMICAL ELECTRODE APPLICATIONS
C_041_P	Keawalin Puntupin / Kotchaphan Thaya	NON-COVALENT INTERACTIONS GOVERNING SUBSTRATE BINDING IN GH27 α-GALACTOSIDASE–CATALYZED TRANSGLYCOSYLATION
C_042_P	Phakthada Pitavaratorn / Chinnathee Saisith	A DENSITY FUNCTIONAL THEORY INVESTIGATION INTO THE SELECTIVITY MECHANISMS OF STARCH ESTER TRANSESTERIFICATION
C_043_P	Sirikorn Khaophong	SUSTAINABLE REMOVAL OF MALACHITE GREEN USING BIO-DERIVED ACTIVATED CARBONS FROM COCOA, MANGOSTEEN, AND PALM WASTE
C_044_P	Worapruch Chupong / Saranathorn Sangkaew	COMPUTATIONAL INVESTIGATION OF NOVEL ULTRAFLEXIBLE BORON-OXIDE ZEOLITIC FRAMEWORKS

SESSION D - MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI

ID	Presenter	Title
D_001_P	Laponpat Boonchuay / Chuthamanee Sraphoom / Papassara Pimsan	A QUASI-QUANTUM POLYGENE EVOLUTIONARY ALGORITHM: NOVEL UNITARY OPERATORS AND SWAP-TESTED FITNESS IN A DARWINIAN GIRAFFE ADAPTATION MODEL
D_002_P	Tulathorn Poonsub / Paniti Kaenhin	OPTIMIZATION OF AC POWER TRANSMISSION USING SEMIDEFINITE PROGRAMMING RELAXATION WITH COMPLEX VARIABLES
D_003_P	Pattiya Chenthanomma	ON SUPER EDGE-MAGIC TOTAL LABELING OF AN ODD COMB GRAPH WITH PYTHON PROGRAMMING
D_004_P	Sirirat Phongpipattanapan	APPLICATION OF P-MEDIAN MODEL FOR SCHOOL SERVICE AREA ANALYSIS: A CASE STUDY OF EDUCATIONAL SERVICE AREA 2, NAKHON PATHOM, THAILAND
D_005_P	Pichchaya Petchsritong / Matawin Janthong	OPTIMIZING KERNEL DENSITY BANDWIDTH BASED ON INTER-PARTICLE INTERACTION FORCES
D_006_P	Thanapol Khamhla	CLUSTERWISE REGRESSION MODEL BASED ON INTEGRATION OF SELF-ORGANIZING MAPS AND MULTILAYER PERCEPTRONS
D_007_P	Piyada Koedsuwan	LOCAL ANTIMAGIC LABELING OF A NEW GRAPH OBTAINED BY A STAR AND A CYCLE
D_008_P	Thakorn Kreaboonma	PONGJIT: AN ADAPTIVE BIOFEEDBACK SYSTEM FOR ENHANCING STUDENT FOCUS AND MITIGATING LEARNING BURNOUT
D_009_P	Phichamon Udomvittayakhai / Kingfa Saeyong	DRONE ATTACHMENTS FOR DETECTING VICTIMS IN THE EARTHQUAKE-PLANZONE USING IMAGE PROCESSING TECHNIQUES
D_010_P	Thakorn Kreaboonma	THE 360° ALZHEIMER'S THERAPY ECOSYSTEM: AI-POWERED SOFTWARE ARCHITECTURE FOR PERSONALIZED NEUROTHERAPY
D_011_P	Tanawat Chumwong	DESIGN AND IMPLEMENTATION OF A WEB-BASED CARBON FOOTPRINT ASSESSMENT SYSTEM FOR SUSTAINABLE EVENT MANAGEMENT
D_012_P	Prach Khamnurak / Weerapat Piti	PYTHOPIA : GAMIFICATION OF PYTHON LEARNING THROUGH A 3D GAME

SESSION E - ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY

ID	Presenter	Title
E_001_P	Jedsada Chuiprasert	DESIGN AND PERFORMANCE EVALUATION OF A HORIZONTAL-FLOW SEDIMENTATION TANK FOR TURBIDITY AND TOTAL DISSOLVED SOLIDS CONTROL IN SUSTAINABLE WATER TREATMENT
E_002_P	Piyatida Sangtong	THE GEOCHEMICAL IDENTITY AND PROVENANCE OF BLACK SPINEL GEM (Nil) IN KANCHANABURI, THAILAND
E_003_P	Tanakon Nunta	PERFORMANCE OF SOUNDLESS CHEMICAL DEMOLITION AGENTS (SCDA) WITH ADMIXTURES IN THE PHU PHAN SANDSTONE FORMATION, THAILAND
E_004_P	Ladda Tangwattananukul	TYPE MORPHIC FEATURES OF NATIVE GOLD FROM PLACER GOLD DEPOSITS IN BANG SAPHAN AREA, SOUTHERN PART OF THAILAND
E_005_P	Yuparat Kwangsawat	HEAT TREATMENT OF BASALT-RELATED SAPPHIRE FROM BINH THUAN DEPOSIT, SOUTHERN VIETNAM
E_006_P	Chaiyawat Musikapan	DETERMINATION OF EARTHQUAKE MAGNITUDE, DIRECTION, AND OCCURRENCE TIME USING TRIGONOMETRIC FUNCTIONS AND THE SCIENTIFIC METHOD WITH COMPARISON TO ACTUAL EARTHQUAKES
E_007_P	Chawin Chaywong	CHARACTERISTICS OF RARE EARTH ELEMENT MINERALS RELATED TO LITHIUM-BEARING PEGMATITES IN KANCHANABURI AREA, WESTERN THAILAND: IMPLICATION FOR RARE EARTH ELEMENT POTENTIAL
E_008_P	Vimoltip Singtuen	GEOLOGICAL INSIGHTS INTO ORE GENESIS AND ANCIENT METALLURGY IN KHON KAEN GEOPARK, THAILAND: GEOCHEMICAL AND PETROGRAPHIC EVIDENCE FROM SLAG, LATERITES, AND HOST ROCKS
E_009_P	Wimon Sukplum	GEOMECHANICAL PROPERTIES OF PERMIAN LIMESTONES IN NORTHEASTERN THAILAND: ROLE OF PETROGRAPHY AND CHEMISTRY
E_010_P	Thanop Thitimakorn	AMPLIFICATION OF SOILS IN CHIANG MAI PROVINCE, NORTHERN THAILAND
E_011_P	Piyakorn Preedeesanith	PETROGRAPHY AND GEOCHEMISTRY CHARACTERISTICS OF PERMIAN LIMESTONE, NORTHEAST, THAILAND
E_012_P	Phatcharakorn Runrod	PETROGRAPHY AND GEOCHEMISTRY OF Li-PEGMATITE VEIN IN PHANG NGA PROVINCE, SOUTHERN PART OF THAILAND
E_013_P	Natdanai Chaloeicheep	MINERALIZATION OF Cu-Mo PORPHYRY DEPOSIT IN PHETCHABUN PROVINCE, CENTRAL THAILAND
E_014_P	Pichawut Manopkawee	MORPHOMETRIC EVIDENCE OF TRANSIENT LANDSCAPE ADJUSTMENT ALONG THE PHETCHABUN FAULT ZONE, CENTRAL THAILAND

ID	Presenter	Title
E_015_P	Passapong Paentong	EVALUTION OF SOIL EROSION IN THE MIDDLE YOM RIVER BASIN
E_016_P	Burapha Phajuy	INTEGRATED PETROGRAPHY, MINERALOGY, AND REMOTE SENSING OF IRON ORE IN THE KHAO YAI AND MANOROM AREAS, NAKHON SAWAN AND CHAINAT PROVINCES, CENTRAL THAILAND
E_017_P	Mingkhwan Kruachanta	SEISMIC-WELL LOG INTEGRATION FOR RESERVOIR POROSITY ESTIMATION: A CASE STUDY FROM KAPUNI FIELD, NEW ZEALAND
E_018_P	Pattapon Pispeng	SEDIMENTOLOGY AND STRATIGRAPHY OF LATE TRIASSIC HUAI HIN LAT FORMATION FROM NA POR SONG BASIN; NAM NAO DISTRICT, PHETCHABUN PROVINCE
E_019_P	Nannapat Kummoo	MICROPLASTIC PRESERVATION IN CLAY LAYERS INFLUENCED BY HUMAN ACTIVITIES ALONG THE NAN RIVER, PHITSANULOK PROVINCE
E_020_P	Chetnipat Kunawong / Punnawat Pengthong / Phuktharin Phaisanthanaphat / Napaphat Datpratoom	SYNTHESIS OF ACTIVATED CARBON FROM EGG SHELL FOR CIPROFLOXACIN ANTIBIOTIC REMOVAL
E_021_P	Dian Purnami Handayani	ENHANCEMENT OF ESSENTIAL OIL EXTRACTION FROM ANISE (*Pimpinella anisum*) VIA MICROWAVE HYDRODISTILLATION WITH MACERATION PRE-TREATMENT
E_022_P	Sarunya Karuna	ESTIMATION OF FOREST FIRE DAMAGE USING LANDSAT 8 DATA IN CHIANG MAI PROVINCE FROM 2016 TO 2022
E_023_P	Shumpei Goto	DEVELOPMENT OF CONDUCTIVE MOF GAS SENSORS FOR VOCs DETECTION
E_024_P	Punyaporn Khamdaeng	VALORIZATION OF COLORED PET WASTE INTO ETHYLENEDIAMINE-FUNCTIONALIZED MIL-53 (Al) FOR EFFICIENT CO_2 ADSORPTION
E_025_P	Nantharat Phruksaphithak	DEVELOPMENT AND KINETIC EVALUATION OF SUGARCANE LEAF-BASED PAPER FOR OIL ADSORPTION
E_026_P	Teemaporn Choochem / Montakarn In-karn	MICROWAVE-ASSISTED CHEMICAL ACTIVATION OF RICE HUSK-DERIVED ACTIVATED CARBON FOR SOLKETAL SYNTHESIS
E_027_P	Sirikorn Khaophong	SUSTAINABLE REMOVAL OF MALACHITE GREEN USING BIO-DERIVED ACTIVATED CARBONS FROM COCOA, MANGOSTEEN, AND PALM WASTE
E_028_P	Sarannuch Yangyuen	ENHANCED CO_2 DESORPTION IN POST-COMBUSTION CAPTURE USING NANO-HZSM-5 CATALYST
E_029_P	Nattarika Khoduangklang	COCONUT HUSK–DERIVED HYDROCHAR VIA HYDROTHERMAL CARBONIZATION FOR ENHANCING AMINE-BASED CO_2 DESORPTION
E_030_P	Jiraporn Kitikul	DEVELOPMENT OF A COLORIMETRIC METHOD FOR THE SENSITIVE AND RAPID DETECTION OF OXALATE ANION USING A COPPER(II)–MUREXIDE INDICATOR COMPLEX
E_031_P	Damisa Sawatrot	DEVELOPMENT OF MODIFIED RECTANGULAR AND GYROID STRUCTURES SORBENT FOR CO_2 CAPTURE USING CFD SIMULATION

