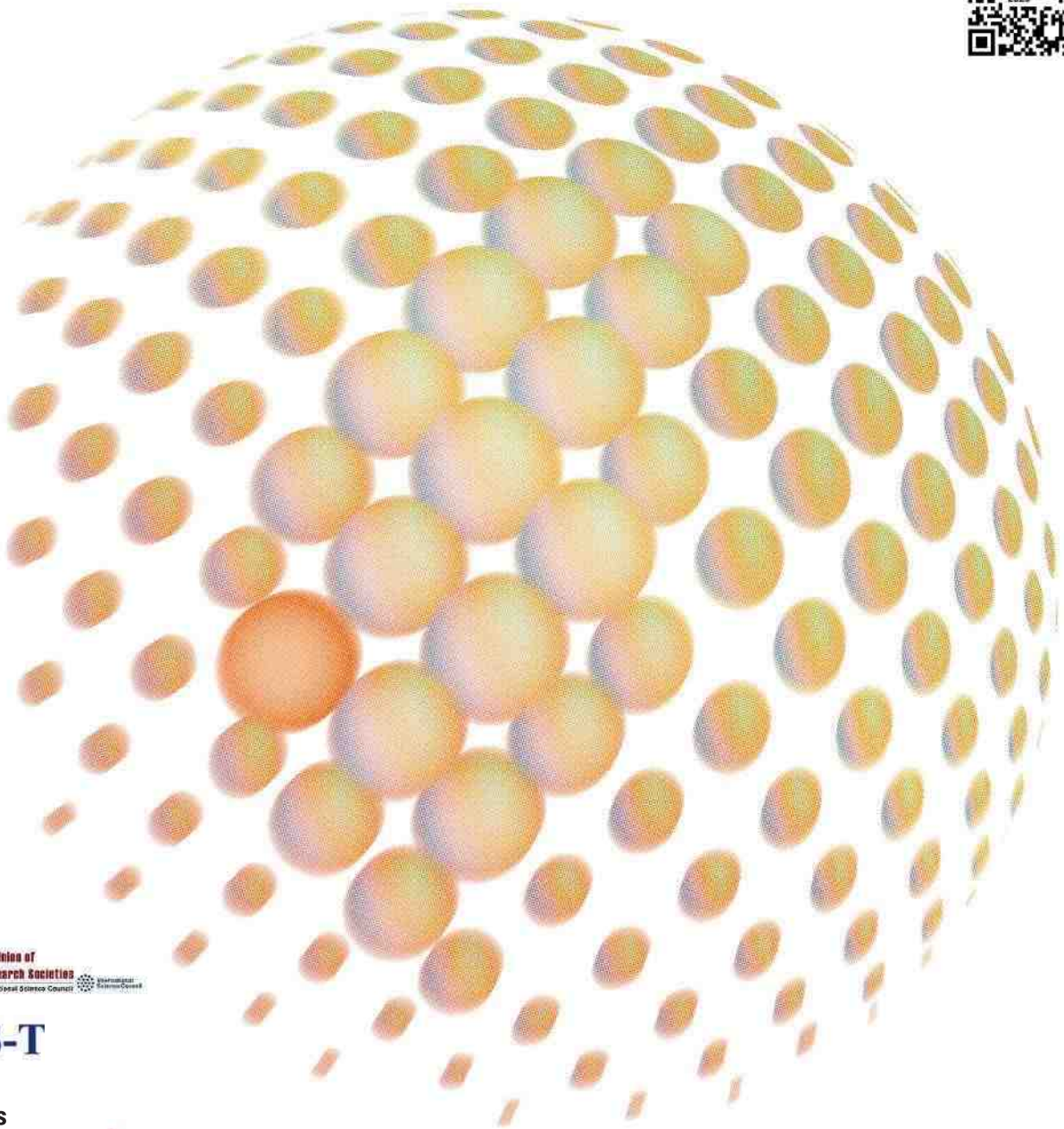
IUMRS-ICA 2026

ICC Tainan, Taiwan

Conference: October 31-November 4, 2026
Excursion: November 5, 2026

- Energy Materials
- Zero Carbon Emission Techniques
- Polymer/Soft Matter and Biomedical Materials
- Composite and Nano Materials and Materials Analysis
- Electronic & Optical Materials
- Ferrous and Non-ferrous Metal Materials
- AI & Theoretical Computation
- Functional Ceramic Materials