ID	Presenter	Title
E_032_P	Thanchanok Sangwara / Warissara Rattana	ADSORPTION OF CARBON DIOXIDE GAS FROM CHITOSAN AND CALCIUM OXIDE COMPOSITE
E_033_P	Saowalak Arrayaweerasit	HETEROPOLY ACID/MOF CATALYSTS FOR ESTERIFICATION OF PALM FATTY ACID DISTILLATE
E_034_P	Preenapha Kasemsote	PRELIMINARY INVESTIGATION ON WASH FASTNESS OF FABRICS TREATED WITH CINNAMON OIL-POLYURETHANE MICROCAPSULES
E_035_P	Papitchaya Khunjan / Tetsuya Kida	LIGHT-ACTIVATED VOC GAS SENSORS USING DOPED METAL OXIDES
E_036_P	Ponpomkwan Chanhom / Chayanan Manawongcharoen / Nutatcha Yowcharoensuk / Phuwit Suwannatain	PREPARATION OF CHITOSAN/RICE HUSK SILICA/CALCIUM ALGINATE COMPOSITE USE IN CONTROLLED DRUG DELIVERY SYSTEMS FOR FOLIC ACID
E_037_P	Thanakorn Wasanapiarnpong	FABRICATION OF BLACK ZIRCONIA CERAMIC FOR JEWELRY APPLICATIONS FROM DENTAL ZIRCONIA BLOCK SCRAP RECYCLING
E_038_P	Apinya Chewawattanapong / Puttipong Kanborirak / Issaphat Ruanthongdee	THE DEVELOPMENT OF FUNCTIONAL FOOD FROM OKRA FOR HEALTH CARE
E_039_P	Tananon Kinthorn / Pinyaluk Kulpredarat / Chayapa Suriyamontol	Mg-MOF-74 IMMOBILIZED ON MELAMINE FOAM FOR EFFICIENT CO_2 CAPTURE
E_040_P	Reira Takase	PLATINUM-DECORATED SnO_2 NANOCRYSTALS FOR HIGHLY SENSITIVE DETECTION OF VOLATILE ORGANIC COMPOUNDS (VOCs)
E_041_P	Banpot Klinpratoom	SUSTAINABLE MOLECULARLY IMPRINTED BIOPOLYMERS FOR SELECTIVE ADSORPTION OF TETRACYCLINE
E_042_P	Patnaree Thammasri	DEVELOPMENT OF MULTIFUNCTIONAL CdS@ACTIVATED CARBON/LAYERED DOUBLE HYDROXIDE FOR REMOVING DYE FROM WATER
E_043_P	Athitiya Pranprasert	SILICA PARTICLES DERIVED FROM RICE HUSK VIA SOLVENT EXTRACTION FOR REINFORCING NATURAL RUBBER IN SOFT CAST APPLICATIONS
E_044_P	Tarntham Rakangthong / Panita Suwanno / Pankaewta Mingkhwan	MICROSTRUCTURAL MODIFICATION OF BIOMASS-BASED POROUS CARBON TO POROUS CARBON WITH MULTI-LAYER GRAPHENE FOR A SUPERCAPACITOR
E_045_P	Yawo Ewoxo	GREEN DIESEL PRODUCTION FROM SLUDGE OIL WITH Ni/SiO_2 CATALYSIS
E_046_P	Tikamporn Yimsri	SYNTHESIS, STRUCTURAL ANALYSIS, AND THERMAL PROPERTIES OF A BIMETALLIC NICKEL-MANGANESE GLYCEROLATE
E_047_P	Ali Hassan	EFFECT OF POLYETHYLENE OXIDE CONCENTRATION ON SOLVATION STRUCTURE AND ION DYNAMICS IN $NaClO_4$ ELECTROLYTES
E_048_P	Napakorn Pongsak	PREPARATIONS AND CHARACTERIZATIONS OF HEMPCRETE USING LIME, PORTLAND CEMENT, AND CLASS F FLY ASH AS A BINDER
E_049_P	Thamonwan Meephun	IRON OXIDE-HYDROXYAPATITE COMPOSITES FOR ARSENIC REMOVAL

ID	Presenter	Title
E_050_P	Passkoon Boonkeaw	DEVELOPMENT OF CONDUCTIVE POLYPROPYLENE CARBON NANOTUBES (CNTs) STUBS FOR SEM/EDS ANALYSIS
E_051_P	Supanan Wanitlertthanasarn / Laphatrada Thambancha / Napaphat Pripwai / Jiratchaya Ruechai	SYNTHESIS OF POLYVINYL ALCOHOL/Ag-NPs BIOCHAR/SODIUM ALGINATE GEL BEADS AND THEIR ANTIBACTERIAL ACTIVITY AGAINST GRAM POSITIVE BACTERIA
E_052_P	Tan Huy Le	VALORIZATION OF MACADAMIA NUTSHELLS AS ANTIBACTERIAL BIOFILLERS FOR SUSTAINABLE BIODEGRADABLE COMPOSITES
E_053_P	Shingo Morikawa	ELECTROCHEMICAL CO_2 REDUCTION USING MONOATOMIC GRAPHENE COPPER COMPOSITE OXIDE CATALYSTS
E_054_P	Suppasate Chunhachai	COMPARATIVE LITERATURE REVIEW OF LITHIUM-BASED AND ZINC-BASED BATTERIES: TOWARD A SAFER AND MORE SUSTAINABLE ENERGY FUTURE
E_055_P	Butsakon Yuenyongsaen	CHARACTERISTICS OF PYRITE RELATED TO GOLD IN EPITHERMAL GOLD DEPOSIT IN THAILAND
E_056_P	Krongkhwun Chaiyapat / Korawan Thongnim	MAGNETIC CuFe-LDH/ACTIVATED CARBON COMPOSITE DERIVED FROM COFFEE GROUND FOR EFFICIENT REMOVAL OF DYES AND ANTIBIOTICS FROM WATER
E_057_P	Pheeraphong Bunroek	DEVELOPMENT OF BIODEGRADABLE PLASTIC BLENDED FROM POLY(BUTYLENE ADIPATE-CO-TEREPHTHALATE) AND BIO-CALCIUM CARBONATE FROM GREEN MUSSEL SHELL WASTE
E_058_P	Phetlada Kunthadee	SPECIFIC COLORIMETRIC DETECTION OF PYROPHOSPHATE ANION VIA AN INDICATOR DISPLACEMENT ASSAY ON THE ALUMINIUM–PYROCATECHOL VIOLET COMPLEX
E_059_P	Vorawit Yuenyong	NANOPOROUS CARBON COMPOSITE MATERIALS FROM BANANA TRUNK AND LABEL VIA HYDROTHERMAL-CARBONIZATION FOR CEMENT UTILIZATION
E_060_P	Saad Riyajan	PREPARATION AND PHYSICAL PROPERTIES OF POLYURETHANE WASTE/MODIFIED EPOXIDIZED NATURAL RUBBER BLEND
E_061_P	Chanthaphon Tan	APPLICATION OF BLACK SPINEL IN GLASS-CERAMIC MATERIALS FOR SUSTAINABLE GEMSTONE IMITATION
E_062_P	Wanrudee Hiranrat	PREPARATION AND PROPERTIES OF BIODEGRADABLE CAT LITTER PRODUCED FROM DURIAN HUSK
E_063_P	Pornchanun Mangmeethanapiboon	ELECTROCHEMICAL PERFORMANCE OF La4BaCu5O13 SUBSTITUTED AT Ba AND Cu-SITE AS CATHODE MATERIAL FOR INTERMEDIATE-TEMPERATURE SOLID OXIDE FUEL CELL
E_064_P	Poramaporn Prommuad	DEVELOPMENT OF AgMnO/MAC AND PdFeCo/MAC CATALYSTS SUPPORTED ON SHELF MUSHROOM-DERIVED CARBON FOR XYLITOL ALKALINE FUEL CELLS
E_065_P	Chonlada Ouamsi / Chanisara Chuachaona / Pimpisa Thavorn	ONE-POT SYNTHESIS OF ZEOLITE A AND NaX FROM RICE HUSK ASH VIA MICROWAVEASSISTED HYDROTHERMAL PROCESS

ID	Presenter	Title
E_066_P	Suchujnun Uparipahk	SYNTHESIS OF INDIUM PHOSPHIDE/ZINC SULFIDE CORE-SHELL QUANTUM DOTS AS FLUORESCENT SENSOR FOR MERCURY(II) ION
E_067_P	Avarin Teeraprawatekul	BIOBASED ALGINATE HYDROGEL-BIOCHAR COMPOSITES AS SUSTAINABLE CONTROLLED RELEASE FERTILIZERS
E_068_P	Supakarn Kumfoo / Thanapon Mahaparn	ASSESSMENT OF CARBON CAPTURE USING UNMANNED AERIAL VEHICAL COMBINED WITH IMAGE PROCESSING TECHNOLOGY

SESSION F - FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE

ID	Presenter	Title
F_001_P	Pradita Sitaresmi	EFFECT OF ANGKAK (FERMENTED RED RICE) ADDITION ON THE PHYSICAL AND SENSORY QUALITY OF RETORTED LAMB SAUSAGES DURING ROOM TEMPERATURE STORAGE
F_002_P	Kotchaphan Sangsriin / Klowkarimook Lookin / Nichakamon kaewnoona / Boonyaporn Chukiatchat	FORMULATION OF BIOACTIVE COATING FROM MANGOSTEEN PEEL TANNIN EXTRACT FOR RETARDING FRUIT QUALITY DETERIORATION
F_003_P	Achiraya Nuisee / Natwarat Netnopparat	EVALUATION OF PROBIOTIC *BACILLUS* AGAINST PATHOGENIC BACTERIA IN SEABASS (*Lates calcarifer*)
F_004_P	Thanachan Mahawanich	ANTIOXIDATIVE SOY PROTEIN FILMS FORTIFIED WITH PINE BARK EXTRACT
F_005_P	Natthaphat Manasompong	TASTING WITH ALGORITHMS: AI FOR MANGO FLAVOUR IDENTIFICATION
F_006_P	Natthanan Wangkhunnatham	BIOASSAY-GUIDED ISOLATION OF BIOACTIVE COMPONENTS FROM *Sandoricum koetjape* (BURM.F.) MERR.
F_007_P	Pheeraphong Bunroek	FORMULATION AND EVALUATION OF AN ANTIOXIDANT LOTION ENRICHED WITH MORINGA (*Moringa oleifera* Lam.) LEAF EXTRACT
F_008_P	Onisaree Kalprawit	PICKERING EMULSIONS STABILIZED BY HYDROXYPROPYL METHYCELLULOSE (HPMC) AND HYDROXYAPATITE (HAp)
F_009_P	Nuchnaphat Noocharoean	EFFECTS OF POLYHYDROXYALKANOATES ACCUMULATED PLANT GROWTH *Bacillus thermoamylovorans* ON THE GROWTH OF LEGUMINOUS PLANTS: MUNG BEAN AND PEANUT
F_010_P	Panaya Kotchaplai	LOW-COST NITROGEN SOURCES ON POLY-γ-GLUTAMIC ACID PRODUCTION FROM SUGARCANE BAGASSE
F_011_P	Orawan Piyaboon	MICROBIAL ISOLATED FROM RHIZOPHERE SOIL OF BANANA FOR CONTROLLING *Bipolaris maydis* OF LEAF BLIGHT IN CORN DISEASE
F_012_P	Nonthacha Thanathornvarakul	EFFECT OF PULSED ELECTRIC FIELD AND SOAKING MEDIA PRE-TREATMENT ON PHYSICOCHEMICAL PROPERTIES OF SOYBEAN

ID	Presenter	Title
F_013_P	Sara Palermo	EFFECT OF ENZYMATIC MODIFICATION ON SOLUBILITY AND FOAMING PROPERTIES OF MUNG BEAN PROTEINS
F_014_P	Thanaporn Wichai	POLY-γ-GLUTAMIC ACID AS A GROWTH-PROMOTING AMENDMENT FOR WAXY CORN GROWTH UNDER NORMAL AND DROUGHT CONDITIONS
F_015_P	Tumnoon Charaslertrangsi	MICROBIOLOGICAL QUALITY EVALUATION OF ICE SAMPLES COLLECTED FROM FOREIGN AND THAI TOURIST ATTRACTION SITES IN BANGKOK, THAILAND
F_016_P	Chavanut Pantone	BIOACTIVE PHENOLIC AND FLAVONOID OF THE LEAVES OF *Bouea Oppositifolia* (ROXB.) MEISN.)
F_017_P	Surawut Janthawee / Kelsy Nahjela Babila / Kesley Nahnyeni Babila	DEVELOPMENT OF INSTANT RICE PORRIDGE USING ALTERNATIVE PROTEIN FROM AZOLLA TO REPLACE ANIMAL-BASED PROTEIN
F_018_P	Ekawit Threenet	COMPARATIVE STUDY ON THE PROTEIN PROFILES OF WILD HONEY FROM VARIOUS REGIONS BETWEEN CHAIYAPHUM AND CHIANG MAI PROVINCE USING SDS-PAGE COUPLED WITH LC-MS/MS
F_019_P	Robby Prima	OPTIMIZATION OF BIOACTIVE COMPOUND EXTRACTION FROM RAMBUTAN PEELS USING PULSED ELECTRIC FIELD TECHNOLOGY
F_020_P	Aliya Jarusasithorn / Sakkranunn Boonranajitpirom	CONTRIBUTION OF PHENOLICS TO THE ANTIOXIDANT POTENTIAL OF LEAVES FROM *Anacardium occidentale* L.
F_021_P	Noramon Naumjun	EFFECT OF SUPERCHILLING CONDITONS ON ICE FRACTION AND FIRMNESS OF FRESH-CUT APPLES

SP3 - NEXGEN ENERGY: STORAGE AND CONVERSION FOR SUSTAINABILITY

ID	Presenter	Title
SP3_001_P	Ravisuda Sirinanthakate / Chavisa Ketkuabratsuk / Nattamon Navapun	AN EXPERIMENTAL INVESTIGATION INTO THE EFFECTIVENESS OF BIOMIMETIC SHIP HULL SURFACE MATERIALS FROM THREE-DIMENSIONAL SIMULATIONS OF THE SHORTFIN MAKO SHARK (*Isurus oxyrinchus*) SCALES FOR DRAG REDUCTION IN TURBULENT FLOW TOWARD ENERGY CONSERVATION AND SUSTAINABLE EMISSION REDUCTION
SP3_002_P	Permsak Chairat	Co(II)-PHTHALOCYANINE POLYMER AS A ROBUST CATALYST FOR EFFICIENT ELECTROCHEMICAL CO_2 CONVERSION

SP4 - BIOREFINERY

ID	Presenter	Title
SP4_001_P	Pathumrat Butniam	TOWARD SUSTAINABLE LUBRICANTION: SELECTIVITY NPG DIESTER PRODCUTION FROM PALM FATTY ACID DISTLLATE WITH SOLID ACID CATALYST

SP7 - COLOUR SCIENCE/TECHNOLOGY, LIGHT AND APPLICATIONS

ID	Presenter	Title
SP7_001_P	Janejira Mepean	INVESTIGATION OF SURROUND EFFECT ON SIMULTANEOUS COLOR CONTRAST UNDER VARIOUS DEVICES
SP7_002_P	Chiraphat Kongphet	THE STUDY OF TANNIN QUANTITY ON FABRIC DYEING FOR THE DEVELOPMENT OF LOCAL TEXTILE DYEING QUALITY

SP9 - EXPLORING THE COSMOS: ADVANCES IN OBSERVATIONAL AND THEORETICAL ASTROPHYSICS

ID	Presenter	Title
SP9_001_P	Nalinna Sompakdee	COMPARATIVE ANALYSIS OF TWO TECHNIQUES FOR MEASURING THE DEPTH OF IMPACT CRATERS ON THE MOON
SP9_002_P	Manasanun Tanasan	EARLY-TIME OPTICAL FILTERING OF CANDIDATES FOR GRAVITATIONAL WAVE COUNTERPARTS

SP10 - X-RAY CRYSTALLOGRAPHY

ID	Presenter	Title
SP10_001_P	Kanthida Kummoon	CRYSTAL ENGINEERING OF ULTRAMICROPOROUS LANTHANIDE-BASED MOFs
SP10_002_P	Chatphorn Theppitak	THREE DINUCLEAR PADDLE WHEEL COPPER (II) COMPLEXES BEARING DIPHENYLACETATE LIGAND. SYNTHESIS, STRUCTURAL CHARACTERIZATION AND PHOTOLUMINESCENCE STUDIES
SP10_003_P	Kulwadee Ponanunrirk	SUPRAMOLECULAR STRUCTURE OF SCHIFF BASE NICKEL(II) THIOCYANATE COMLEXE
SP10_004_P	Kunlanit Chinchan	STRUCTURAL FEATURES OF THREE ISOSTRUCTURAL Ca(II)/Cd(II) ANIONIC METAL–ORGANIC FRAMEWORKS
SP10_005_P	Audchariyapon Chaowaprasit	CRYSTAL STRUCTURE AND FLOCCULATION BEHAVIOR OF CONGO RED INDUCED BY A NEW DOUBLE SALT OF THE HEXAAMINECOBALT(III) COMPLEX
SP10_006_P	Suwadee Jiajaroen	SYNTHESIS, STRUCTURE AND CO_2 ADSORPTION OF LANTHANIDE TETRABROMO-1,4-DICARBOXYLATE FRAMEWORKS
SP10_007_P	Pacharapon Jearanaiwiwat	X-RAY CRYSTALLOGRAPHIC STRUCTURE OF TWO LITHIUM(I) COORDINATION POLYMERS
SP10_008_P	Chompunuch Bunfrueang	CRYSTAL STRUCTURE AND IODINE ADSORPTION OF A NEW TWO-DIMENSIONAL CADMIUM(II) COORDINATION POLYMER BASED ON BENZIMIDAZOLE AND DICYANOARGENTATE(I) LIGANDS

SP11 - RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY

ID	Presenter	Title
SP11_001_P	Komrit Wattanavatee	A SURVEY OF NATURAL RADIONUCLIDES CONTENTS IN BEACH SAND SAMPLES COLLECTED IN THE VICINITY OF COASTAL SEAWALLS STRUCTURE, SONGKHLA PROVINCE, THAILAND
SP11_002_P	Chalermpong Polee	INVESTIGATION OF ISOTOPIC DYNAMICS IN THE MEKONG RIVER BASIN