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MRS-T

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Material and Chemical Research Laboratories Introduction



ITRI

技術創新主軸

更多材化所的研發成果

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鋰電池/太陽光電回收循環
半導體製程廢氫回收
全循環聚烯/聚酯創新材料
永續水處理材料與系統
生質染料與循環染整製程

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化合物半導體材料
電子/半導體低碳材料與製程
次太赫茲通訊元件與材料
管線智慧監測診斷系統
無光罩面板製程材料
高階CVD SiC鍍膜製程



燃料電池與低成本電解產氫
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氫氣儲存/氫氣運送
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高效率/低能耗合成製程技術
節能永續塗料

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鈦/鎝稀土原料自主
鋼鐵低碳原料/低碳直接還原鐵製程
傳產(造紙/玻璃/水泥)自主材料
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104 職缺列表

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成材系友專區

成材系友會 (全名: 國立成功大學材料科學工程及礦冶同學會)，於 2015 年正式設立為社團法人，並於同年 11 月 7 日舉行第一屆系友大會，揭開組織化新篇章，「One for all, all for one」的精神自此深植每位成材人心中。一路走來，在歷任與現任會長的帶領下薪火相傳：首任會長余定陸學長奠定穩固基石，現任會長楊偉文學長則持續拓展影響力。

成材系友會的核心價值，不僅是聯絡情誼，更在於「創造價值」。在熱心系友的凝聚下，由宋振銘學長率先提出以材料人視角舉辦專屬產業論壇的想法，點燃了眾人熱情，「成材產業論壇」因而誕生。走過十年的蛻變與擴散，成材論壇猶如材料科學中的擴散與相變，其影響力潛移默化地在師生與系友間傳遞，成為促進產官學研成長的能量核心。

成大材料系友會於本次展覽中特別設立專區，由台技工業設備股份有限公司、鈺邦科技股份有限公司、鑽面奈米科技股份有限公司、智勝科技股份有限公司及恒瀛創新股份有限公司聯合展出。參展陣容涵蓋高階設備、被動元件、半導體製程關鍵材料，以及專業投資與管理顧問服務，完整串聯半導體與高科技產業生態系，具體彰顯成大材料系友在產業各領域深耕有成、開枝散葉的豐碩成果。

台技工業設備股份有限公司 TANGTECK EQUIPMENT INC.

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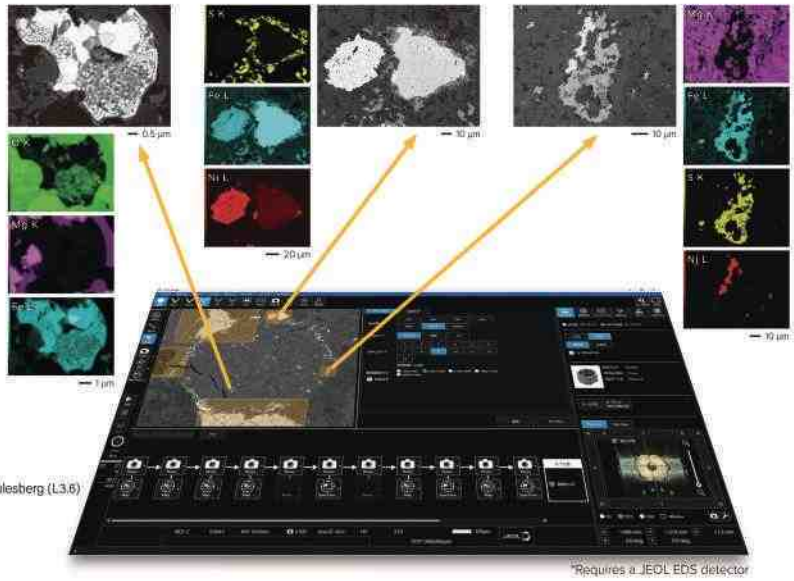
JSM-IT810 <HL> <SHL> <SIL>



JSM-IT810<SHL>

Neo Action A New Era in Automation

Neo action provides no code automation workflows, allowing even a novice user to effortlessly perform SEM observations and EDS analyses.

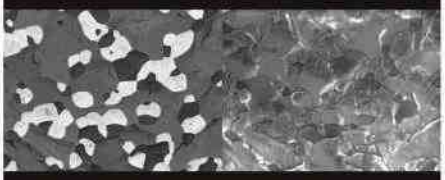


Specimen:
Chondrules in chondrite Julesberg (L3.6)
Landing voltage: 5 kV
Observation mode: STD
Detector: BED

*Requires a JEOL EDS detector

JSM-IT810<HL>

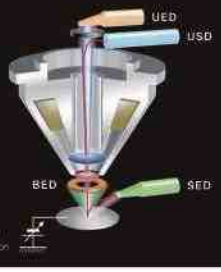
The adoption of a hybrid lens facilitates focusing the electron beam into a narrower probe. Since this lens design has no magnetic flux below the lens, it also permits the observation of ferromagnetic steel and iron samples. Furthermore, by employing a TTL(Through The Lens) detector, efficient electron collection can be realized even at low landing voltages.



Specimen: Metal particles, Landing voltage: 5 kV, Observation mode: HL,
Detector: UED (left image), USD (right image)

The Upper Electron Detector (UED) is capable of selecting and collecting high-angle backscattered electrons, which convey compositional information while minimizing topographic information. Upper Secondary Electron Detector (USD), designed to detect secondary electrons enables observation of surface topography with a reduced illumination effect. Moreover, the JSM-IT810<HL> can utilize multiple detectors simultaneously for observation.

Hybrid Lens



JSM-IT810<SHL>

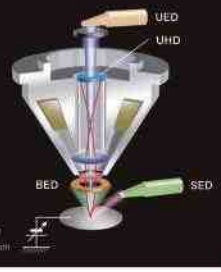
An enhanced hybrid lens design enables an even higher resolution observation and analysis.
Positioning UHD inside the objective lens can improve the collection efficiency mainly of secondary electrons.



Specimen: Cathode sheet of Lithium ion battery, Landing voltage: 0.6 kV, Observation mode: SHL, Detector: UHD

Upper Hybrid Detector(UHD) facilitates efficient secondary electron collection, allowing high-quality, high S/N imaging to be achieved even when using a low landing voltage.

Super Hybrid Lens



JSM-IT810<SIL>

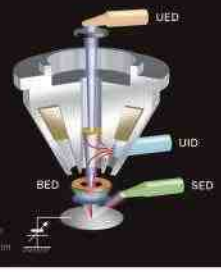
In the semi-in-lens configuration, a strong magnetic field is formed below the objective lens, enhancing both focusing and control of the electron beam.
Electrons emitted from the specimen are efficiently guided by the magnetic field and then detected by a UID within the objective lens.



Specimen: Fracture surface of Tantalum condenser, Landing voltage: 1.0 kV,
Observation mode: SIL, Detector: UID, UID filter mode: SE+BE(left image), BE(right image)

By switching the mode of the UID filter, it is possible to obtain either secondary electron images(surface topography) in SE+BE mode or backscattered electron images(including compositional information + topographic information) in BE mode.

Semi-in-lens



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TSMC is committed to the welfare of customers, suppliers, employees, shareholders, and society. These stakeholders all contribute to TSMC's success, and TSMC is dedicated to serving their best interests. In return, TSMC hopes all these stakeholders will make a mutual commitment to the Company.