SP12 - THE 2ND INTERNATIONAL SYMPOSIUM OF SCIENCE COMMUNICATION AND PUBLIC SCIENCE LITERACY

ID	Presenter	Title
SP12_001_P	Kuan-Chun Wang	EFFECTIVENESS OF THAILAND SCIENCE CARAVAN: A CASE STUDY OF NST FAIR 2025 IN CHIANG MAI
SP12_002_P	Pimonrat Tiansawat	SEED BANKING INITIATIVES IN NORTHERN THAILAND
SP12_003_P	Pranee Disrattakit	INNOVATIVE STEM CHALLENGE ACTIVITY THROUGH BIOMIMICRY-INSPIRED ENGINEERING: A STRATEGY FOR ENHANCING SCIENTIFIC COMPETENCIES IN SECONDARY STUDENTS FOR SUSTAINABLE COMMUNITY
SP12_004_P	Siraya Janasak	HERBAL INNOVATION AND MULTI-STAKEHOLDER INTEGRATION FOR SUSTAINABLE AREA-BASED DEVELOPMENT: POLICY RECOMMENDATIONS FROM THE MAEMOK HERBAL VALUE CHAIN, LAMPANG PROVINCE

SP14 - VALORIZATION OF BIOMASS-RELATED WASTES

ID	Presenter	Title
SP14_001_P	Athippracha Wattanawijit	SCALE-UP STRATEGY FOR HIGH-PRESSURE DYNAMIC-FLOW EXTRACTION OF TUMERIC
SP14_002_P	Arthit Jarungwongsathien	ESTERIFICATION OF CRUDE GLYCEROL TO ACETIN AS FUEL ADDITIVE
SP14_003_P	Supranee Kaewpirom	COMPARATIVE SOLVENT EXTRACTION AND CHARACTERIZATION OF TANNINS FROM RAMBUTAN (*Nephelium lappaceum* L.) PEELS FOR ACTIVE PACKAGING
SP14_004_P	Somya Lekcharoen	ACID CATALYZED GLYCEROL ESTERIFICATION OF OLEIC ACID
SP14_005_P	Rio Sachi	SYNTHESIS OF Pd-LOADED GRAPHENE OXIDE CATALYSTS FOR ORGANIC TRANSFORMATIONS
SP14_006_P	Phannika Udomrak	EFFECT OF IRON OXIDE ON NANOPOROUS CARBON FROM PINE LEAVES VIA HYDROTHERMAL CARBONIZATION
SP14_007_P	Chan Myae Khin Hla Win	MONOLAURIN PRODUCTION VIA GLYCEROLYSIS USING CRUDE GLYCEROL FROM THE BIODIESEL INDUSTRY
SP14_008_P	Waraporn Phokka	FROM WASTE TO WRAP: ANTIMICROBIAL PACKAGING FILMS USING TANNIN EXTRACTED FROM DURIAN PEEL

ID	Presenter	Title
SP14_009_P	Yota Tanari	ENVIRONMENTALLY FRIENDLY ALCOHOL OXIDATION USING Ni-Fe SPINEL CATALYSTS WITH TUNABLE REDOX PROPERTIES
SP14_010_P	Napat Kaewtrakulchai / Parncheewa Udomsap	POTENTIAL OF MANGO AND MULBERRY WOODCHIPS ON THE FOOD SMOKING PROCESS
SP14_011_P	Thaenchet Soottitantawat	VALORIZATION OF METHYL PALMITATE TO NITROGEN- AND SULFUR- DOPED CARBON DOTS USING L-CYSTEINE
SP14_012_P	Takata Nao	SYNTHESIS OF GTBE BY CARBON-BASED CATALYTIC METHOD USING MICROWAVE IRRADIATION
SP14_013_P	Jarinya Srisakda	NANOPOROUS CARBON FROM TAMARIND SEEDS VIA HYDROTHERMAL-CARBONIZATION
SP14_014_P	Chetnipit Kunawong / Kunlanard Langkaphin / Supitchaya Piamchon / Chitawan Daolert	NOVEL GREEN SYNTHESIZED MAGNETIC-SIILVER-CORN HUSK BIOCHAR AS ANTIMICROBIAL AGENT AND PHOTOCATALYST FOR METHYLENE BLUE DEGRADATION
SP14_015_P	Namfon Sirikul	GLYCEROLYSIS OF COCONUT OIL USING CALCIUM OXIDE CATALYST FROM EGGSHELL
SP14_016_P	James Phil D. Flores	REMOVAL OF DEFERIPRONE FROM PHARMACEUTICAL WASTEWATER USING IRON-MODIFIED BIOCHAR
SP14_017_P	Thananan Wanitlertthanasarn / Thatchatham Arrirak / Warothkorn Luengvanish / Jedsadaporn Fakthong	PREPARATION OF AMINE-FUNCTIONALIZED RICE HUSK SILICA FOR UREA ADSORPTION
SP14_018_P	Minami Murakami	SYNTHESIS OF ALKOXY ALCOHOLS VIA RING-OPENING REACTIONS OF EPOXIDES USING VANADIUM-BASED CATALYSTS
SP14_019_P	Kota Nishimure	DEGRADATION OF HESPERIDIN INTO HIGH-VALUE CHEMICALS BY CO_2-H_2O SYNERGY UNDER MICROWAVE IRRADIATION
SP14_020_P	Ahmad Danish	HYDROCHAR PRODUCTION FROM POMELO PEELS AND PHYSICOCHEMICAL CHARACTERIZATIONS AS SOLID FUEL
SP14_021_P	Nur Izzah Insyirah Hashim	METHANE GAS REMOVAL VIA PALM KERNEL SHELL-DERIVED XEROGEL ADSORBENTS

SP16 - YOUNG RISING STARS OF SCIENCE 2025 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2025 (JYRSS)

YOUNG RISING STARS OF SCIENCE 2025 (YRSS)

ID	Name of Students	Senior Project's Title
Bio-01	Thanyasuda Sinchai	THE EFFICACY OF B-AP15 ON 5-FLUOROURACIL RESISTANT HepG2 CELLS
	Sarocha Sunthorn	
	Chonticha Kinsukhon	
	Ratana Heng	
Bio-02	Prawit Thitayanuwat	MECHANISTIC INSIGHTS INTO PRRSV INHIBITION THROUGH CD163 BLOCKADE BY PRRSV/CD163-IN-1 FOR DRUG REPURPOSING PERSPECTIVES
Bio-03	Yossaworn Chumak	ENHANCING INDIGO DERIVATIVES IN HOM (*Strobilanthes cusia*) USING PHOTO-SELECTIVE SHADE NET AND FOLIAR SUBSTRATE SPRENCHING
Bio-04	Mallika Akwiriyakul	EVOLUTIONARY RELATIONSHIPS AND MORPHOLOGICAL TRAITS EVOLUTION IN SAPROSMA BLUME (*Rubiaceae*)
Bio-05	Kanokwan Srisampan	DEVELOPMENT OF CARBONIC ANHYDRASE FOR CO_2 CAPTURE USING GENETIC ENGINEERING APPROACH
Bio-06	Saihan Sani	INVESTIGATION OF VIRULENCE FACTORS OF *Vibrio spp.* AND THE INHIBITORY ACTIVITY OF LOCAL PLANTS
	Nurhanan Mohsu	
Bio-07	Teppratan Ngaochu	BIOLOGICAL POTENTIAL OF GREEN BEAN COFFEE WASTE EXTRACT: ANTIBACTERIAL PROPERTIES AND ANTITUMOR EFFECTS
	Supansa Saeoui	
Bio-08	Tanatkorn Chongsawadchai	MULTIFUNCTIONAL SOIL BACTERIA WITH POLYETHYLENE-DEGRADING AND NITROGEN-FIXING CAPABILITIES FOR MICROPLASTIC REMEDIATION
Bio-09	Sesth Anekthanaset	EXPRESSION AND CHARACTERIZATION OF 4,6-A GLUCANOTRANSFERASE ENZYME FROM *Lactobacillus reuteri*
Bio-10	Teerangkul Janjai	PHYLOGENETIC RELATIONSHIP OF MICRO TRUMPET SNAILS GENERA GYLIOTRACHELA AND HYPSELOSTOMA FROM CENTRAL AND EASTERN THAILAND
Bio-11	Nakulkan-Singhoah	GAMING AND SIMULATION FOR COLLECTIVE LEARNING ON LIMESTONE ECOSYSTEM SERVICES AND MANAGEMENT
Bio-12	Chinnapat Sata	ESTIMATION OF CARBON STOCK USING UNMANNED AERIAL VEHICLE IN REFORESTATION PLOT MANAGED BY CENTER OF LEARNING NETWORK FOR THE REGION, CHULALONGKORN UNIVERSITY, SARABURI PROVINCE

ID	Name of Students	Senior Project's Title
Bio-13	Renuka Thonguppatham	CHARACTERIZATION, ANTIBACTERIAL ACTIVITY, AND ANTIBIOFILM EFFICACY OF A BACTERIOPHAGE SPECIFIC TO AVIAN PATHOGENIC *Escherichia coli*
Bio-14	Phomphorn Phoommarin	SPECIES DIVERSITY OF GAMMARID AMPHIPOD ASSOCIATED WITH MACRO-ALGAE IN THE COASTAL AREA OF SAMAESAN, SATTAHIP DISTRICT, CHON BURI PROVINCE, THAILAND
Bio-15	Nattakrit Lamkham	EFFECT OF GUAVA EXTRACT (*Psidium guajava*) ON DEVELOPMENT OF MDA-MB 231 BREAST CANCER CELL LINE
Bio-16	Poonyapat Punhom	LIFE CYCLE, BEHAVIOR, AND SURVIVAL RATE OF THE TWO-SPOTTED CRICKET (*Gryllus bimaculatus*)
Bio-17	Krittapas Angkanawin	GENOME-SCALE METABOLIC MODEL RECONSTRUCTION AND VALIDATION FOR PREDICTING BIOMASS AND LL-37 PEPTIDE PRODUCTION IN THE PROBIOTIC LACTIPLANTIBACILLUS PLANTARUM WCFS1
Bio-18	Natthida Khamma	ANTICANCER ACTIVITY OF 2',4'-DIHYDROXY-6'-METHOXY-3',5'-DIMETHYLCHALCONE (DMC) AND ITS DERIVATIVES IN NCI-H460 LUNG CANCER CELLS
Bio-19	Sutthiphat Sriwari	MITOCHONDRIAL RESPONSES OF *Euglena gracilis* TO VARIOUS TROPHIC CONDITIONS
Bio-20	Ladawan Jansupasen	ANTIBACTERIAL AND ANTIOXIDANT ACTIVITY OF NORTHERN THAI HONEY FROM *Apis mellifera* BEE
Bio-21	Chanisata Phajongsin	*Microbacterium salinarum* sp. nov. ISOLATED FROM EUCALYPTUS TISSUE AND GENOME INSIGHT INTO THEIR PLANT GROWTH PROMOTING PROPERTY
Bio-22	Chotiluk Sarabut	TWO NOVEL SPECIES OF STREPTOMYCES ISOLATED FROM EUCALYPTUS TISSUES GROWN IN SALINE SOIL AND THEIR POTENTIAL AS PLANT GROWTH PROMOTERS AND THEIR GENOME DATA MINING
Bio-23	Siritorn Jonglad	STARCH DEGRADING AND ANTIMICROBIAL ACTIVITIES OF ENDOPHYTIC FUNGI ISOLATED FROM OIL PALM
Bio-24	Kamonchanok Onbun Utumporn Koktrakool	PHOTOMODULATION OF BIOMOLECULAR PATHWAYS IN HOUTTUYNIA CORDATA IN RESPONSE TO VARIETIES OF LED WAVELENGTHS
Bio-25	Kurrotulayunee Kareeya	DISTRIBUTION OF *Vibrio spp.* IN SONGKHLA LAKE BASIN

ID	Name of Students	Senior Project's Title
Chem-01	Yanit Lunprom	STRUCTURE-FUNCTION RELATIONSHIP OF BIOINSPIRED NICKEL SCHIFF-BASE BISPHENOXY COMPLEXES FOR HYDROGEN EVOLUTION REACTION
Chem-02	Maneephan Sukkho	TOWARDS A GREENER AND SAFER PRESERVATIVE SYSTEM FOR NATURAL RUBBER LATEX PRODUCTS
Chem-03	Thanayot Jullapak Theerapat Khianjinda Kritanan Junthod	ACYCLIC LITHIUM IONOPHORES OUTPERFORMING CROWN ETHER IN SELECTIVE RECOGNITION AND RECOVERY OF LITHIUM
Chem-04	Passakorn Pomngoen	POINT-OF-CARE MONITORING OF CORTISOL IN BIOLOGICAL FLUIDS: AN ULTRASENSITIVE ELECTROCHEMICAL BIOSENSOR BASED ON DNAZYME SIGNAL AMPLIFICATION AND HAIRPIN APTAMER STRATEGY
Chem-05	Buachompoo Pengkred	SYNERGISTIC EFFECT OF COPPER OXIDE WITH POLYANILINE AS A CAPACITIVE ENHANCER FOR HIGH-PERFORMANCE SUPERCAPACITORS
Chem-06	Manatsanan Keawmala	STRUCTURING CARBON DOT ANCHORED COPPER OXIDE FOR HIGH-PERFORMANCE SUPERCAPACITORS
Chem-07	Piriyapong Saetang	DETERMINATION OF SALICYLIC ACID BY A DISTANCE-BASED PAPER SENSOR
Chem-08	Fareeda mareh Anif seadek Subaidah Useng	DEVELOPMENT AND LABORATORY EVALUATION OF WOOD VINEGAR-BASED ENCAPSULATED SPRAY FORMULATION FOR THE CONTROL OF DURIAN SEED BORER (MUDARIA LUTEILEPROSA HOLLOWAY)
Chem-09	Krittapong Leewongwat	1,8-NAPHTHALIMIDE DERIVATIVES AS FLUORESCENT VISCOSITY PROBE FOR LIVING CELL IMAGING
Chem-10	Phanpanadda Lertamornmongkol	DEVELOPMENT OF A LAYER-BY-LAYER NANOEMULSION SYSTEM WITH AUNPS@COLLAGEN AND CHITOSAN FOR COLORECTAL CANCER THERAPY: INVESTIGATING PLAI OIL'S ANTI-CANCER POTENTIAL
Chem-11	Patamawadee Phalipat	TUNABLE HYDROGEL INNOVATION: MICROWAVE-ASSISTED HYPER-CROSSLINKED POLYMERS AND COVALENT ORGANIC FRAMEWORKS FOR ANALYTICAL EXTRACTION OF PLASTICIZERS AND FOOD ADDITIVES
Chem-12	Sasitorn Khamprathed	MATERIAL UPCYCLING OF SPENT PRIMARY BATTERY TOWARD RECHARGEABLE ZINC-ION BATTERY
Chem-13	Natthida Khamma	ANTICANCER ACTIVITY OF 2',4'-DIHYDROXY-6'-METHOXY-3',5'-DIMETHYLCHALCONE (DMC) AND ITS DERIVATIVES IN NCI-H460 LUNG CANCER CELLS
Chem-14	Suthathip Sangputi Panthita Somnuek	COCONUT JELLY BIO-PATCH: A NATURAL CARRIER OF ACTIVE COMPOUNDS FOR WOUND HEALING
Chem-15	Rachata Bunglom	DEVELOPMENT OF POLY(VINYL ALCOHOL)/CARBOXYMETHYL CELLULOSE/SERICIN HYDROGELS CONTAINING POMEGRANATE EXTRACT FOR FACIAL MASK APPLICATION
Chem-16	Nattawadee Srikamhom	EFFECTIVE BROMINATION OF DEACTIVATED AROMATIC COMPOUNDS IN WATER AT ROOM TEMPERATURE

ID	Name of Students	Senior Project's Title
Chem-17	Poomrapee Pranmaung	WASTE POLYSTYRENE-FATTY ACID COMPOSITE ON ICE-CREAM STICKS FOR EXTRACTING PESTICIDE RESIDUES IN DURIAN ORCHARD WATER

ID	Name of Students	Senior Project's Title
Com-01	Takdanai Ittipak	THE IMPLEMENTATION OF ANONYMOUS AUTHENTICATION AND IDENTITY SHIELDING TO CREATE A HIGH PRIVACY-PRESERVING AUCTION SYSTEM
Com-02	Ekpreeya Tunseng	RESPONSIVE WEB APPLICATION DEVELOPMENT FOR NEW YEAR GIFT DISTRIBUTION
Com-03	Kittiphat Leesombatwathana Wisarut Tangtemjit	IMPROVING PROMISE VERIFICATION TEXT CLASSIFICATION WITH LLM-BASED DATA AUGMENTATION
Com-04	Punramon Ratchakom Siriyaporn Rosjan	A CONVERSATIONAL AI PLATFORM FOR EDUCATING AND SUPPORTING BEHAVIORAL CHANGE IN PREGNANT WOMEN DIAGNOSED WITH GESTATIONAL DIABETES MELLITUS
Com-05	Netichai Wongkhamphu	WI-FI SENSING BASED HUMAN POSE ESTIMATION
Com-06	Tanapon Thaiyanusorn Phattanan Eksakulpaiboon	VIRTUAL REALITY-BASED PIANO PRACTICE USING MIDI AND HAND TRACKING TECHNOLOGY (MR PIANO)
Com-07	Jirath Kangwankityunyong	APPLY MACHINE LEARNING ALGORITHM TO PREDICT CONDOMINIUM PRICE IN BANGKOK
Com-08	Pongkhun Poonsupsopon Kyae Phae Pavadol Dechasidphaisan	SMART FARMING COMPANION FOR SMALL-SCALE DUCKWEED FARMERS: THE DUWEENEXT MOBILE APPLICATION
Com-09	Khin Kaung San Thu Tun Soe Thandar Lwin Su Myat Yadanar	TRUETINT
Com-10	Phavarisa Limchitti	PARALLEL DISTINCT ELEMENTS IN BATCH SLIDING WINDOWS
Com-11	Chinnapong Rakmai Prompiriya Promsa-ard	TOWARD LOCAL PERSONALIZED LLMS ON-PREMISE: A STUDY OF LORA-BASED TRAINING ON SMALL-SCALE MODELS
Com-12	Supakit Buadokmai Saharat Meesap	LOMWONG LOCAL CONNECT

ID	Name of Students	Senior Project's Title
Food-01	Jitpanu Korsumpun	EFFECTS OF MICROWAVE HEATING ON THE REDUCTION OF ANTINUTRIENTS AND THE CHEMICAL AND PHYSICAL PROPERTIES OF LEGUME POWDERS
Food-02	Nuttanicha Tritong	DEVELOPMENT OF DUCKWEED PROTEIN–HYDROCOLLOID MIXED GELS: AN INNOVATION IN FUNCTIONAL FOOD
Food-03	Anif Seadek Patimoh Masae	OPTIMUM CONDITIONS FOR WATER EXTRACT OF *Euphorbia hirta L.* USING SONICATION TECHNIQUE
Food-04	Worrachit Suniwatcharanupong Thitipong Pakkaew Arunrat Phan-iam	ENHANCING PASSION FRUIT JUICE QUALITY THROUGH SUSTAINABLE PULSED ELECTRIC FIELD TREATMENT
Food-05	Waritsara Khamjing Paritwat Cholthichachalaluck Supitsara Chottanaputtipong	UNLOCKING THE POWER OF BROCCOLI: EXTRACTION, PURIFICATION, AND ANTIOXIDANT POTENTIAL OF THE NOVEL PHYTOCHEMICAL GLUCOBRASSICIN
Food-06	Arucha Yanasing Keerati Wanichakulviriya Nantaphat Yamsiri	SYNERGISTIC EFFECT OF FINGERROOT/GINGER EXTRACTS AND THAI FAIRY SHRIMP PEPTIDES AS FUNCTIONAL DRINK FOR THE SILVER GENERATION
Food-07	Bulakorn Pancharoen	IMPACT OF HIGH-PRESSURE PRETREATMENT ON MAILLARD REACTION AND FLAVOR ENHANCEMENT OF DRIED GOLDEN APPLE SNAIL MUSCLE
Food-08	Jiungluk Runglert	THE POSSIBILITY OF PROCESSING DATE PALM BY-PRODUCT WITH ENZYMES TO DEVELOP A POWDER PRODUCT WITH PREBIOTIC PROPERTIES
Food-09	Chananchita Thanasansomboon	INVESTIGATING THE EFFECTS OF DIFFERENT DRYING PROCESSES ON PAPAYA SEEDS THROUGH A METABOLOMICS APPROACH AND PHYSICOCHEMICAL ANALYSIS
Food-10	Jiratchaya Pengtham	EFFECT OF THERMO-SONICATION COMBINED WITH ESSENTIAL OIL ON ANTIMICROBIAL EFFICACY AND QUALITY OF HEALTHY FRUIT JUICE
Food-11	Thanaporn Seeklinhom Utumporn Peela Luckhana Wanthong	DEVELOPMENT OF FRUIT-INCORPORATED DRIED YOGURT USING FREEZE-DRYING TECHNIQUE TO ENHANCE NUTRITION AND QUALITY
Food-12	Puri Kaewmark Phinyada Chulaaun	STUDY OF THE PHYSICAL PROPERTIES OF PLANT-BASED BURGER FROM CHICKPEA AND RED BEAN
Food-13	Sasathon Suteerapongpan Woranet Chamueangkool Piyada Ouksonmetha	DEVELOPMENT OF GLUTEN FREE BISCUITS FROM COLORED RICE FLOUR FORTIFIED PROTEIN WITH RED KIDNEY BEAN FLOUR AND KALE POWDER
Food-14	Ranida Luepak Sutteekan Kanjina	DEVELOPMENT OF SPOILAGE INDICATOR FOR FRESH-CUT MELON