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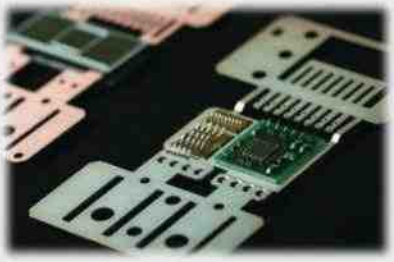
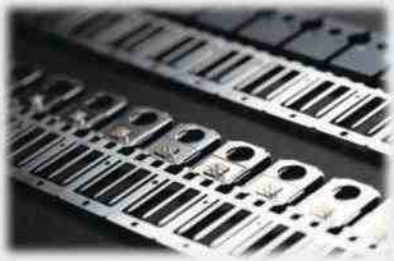
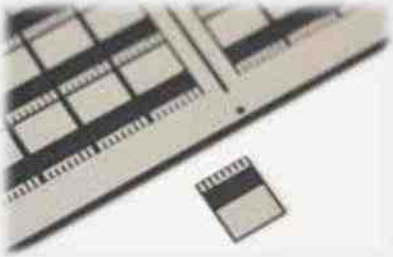
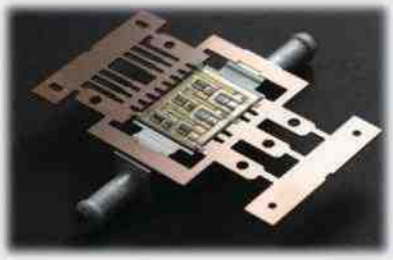
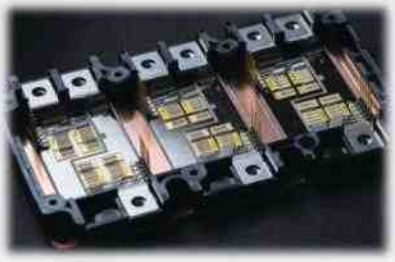
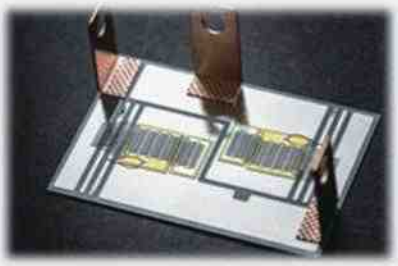
台灣矽馬電子公司簡介

矽馬電子（日本）創立於1983年，初期以販售半導體相關材料以及測試服務為主。近年來，整備了許多設備，提供客戶新產品封裝試做、可靠性測試、故障分析等一條龍的服務。憑藉著客製化、彈性的對應，成為許多知名企業的長期合作夥伴。

台灣矽馬電子成立於2012年，主要業務為軟性銅箔基板、光學薄膜、PI導帶等產品的分條裁切加工。因應電動車產業的快速發展，功率元件需求的增加，於2024年導入功率循環測試（Power Cycling Test）的測試服務，提供客戶IGBT、MOSFET等功率模組的可靠度驗證。

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TO-220 Package、Power Module(Case type、Lead frame type)