ID	Name of Students	Senior Project's Title
Env-01	Jiraphat Luepong	STUDY OF ORGANIC MATERIALS AS SUITABLE PLANTING MATERIALS FOR THE GROWTH OF DURIAN VARIETY (PAN PHRA SRI) (DURIO ZIBETHINUS MURRAY)
	Chanakran Phamongkon	
	Sawarot Kongaudom	
Env-02	Supanun Morakanun	EVALUATION OF BOD, SUSPENDED SOLIDS, AND HEAVY METALS IN ONSITE-WASTEWATER TREATMENT PLANT USING MATHEMATICAL MODEL FOR WATER REUSED IN BIOPONICS
Env-03	Theeraphon Joyjiam	TRACING THE ORIGIN OF CHTHAMALUS MALAYENSIS ALONG THE SONGKHLA COAST BY USING A BACKWARD PARTICLE TRACKING MODEL
Env-04	Phurithat Jarupong	UTILIZING EDNA METABARCODING FOR FISH BIODIVERSITY ASSESSMENT IN BANG TABUN ESTUARY, PHETCHABURI PROVINCE, THAILAND
Env-05	Naruporn Satheerasarin	COLORATION MECHANISM OF FRESHWATER CULTURED PEARL BY MULTIPLE TECHNIQUES
Env-06	Palapat Phookaew	METAMORPHIC EVOLUTION OF CORUNDUM-BEARING METACARBONATE OF THAILAND FOUND IN MAE PING SHEAR ZONE, TAK PROVINCE: THERMODYNAMIC MODELLING APPROACH
Env-07	Nonthaya Boonchaiming	ENGINEERING PROPERTIES OF CONSTRUCTION MATERIALS FOR THE BYPASS ROAD IN CHIANG KHAN DISTRICT, LOEI PROVINCE
Env-08	Siwah Naemlek	THE RELATIONSHIP BETWEEN SOIL PROPERTIES FACTORS AND TREE STAND IN DECIDUOUS DIPTEROCARP FOREST DISTRIBUTION AT SAKAERAT ENVIRONMENTAL RESEARCH STATION, NAKHON RATCHASIMA PROVINCE
Env-09	Rossarin Kotbuncha	ASSESSMENT OF OCCUPATIONAL EXPOSURE TO PARTICULATE MATTER AND VOCS AMONG HIGH-EXPOSURE WORKERS
	Chutikan Prachapornpisun	
Env-10	Juthamas Hemwannanukul	DEVELOPMENT OF CARBON NITRIDE NANOPARTICLES FOR ELECTROCHEMICAL CO_2 REDUCTION
	Salwatee Yu-soh	
	Thitima Suwannawong	

ID	Name of Students	Senior Project's Title
Mat-01	Chayanikan Jenkankha	HYDRO-MECHANICAL RESPONSE OF MYCELIUM BIOCOMPOSITE FROM SPENT COFFEE GROUNDS AND RICE HUSK
Mat-02	Pokin Sawangkaew Yossaphat Laokamnerd Chanokchon Limrangsri	EFFECT OF BLEND RATIO BETWEEN VIRGIN-POLYPROPYLENE (VIRGIN PP) / REGRIND-POLYPROPYLENE (PP-REGRIND) BOTTLES FROM BLOWN THERMOPLASTIC PROCESS: MECHANICAL, THERMAL AND CHEMICAL PROPERTIES
Mat-03	Nonphiwat Nasingthong Nithit aosay Thanakrit Phomood	DEVELOPMENT AND CHARACTERIZATION OF Fe_3O_4/Au BY SURFACE- ENHANCED RAMAN SPECTROSCOPY BASED LATERAL FLOW ASSAY: MONITORING OD SERUM AMYLOID A AND C-REACTIVE PROTEIN IN UNPROCESS BLOOD SAMPLES
Mat-04	Jatupol Woo	THE TRIBOELECTRIC SENSOR FOR STEEL CORROSION MONITORING
Mat-05	Chanya Tamsajjatharm Thanapron Kopattar	SURFACE MODIFICATION OF SCREEN PROTECTIVE FILMS USING PLASMA PROCESSES
Mat-06	Tipakorn Tangjitsatiankul Natthanicha Sansri	EFFECT OF CHROMIUM (III) OXIDE AND ZIRCONIUM DIOXIDE ON MECHANICAL PROPERTY AND ALKALI RESISTANCE OF GLASS FIBER FROM SUB-BITUMINOUS COAL FLY ASH
Mat-07	Gun Siritrakulmangkang Thanaseat Impoat	INTEGRATION OF SORBENT DEVELOPMENT WITH 3D PRINTING TECHNOLOGY FOR DIRECT AIR CAPTURE MODULES
Mat-08	Chawannat Janyapong	ENHANCING WATER AND OIL-RESISTANCE OF PAPER-FOOD PACKAGING BY CHITOSAN INFUSION: THE EFFECT OF INFUSION CYCLE
Mat-09	Neungruthai Kanoei	STUDY OF EFFECTS OF MnO_2-DOPED ON STRUCTURAL AND ELECTRICAL PROPERTIES OF $BaTiO_3$–$BiYO_3$ CERAMICS
Mat-10	Autsanee Khunjit	SYNTHESIS OF FLOATING HYDROGELS FROM NATURAL RUBBER FOR DYE-CONTAMINATED WASTEWATER TREATMENT
Mat-11	Apiwit Hasalem	STUDIES THE FLEXIBLE RADIATION SHIELDING MATERIALS BASED ON COMPOSITES THERMOPLASTIC NATURAL RUBBER

ID	Name of Students	Senior Project's Title
Math-01	Warattaya Kanewan	STUDY OF FACTORS IN THE REHEATING PROCESS AND DOWNTIME THAT AFFECTING THE AMOUNT OF NATURAL GAS FOR THE PRODUCTION IN THE ROLLING PROCESS
Math-02	Pornrak Tangangkoon	THE NUMBER OF PARTITIONS OF A SET WHOSE MEMBERS HAVE A BOUNDED SIZE
Math-03	Tarid Suwansri	FIBONACCI SEQUENCES IN THE MÖBIUS GYROVECTOR SPACE
Math-04	Patipan Nillaphant	ON A-BASES OF SEMIGROUPS
Math-05	Watchara Yuchue	FIXED POINT ITERATIONS ON METRIC TREES
Math-06	Siraphob Buahong	FINDING A B-MATCHING THAT EMBEDS THE MAXIMUM NUMBER OF EDGE PAIRS IN A GIVEN SET
Math-07	Yaninee Khamrach Kanyanat Oanthaket	EFFICIENTT ETD APPROACH TO EUROPEAN OPTION
Math-08	Atiwat Nanphaeng Apirak Tepvarin	ECONOMIC-ENVIRONMENTAL TRADE-OFFS: RANKING THAI PROVINCIAL REPRESENTATIVES FROM EACH REGION WITH INTEGRATED MCDM TECHNIQUES AND ENHANCED TWO-STAGE DEA

ID	Name of Students	Senior Project's Title
Phy-01	Kopngoen Khiaoaim Siwakorn Thararam	A STUDY AND DEVELOPMENT OF SCREEN-PRINTED ELECTRODES FOR PROTEIN CREATININE SENSING USING ELECTROCHEMICAL TECHNIQUE
Phy-02	Kongkridakorn Trakulthum	DETERMINATION OF PERMITTIVITY IN LARGE-ANGLE TWISTED BILAYER GRAPHENE USING THE QUANTUM HALL EFFECT
Phy-03	Piyathida Raksamun	COMPUTATIONAL MODELING OF BLOOD FLOW DYNAMICS IN VENOUS VALVES
Phy-04	Wansai Pakkkit	EFFECT OF POST-COATING HEATING ON THE PROPERTIES OF ALMINUM-DOPED ZINC OXIDE FILM PREPARED BY SPUTTERING PROCESS
Phy-05	Supakit Chinpakdee	SAFETY ALERT SMART BALL: DETECTING HAZARDOUS GAS THROUGH TOSSING
Phy-06	Gunmethus Cherdchoochavalit	MACHINE LEARNING FOR PARAMETERS OF HIGH-REDSHIFT GALAXIES FOR FUTURE JWST-NIRCAM OBSERVATIONS
Phy-07	Faneel Nontree	THAILAND TOKAMAK 1 PLASMA SCENARIOS INVESTIGATIONS USING CRONOS CODE
Phy-08	Kasidit Piekbut	DEVELOPMENT OF A DATA PROCESSING SYSTEM FOR PLASMA PARAMETER ESTIMATION IN TT-1
Phy-09	Kritidej Phootijindanun	FEASIBILITY OF CONTACTLESS SUPERCONDUCTOR LEVITATION FOR MICRO-ASSEMBLY HANDLING: SIMULATION EXPERIMENTS

JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2025 (JYRSS)

ID	Name of Students	Student Project's Title
JYRSS-01	Rawipat Tangsakulwatthana Supasin Buranasan Kraisit Kosaiyawat	DEVELOPING DRIVER DOZE OFF DETECTION SYSTEM
JYRSS-02	Jinjutha Kongtham Natwalai Orachaipunlap Napaphat Pripwai	THE PREPARATION OF LONGAN SEED ACTIVATED CARBON WITH SULFONIC ACID GROUP FOR ESTERIFICATION OF PALM FATTY ACID DISTILLATE
JYRSS-03	Gulsara Panyam Chetnipat Kunawong Panupong Uprajong	INHIBITION OF AEROMONAS HYDROPHILA GROWTH IN ORNAMENTAL FISH BY ACTIVATED CARBON ENCAPSULATED GARLIC EXTRACT SOLUTION
JYRSS-04	Sirisak Nakpansa Patticha Phakeepol Wanwarin Jokloy	THE STUDY OF SENSING PROPERTIES OF METAL-ORGANIC FRAMEWORKS CONTAINING IMIDAZOLE BASE-LINKERS FOR MONITORING BIOMARKERS
JYRSS-05	Veerin Sridang Panissara Thavornprasert Nutnicha Palasmith	PREPARATION OF NANO-HYDROXYAPATITE FROM OYSTER SHELLS AND ITS APPLICATION AS DESENSITIZING TOOTH GEL
JYRSS-06	Thanathip Sukphetcharee Kunyanat Sangawong Jinjuta Sripakdee	APTAMER–POLYELECTROLYTE COMPLEX FOR SPECIFIC DRUG DELIVERY TARGETING COLORECTAL CANCER CELLS
JYRSS-07	Ponkanok Dawan Pitsinee Supakitanan Arachaporn Vijara	DEVELOPMENT OF NANOFIBER FILTER FOR FACE MASKS FROM PVDF-HFP BLENDED WITH ZINC OXIDE FOR ENHANCED ANTIBACTERIAL EFFICIENCY
JYRSS-08	Piyaorn Jayangkool Kanpiya Jayangkool Phun Siripan	AN INNOVATIVE SMART CUSHION WITH PRESSURE MAPPING AND IOT INTEGRATION FOR OFFICE SYNDROME PREVENTION
JYRSS-09	Phollaphat Charoensuk Chutipol Sakulrompochai	APPLY DYNAMIC TIME WRAPPING TECHNIQUE FOR THAI TRADITIONAL DANCE POSE ESTIMATION
JYRSS-10	Thanadon Poomkosum Nathamon Thiengcharoen Supachok Ruensom	ARTIFICIAL INTELLIGENCE SELF-LEARNING CLASSICAL KHON DANCE
JYRSS-11	Arthip Yamprayoon Thanachote Phuthongtong Yosita Mongkolpattana	A TALE OF A SILENT INTRUDER: THE FIRST REPORT ON PHYSIOLOGICAL DAMAGE CAUSED BY THE ALGAL PARASITE, CEPHALEUROS KARSTENII, IN MAHOGANY
JYRSS-12	Panida Saihong Theerisara Jitmankarn Thaksaporn Saengsuriya	UPCYCLE OF MARIAN PLUM AND MANGO PEELS FOR VALUABLE ORGANIC COMPOUNDS IN MEDICINAL AND MATERIAL SCIENCE
JYRSS-13	Natthawat Wongkham Pattarawit Peatanom	TEST KIT FOR HEAVY METAL IONS BY COMPARING COLOR CHART
JYRSS-14	Natasha Mitware Teeraphat Panprasert Panpakorn Kamonnanthin	DEVELOPMENT OF PDA-BASED SENSOR FOR THE DETECTION OF BIOGENIC AMINE
JYRSS-15	Kritidej Phootijindanun	SUPERCONDUCTOR LEVITATION FOR MICRO-ASSEMBLY HANDLING

ID	Name of Students	Student Project's Title
JYRSS-16	Thee Jootar	SEEING THE UNSEEN: UNLOCKING EARLY SIGNS OF ALZHEIMER'S WITH AI
JYRSS-17	Tanakrit Sumpuang ichayaporn Marthaworn Jiratchaya Thumsuruk	DEVELOPMENT OF A SMART LID FROM WATER HYACINTH-BASED THERMOCHROMIC HYDROGEL FOR CUP NOODLE COOKING STATUS DETECTION
JYRSS-18	Punyisa Churboonmee Chawakorn Tangpraditchai Latthichai Bupha	HOUSEHOLD CASE-BEARING MOTHS (LEPIDOPTERA: TINEIDAE, PHEREOECA UTERELLA) UNDER THE MICROSCOPE: A MICROPLASTIC CONTAMINATION INVESTIGATION IN BUILDINGS
JYRSS-19	Alin Tanacharoenpattara Kanpirom Techochanont Ratchanon Huthip	CONSTRUCTION OF CRISPR/CAS FOR LOW-METHANE EMISSION RICE
JYRSS-20	Narongtam Kiatkongtawe Phurinut Kaewsimma Parintorn Waewngam	PROPERTIES IMPROVEMENT OF HYDROXYAPATITE-BASED BONE SCAFFOLD WITH SILK FIBROIN AND ALGINATE
JYRSS-21	Thitiworada Tajina Pimburapa polsukkarn	ANTIBACTERIAL AND ANTI-VIRULENCE POTENTIAL OF BLACK SOLDIER FLY LARVAE OIL AGAINST LISTERIA MONOCYTOGENES FOR USE AS A SUPPLEMENTED ANIMAL FEED
JYRSS-22	Tanawat Siripraiwan	ANTIMYCOTIC ACTIVITIES OF TURMERIC EXTRACT-LOADED CHITOSAN MICROPARTICLES AGAINST Candida albicans FOR MOUTHPASTE DEVELOPMENT AS AN ALTERNATIVE TREATMENT
JYRSS-23	Natanicha Comeiad Chayisa Boonma	DEVELOPING A WEB APPLICATION TO CLASSIFY RISK LEVELS OF BREAST CANCER FROM MAMMOGRAMS IMAGES
JYRSS-24	Aiya Suttikulbutr Pitchaya Krajangvittaya Peepat Phothaworn	COSMICWATCH LATITUDE SURVEY AND THE DEVELOPMENT OF THE M-WAYU PORTABLE MUON DETECTOR
JYRSS-25	Bundita Sungkit Norraphat Kaewmoolsa Phenphitcha Auddang	FUNCTIONAL JELLY ENRICHED WITH LOCAL FRUIT ANTIOXIDANTS FOR MITIGATING AIR POLLUTION-INDUCED OXIDATIVE STRESS AND REDUCING THE RISK OF TYPE 2 DIABETES
JYRSS-26	Chalunthorn Songchan Pantila Dechodumrongrit Phutip Nganrungchotchoung	THE STUDY AND DEVELOPMENT OF PEROVSKITE SOLAR CELLS FROM REUSED FTO/TiO_2-NPS FILMS FOR ENHANCED PERFORMANCE AND SUSTAINABILITY
JYRSS-27	Panida Kijcharoenvisal Theekarn Limmahakhun	SYNTHESIS OF RHODAMINE-DERIVED COLORIMETRIC AND FLUORESCENT SENSORS FOR SENSING Hg(II) ION IN REAL WATER SAMPLE
JYRSS-28	Thorphun Chinchoosak	ENHANCEMENT OF BIOACTIVE COMPOUNDS IN DATE POWDER THROUGH FERMENTATION BY BACILLUS COAGULANS
JYRSS-29	Phichamon Udomvittayakhai Kingfa Saeyong	DRONE ATTACHMENTS FOR DETECTING VICTIMS IN THE EARTHQUAKE-PLANZONE USING IMAGE PROCESSING TECHNIQUES
JYRSS-30	Kasidth Rungbannaphan Pornchanok Thipsurat	FABRICATION OF POLYVINYL ALCOHOL AND SODIUM ALGINATE HYDROGELS WITH BURET REAGENT FOR PROTEIN DETECTION IN AQUEOUS GELATIN AND UREA SOLUTION

ID	Name of Students	Student Project's Title
JYRSS-31	Priyakorn Rabaebloed Suwaree Nithichotnuwat	EFFICACY OF ENDOPHYTIC FUNGI AGAINST DISEASE IN LETTUCE LEAF SPOT
JYRSS-32	Proudpidcha Chaiyapoomsakul Nutwarach Thongyindee	INVESTIGATIONS OF ANTIMICROBIAL ACTIVITY OF ADENIUM OBESUM EXTRACT ON MOBILE DEVICE SCREENS
JYRSS-33	Nusha Pohcik Nabeelah Musi	DEVELOPMENT OF A PROGRAM FOR SIMULATING OF BLOOD FLOWS AND FINDING THE PERCENTAGE OF CORONARY ARTERY STENOSIS FROM CORONARY ANGIOGRAPHY
JYRSS-34	Parich Phuyuthanon Aminda Adulyasas	DEVELOPMENT OF RUBBER INSULATING SHEET FOR MINIMIZING CONDENSATION IN VENTILATOR CIRCUIT
JYRSS-35	Paparvarin Kaewkong Yanisa Kajonmahalap	NUTRITIONAL EVALUATION AND CHARACTERISTICS OF GLUTEN-FREE COOKIES COMPLEMENTED WITH LONGTAIL TUNA FOR EMERGENCY SITUATIONS
JYRSS-36	Rawit Chumwongsa Bannasorn Rungruang Inthat Siriworachot	APPLICATION OF THE COAGULATION PROCESS AND EVALUATION OF COAGULANT EFFICIENCY FOR MICROPLASTIC REMOVAL FROM WATER
JYRSS-37	Thannawadee Pharakan Nareauporn Ketkesorn Kevin Desaubin	OXYGEN MONITORING AND ALERTING DEVICE FOR BEDRIDDEN PATIENTS
JYRSS-38	Thanat Chaimongkon	SYNTHESIS OF MOLECULAR SENSOR BASED ON THE CURCUMIN DYE EXTRACTED FROM CURCUMA LONGA L. TO DETECT LONG CHAIN ALDEHYDES AS THE LUNG CANCER BIOMARKER
JYRSS-39	Warinnicha Yeamsansuk	3D PRINTED ELECTROMEMBRANE EXTRACTION DEVICE FOR DETERMINIG OXALATE IN MATCHA
JYRSS-40	Thipok Tungsiripat Alisa Triwitayakorn Pataraphol Vanichvatana	THE BIO-ECO ROCK DEVELOPMENT
JYRSS-41	Kamolnut Sukaram Nontanakorn Vanit	DEGLYCOSYLATION STEP OF A-L-ARABINOFURANOSIDASE: THE MUTATIONAL STUDY
JYRSS-42	Ratthasard Sankum Nattawut Kanjanasantikul	LUNG CANCER SCREENING USING NEW ALGORITHM APPLICATION MACHINE LEARNING
JYRSS-43	Nichkamon Choedthirakun Thanaphat Homniyom Kruntida Banlupatiphan	ACETYLENIC TRIGLYCERIDES FROM OLAX SCANDENS
JYRSS-44	Kasidech Bualad Kamonchanok Saenkompa Chakkarin Khao-on	ANALYZING THE RELATIONSHIPS IN A CHICKEN EGG

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2. Professor Dr. Henrietta Venter
3. Dr. Raffael Osen

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Dr. Warintorn Sreethawong
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Associate Professor Dr. Patra Yeetong
Associate Professor Dr. Pattamawadee Yanatatsaneejit
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Dr. Yingyod Lapwong

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Professor Dr. Thawatchai Tuntulani
Professor Dr. Voravee Hoven
Associate Professor Dr. Atitaya Siripinyanond
Associate Professor Dr. Purim Jarujamrus
Associate Professor Dr. Weena Siangproh
Associate Professor Monpichar Srisa-art
Assistant Professor Aroonsiri Shutangkoon
Assistant Professor Dr. Itthipon Jeerapan
Assistant Professor Dr. Pumidech Puthongkham
Assistant Professor Dr. Numpon Insin

SESSION C - CHEMISTRY (Inorganic Chemistry)

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Associate Professor Dr. Boosayarat Tomapatanaget
Associate Professor Wipark Anutrasakda
Assistant Professor Dr. Nipaka Sukpirom
Assistant Professor Dr. Junjuda Unruangsri
Assistant Professor Dr. Numpon Insin
Dr. Panawan Vanaphuti

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Professor Dr. Preecha Phuwapraisirisan
Professor Dr. Rungnapha Saeeng
Professor Dr. Vatcharin Rukachaisirikul
Associate Professor Dr. Jaray Jaratjaroonphong
Associate Professor Dr. Kongkiat Trisuwan
Associate Professor Dr. Nawaporn Vinayavekhin
Associate Professor Dr. Pitak Chuawong

Associate Professor Dr. Sarot Cheenpracha
Associate Professor Dr. Thunwadee Limtharakul
Associate Professor Dr. Pakorn Wattana-Amorn
Associate Professor Nopporn Thasana
Assistant Professor Dr. Jiraporn Arunpanichlert

SESSION C - CHEMISTRY (Physical & Theoretical Chemistry)

Professor Dr. Rungnapha Saeeng
Professor Dr. Pornthep Sompornpisut
Professor Dr. Tirayut Vilaivan
Associate Professor Dr. Kongkiat Trisuwan
Associate Professor Dr. Pitak Chuawong
Associate Professor Dr. Purim Jarujamrus
Associate Professor Dr. Weena Siangproh
Associate Professor Dr. Boosayarat Tomapatanaget
Associate Professor Dr. Somsak Pianwanit
Associate Professor Dr. Wipark Anutrasakda
Assistant Professor Aroonsiri Shutangkoon
Assistant Professor Dr. Itthipon Jeerapan
Assistant Professor Dr. Junjuda Unruangsri
Dr. Andrew King

SESSION D - MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI

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Associate Professor Dr. Areeyuth Sama-Ae
Associate Professor Dr. Chatchawan Panraksa
Associate Professor Dr. Kitiporn Plaimas
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SESSION E - ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY

Professor Dr. Chawalit Ngamcharussrivichai
Professor Dr. Napida Hinchiranan
Professor Dr. Nattaya Pongstabodee
Professor Dr. Pitsanupong Kanjanapayont
Professor Dr. Sirilux Poompradub
Associate Professor Dr. Chaiyan Chaiya
Associate Professor Dr. Pornapa Sujaridworakun
Associate Professor Dr. Rojana Pornprasertsuk
Associate Professor Dr. Sermpong Sairiam
Associate Professor Dr. Apiluck Eiad-ua
Associate Professor Dr. Chanatip Samart
Associate Professor Dr. Kanoktip Boonkerd
Associate Professor Dr. Kejvalee Pruksathorn
Associate Professor Dr. Lapyote Prasittisopin
Associate Professor Dr. Mantana Opaprakasit
Associate Professor Dr. Nagul Cooharojananone
Associate Professor Dr. Nisit Tantavichet
Associate Professor Dr. Pakorn Opaprakasit
Associate Professor Dr. Pasicha Chaikaew
Associate Professor Dr. Prapan Kuchonthara
Associate Professor Dr. Prasert Reubroycharoen
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Associate Professor Dr. Kitipong Assatarakul
Associate Professor Dr. Kittipong Chainok
Associate Professor Dr. Sumetha Suwanboon
Associate Professor Dr. Boosayarat Tomapatanaget
Assistant Professor Dr. Apirat Theerapapvisetpong
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Dr. Jatuwat Sangsanont
Dr. Junaid Ahmad Faridi
Dr. Mati Horprathum
Dr. Natthawan prasongthum
Dr. Panawan Vanaphuti
Dr. Prakhin Assavapanuvat
Dr. Sirawit Kaewpaluk
Dr. Patrapee Kungsadalpipob

SESSION F - FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE

Associate Professor Dr. Inthawoot Suppavorasatit
Associate Professor Dr. Juthamas Chaiwanon
Associate Professor Dr. Kittipong Assatarakul
Associate Professor Dr. Mutita Meenune
Associate Professor Dr. Rachaneekorn Tammachote
Associate Professor Dr. Siwaret Arikit

Assistant Professor Dr. Chutchamas Kanchana-udomkan
Assistant Professor Dr. Nattida Chotechuang
Assistant Professor Dr. On-Ong Chanprasartsuk
Assistant Professor Dr. Patcharaporn Tinchan
Assistant Professor Dr. Thanin Chantarachot
Assistant Professor Dr. Yaowapa Lorjaroenphon
Dr. Andi Febrisiantosa
Dr. Endy Triyannanto
Dr. Fakfan Luangapai
Dr. Jetsada Wichaphon
Dr. Nonthacha Thanathornvarakul
Dr. Pakavit Mathatheeranan
Dr. Pradita Iustititia Sitaresmi
Dr. Sorawit Powtongsook
Dr. Sumate Keratimanoch
Dr. Tanathep Leungtongkum
Dr. Thanakorn Wongprasert

SP3: NexGen Energy: Storage and Conversion for Sustainability

Professor Dr. Chiaki Terashima
Professor Dr. Liping Wang
Professor Dr. Liqiang Xie
Professor Dr. Ruiqin Zhang
Associate Professor Dr. Fuda Yu
Associate Professor Dr. Hongyi Gao
Assistant Professor Dr. Pawin Iamprasertkun
Dr. Athaweena Krittayavathananon
Dr. Pimpa Limthongkul
Dr. Pinit Kidkhunthod
Dr. Priew Eiamlamai

SP4: Biorefinery

Professor Dr. Chawalit Ngamcharussrivichai
Associate Professor Dr. Duangamol Tungasmita

SP7: Colour Science/Technology, Light and Applications

Associate Professor Dr. Pichayada Katemake
Associate Professor Dr. Kawee Srikulkit
Associate Professor Dr. Chanprapha Phuangsuwan
Assistant Professor Dr. Chulapong Panichkriangkrai
Dr. Nawarat Kaew-On

SP8: Cultural Heritage: Traditional/Digital Color

Dr. Nawarat Kaew-On

Norman Verschueren

SP9: Exploring the Cosmos: Advances in Observational and Theoretical Astrophysics

Dr. Krittapas Chanchaiworawit
Dr. Nicha Leethochawalit
Dr. Taweewat Somboonpanyakul
Dr. Thanawuth Thanathibodee

SP10: X-Ray Crystallography

Associate Professor Dr. Jaursup Boonmak
Assistant Professor Dr. Kittikhun Wangkanont
Assistant Professor Dr. Nanthawat Wannarit
Assistant Professor Dr. Puey Ounjai
Assistant Professor Dr. Saowanit Saithong

SP11: Radioecology and Environmental Radioactivity

Assistant Professor Dr. Wanwiwa Tumnoi
Assistant Professor Narongchai Autsavapromporn
Rawiwan Kritsananuwat

SP12: The 2nd International Symposium of Science Communication and Public Science Literacy

Dr. Chanin Suriyakul Na Ayudhya
Dr. Wilasinee Triyarat

SP14: Valorization of biomass-related wastes

Associate Professor Dr. Apiluck Eiad-Ua
Associate Professor Dr. Chaiyan Chaiya
Associate Professor Dr. Chantamanee Poonjarernsilp
Associate Professor Dr. Karittha Im-orb
Associate Professor Dr. Nopphon Weeranoppanant
Associate Professor Dr. Piyaporn Kampeerapappun
Associate Professor Dr. Rattana Muangrat
Associate Professor Dr. Santi Chuetor
Associate Professor Dr. Sasiradee Jantasee
Associate Professor Dr. Weerinda Mens
Associate Professor Thirawat Mueansichai
Assistant Professor Dr. Patcharaporn Weerachawanasak
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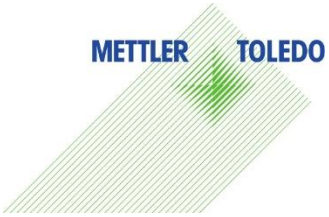

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