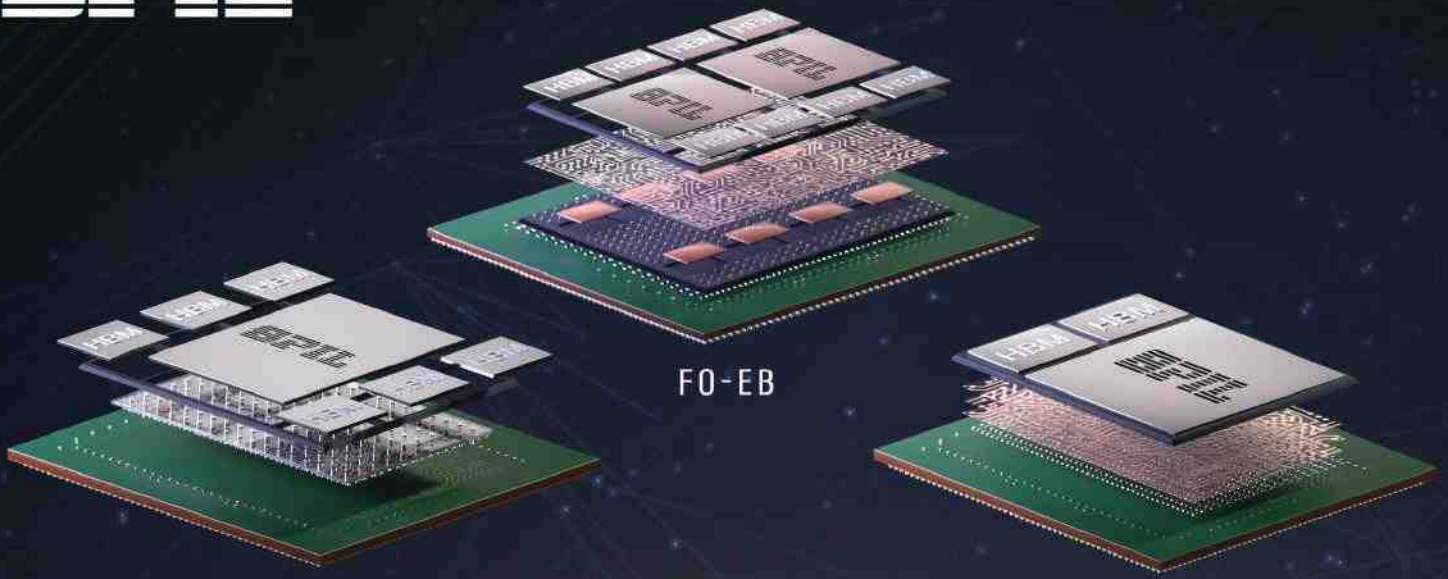







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國家實驗研究院（國研院）是國科會轄下的財團法人，成立的主要目的是配合國科會推動全國科技發展，以「建構研發平台、支援學術研究、推動前瞻科技、培育科技人才」為四大任務，促成科學創新及技術突破。國研院旗下的 8 個研究中心，除建置國內大學難以單獨購置的貴重軟硬體設施外，更搭配各種專業的研發服務平台，積極協助學研界進行尖端科技研發。



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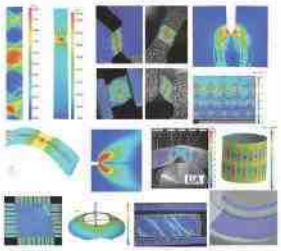
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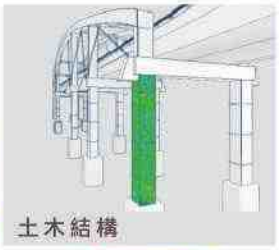


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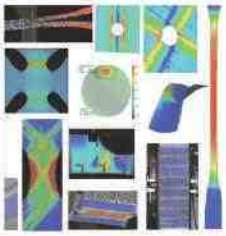


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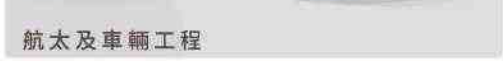


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能準確測定小型試件至大型結構部件參數，僅需一組攝影機就能實現不同目標物的量測任務，校正容易，可滿足更高要求測試應用。



Aramis 1

大專院校入門級3D光學量測方案

模組化設計可調式成像系統，提供精確2D與3D座標，可靈活運用於動靜態試驗中，非常適合從事研究行為。



Intelligent Software

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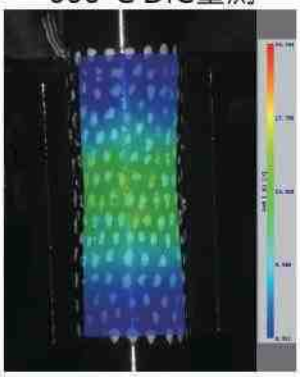
X-SIGHT

非接觸式光學位移、形變與應變量測系統

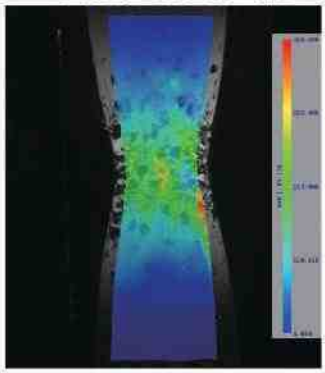
Optical Extensometer and DIC System



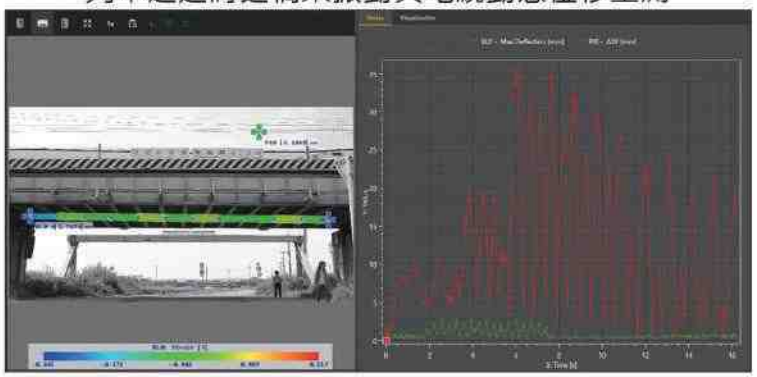
600°C DIC量測



1100°C DIC量測



列車通過時之橋梁振動與電纜動態位移量測



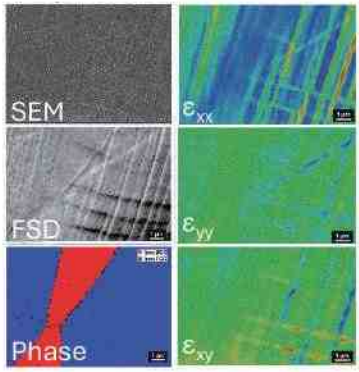


X-Sight HT

X-Sight HT是專為高溫材料測試所設計的專業非接觸式光學延伸計，可應用於常溫至最高 1800°C 的高溫環境，精確量測材料在受熱與受力過程中的位移與應變變化。特別適合搭配高溫爐、材料試驗機（UTM）進行高溫拉伸、壓縮及熱機械測試；同時也適用於需要在小範圍高精度非接觸式位移與應變量測的各類研究與工程應用。

奈米尺度下具雙相（BCC Ferrite, FCC Austenite）的鋼材透過散斑製作技巧可兼顧SEM/EBSD與DIC分析，對多相/晶材料在微結構尺度下進行全域應變量的計算。從結果可明顯觀察到FSD影像呈現之滑移線皆有對應到DIC圖中之高應變累積區，同時從Phase和DIC結果觀察到相界亦為高應變累積區。

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茂凱科技有限公司創立於 1997 年，致力於提供尖端材料的機械性質試驗設備。我們始終秉持「專業、精準、誠信、責任」的核心理念，與客戶及協力廠商攜手深耕。透過高性能的測試系統，我們為客戶在新材料研發與應用上，提供最具關鍵性與公信力的試驗數據。





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IUMRS-ICA 2026

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IUMRS-ICA 2026
Tainan, Taiwan

IUMRS-ICA 2026
WELCOME MESSAGE

Visit our website for more information.

Dear Colleagues and Friends,

On behalf of the Materials Research Society–Taiwan (MRS-Taiwan), I am deeply honored to welcome you to the **2026 IUMRS International Conference in Asia (IUMRS-ICA 2026)**, to be held from **October 31 to November 4, with an excursion on November 5.** Established in **1968**, MRS-Taiwan is one of the world's longest-standing professional societies in materials science, leading the field with a legacy of excellence spanning over half a century. With a powerful network of over **1,800 members** worldwide, our society has built a solid foundation through over five decades of growth, evolving into the most influential and prestigious leader in materials science in the region. Building upon this extensive academic legacy, we are proud to be a key founding member of the International Union of Materials Research Societies (IUMRS). As one of the pioneering materials research societies of IUMRS, we collaborate closely with 14 core Adhering Bodies to drive global innovation. Now in its **27th edition**, this conference has evolved into Asia's premier flagship platform, consistently redefining the frontiers of materials science and dynamically adapting to every next-generation technological shift and industrial breakthrough.

This year's conference showcases the vast diversity of materials science and our commitment to global sustainability. The program features **8 major forums**: Energy Materials, Zero Carbon Emission Techniques, Polymer/Soft Matter and Biomedical Materials, Composite and Nano Materials and Materials Analysis, Electronic and Optical Materials, Ferrous and Non-ferrous Metal Materials, Artificial Intelligence and Theoretical Computation, and Functional Ceramic Materials. These eight forums comprise **54 symposia**. The conference has received over **1,500 abstract submissions** and is expected to bring together approximately **2,000 participants** from academia and industry worldwide. We are privileged to host **10 Plenary Speakers**, more than **75 Keynote Speakers**, and over **340 Invited Speakers**. An exhibition with **60 booths** will connect researchers and industry partners across the global materials supply chain. Beyond technical sessions, the iconic "**Materials Knowledge Contest**" will celebrate its landmark 10th edition, providing a unique platform for young talents to engage with world-class masters. We invite our guests to the **Conference Banquet** on November 3 and a **cultural excursion in Tainan** on November 5 to explore the city's rich history and vibrant heritage.

We are proud to host this gathering at **ICC TAINAN**, with the robust academic support of the **Department of Materials Science and Engineering at National Cheng Kung University (NCKU)**, ensuring a world-class foundation for this event. Tainan itself is a city where ancient whispers of history meet the high-tech pulse of the future. It is here that centuries-old heritage sites stand alongside the world's most advanced semiconductor clusters, creating a unique spark where humanity and technological innovation coexist and flourish. Known as the "**Capital of Gastronomy**" with a pleasant climate, **Tainan** invites you to explore its historic alleys and savor world-renowned local delicacies. We look forward to welcoming you to Tainan as we write the next chapter of materials science together!

IUMRS-ICA Organizing Committee, MRS-Taiwan



Sinn-wen Chen

General Chair of IUMRS-ICA2026
President, Materials Research Society-Taiwan

IUMRS-ICA 2026
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General Chair



Sinn-Wen Chen
President of MRS-T
National Tsing Hua University

Conference Chair



Meng-Ru Shen
National Cheng Kung University

Conference Co-Chair



Wen-Dung Hsu
National Cheng Kung University

Conference Co-Chair



Shih-Kang Lin
National Cheng Kung University

Organizing Committee



Bang-Yu Hsu
National Cheng Kung University



Chun-Yen Liu
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Yu-Ze Chen
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Sheng-Heng Chung
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Pai-Chun Wei
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National Cheng Kung University



Yu-Chen Liu
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Co-Organizers-Energy Materials



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National Taiwan University of Science and Technology



Han-Yi Chen
National Tsing Hua University



Ping-Chun Tsai
National Taiwan University of Science and Technology



Tzu-Ho Wu
National Taiwan University of Science and Technology



Jeng-Kuei Chang
National Yang Ming Chiao Tung University



Yu-Sheng Su
National Yang Ming Chiao Tung University



Chen-Hao Wang
National Taiwan University of Science and Technology



Kuan-Zong Fung
National Cheng Kung University



Chao-Yu Chen
National Cheng Kung University

Co-Organizers-Zero Carbon Emission Techniques



Chung-Jen Tseng
National Central University



Chung-Kuang Yang
National Taipei University of Technology



Yu-Jeng Lin
National Tsing Hua University



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National Cheng Kung University



Yi-Hsuan Lai
National Cheng Kung University



Cheng-Han Lee
National Cheng Kung University



Yan-Gu Lin
National Synchrotron Radiation Research Center

Co-Organizers-Polymer/Soft Matter and Biomedical



Cheng-Liang Liu
National Taiwan University



Shiao-Wei Kuo
National Sun Yat-sen University



Yeo-Wan Chiang
National Sun Yat-sen University



Chang-Shu Kuo
National Cheng Kung University



Jiun-Tai Chen
National Yang Ming Chiao Tung University



Ting-Yuan Tu
National Cheng Kung University



Chen-Sheng Yeh
National Cheng Kung University



Hong-Cheu Lin
National Yang Ming Chiao Tung University

Co-Organizers-Composite and Nano Materials and Materials



Ming-Yen Lu
National Tsing Hua University



Hao-Chih Liu
National Tsing Hua University



Che-Ning Yeh
National Tsing Hua University



Ying-Chih Lai
National Chung Hsing University



Yu-Ching Huang
Ming Chi University of Technology



Ting-Yu Liu
Ming Chi University of Technology



Meng-Fang Lin
Ming Chi University of Technology



Heng-Jui Liu
National Chung Hsing University



Chya-Yan Liaw
National Chung Hsing University



Teng-Hao Chen
National Cheng Kung University



Yu-Ze Chen
National Cheng Kung University



Yu-Lun Chueh
National Tsing Hua University



Chang-Yu Sun
National Cheng Kung University



Yueh-Lien Lee
National Taiwan University



Jyh-Wei Lee
Ming Chi University of Technology



Masato Sone
Institute of Science Tokyo



Chun-Yi Chen
Institute of Science Tokyo



Santi Maensiri
Suranaree University of Technology

Co-Organizers-Electronic (Dielectric, IC, Packaging, Magnetic, Optoelectronic, and Thermoelectric) and Optical Materials



Jen-Sue Chen
National Cheng Kung University



Chu-Chen Chueh
National Taiwan University



Jenn-Ming Song
National Chung Hsing University



Yu-An Shen
Feng Chia University



Chih-Ming Chen
National Chung Hsing University



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Industrial Technology Research Institute



Hsin-Jay Wu
National Taiwan University



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National Cheng Kung University



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Yu-Chuan Lin
National Yang Ming Chiao Tung University



Chih-Huang Lai
National Tsing Hua University



Pai-Chun Wei
National Cheng Kung University



Shih-Kang Lin
National Cheng Kung University

Co-Organizers-Ferrous and Non-ferrous Metal Materials



An-Chou Yeh
National Tsing Hua University



Shih-Kang Lin
National Cheng Kung University



Shan-Wen Du
China Steel Corporation



Chien-Hsiung Tsai
National Pingtung University of Science and Technology



Chi-Ming Lin
National Chung Hsing University



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National Cheng Kung University



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National Sun Yat-sen University



Horng-Yih Liou
China Steel Corporation



Hung-Wei Yen
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Ching-Yuan Huang
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Bo-Shiuan Li
National Sun Yat-sen University

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Chi-Hua Yu
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Chun-Wei Pao
Academia Sinica



Te-Cheng Su
National Taiwan University



Yu-Chieh Lo
National Yang Ming Chiao Tung University

Co-Organizers-Functional Ceramic Materials



Chia-Chen Li
National Tsing Hua University



Ying-Chieh Lee
National Sun Yat-sen University



Hsing-I Hsiang
National Cheng Kung University



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National United University



Jow-Lay Huang
National Cheng Kung University



Sheng-Heng Chung
National Cheng Kung University

Co-Organizers-Early Career Researchers



Hong-Kang Tian
National Cheng Kung University



Shih-Kang Lin
National Cheng Kung University



Wen-Dung Hsu
National Cheng Kung University

2026 Lu Chih-Hung Memorial Award



Jyh-Ming Ting

Chair Professor, Department of Materials Science and Engineering, National Cheng Kung University

I am deeply honored to receive the Lu Chih-Houng Memorial Award. This recognition is not mine alone; it belongs equally to my mentors, colleagues, collaborators, research team, and family, whose trust and support have accompanied me throughout my academic journey. I have always believed that the value of research should not be measured solely by the number of publications. It also lies in advancing knowledge, transforming accumulatedfindings into practical technologies, and using our expertise to fulfill our responsibility to society. From functional thin films and high-entropy materials to hydrogen production and net-zero technologies, I have tried to connect fundamental materials research with real-world needs. I sincerely thank the organizers and Award Committee for this meaningful recognition. I will cherish this honor and continue pursuing research, cultivating future talent, and contributing to materials science and society.

2026 Materials Technology Contribution Award



Zhien-Chi Chen

Chairman & CEO, BenQ Materials Corp

Receiving the Special Contribution Award is a profound honor for me.

Over the past decades, Materials Science has fundamentally transformed the world. I am deeply proud to have been part of this industry during such a dynamic era, contributing across diverse fields including ceramics, polymers, and metals.

To live up to this prestigious recognition and ensure I do not disappoint your trust, I pledge to devote all my efforts to advancing the materials society and industry. Let us continue pushing boundaries together.

2026 Distinguished Service Award



Wen-Wei Wu

Chair Professor, Department of Materials Science and Engineering, National Yang Ming Chiao Tung University

It is my pleasure to receive this honor, which is mainly attributed to organizing 2025 MRS-T annual conference. Firstly, I would like to thank MRST for giving us the opportunity to organize the conference. During the process, we felt a firm sense of mission and pressure; we were very cautious and hard-working, hoping to smoothly finish the duty. Here, I would like to thank all the faculty members, assistants and students in NYCU MSE who were involved in the preparations. Additionally, I want to thank all the session organizers, speakers, paper reviewers and submitting students. The success of the conference is not possible without your participation. We are glad that the well-received conference brings great memories. This honor should belong to all of you. I also wish all the best to this year's IUMRS-ICA. Once again thank you very much.



Jain-Long Horng

Secretary-General, Materials Research Society-Taiwan

I began serving as the MRS-T's secretary-general in 2005 at the invitation of President Liu Jonq-Min. This year, under the planning of President Chen Sinn-Wen, I will step down from this position at the end of this year. Time flies --over 21 years have passed. During this time, I have gone through five Presidents: President Perng Tsong-Pyng, President Chin Chung-Hsun, General Director Su Tsung-Tsan, Executive Vice President Peng Yu-Min, and President Huang Jow-Lay. I am grateful to have learned a lot under the seven Presidents with different leadership styles. I also thank the board members and committee members for their assistance, which ensured smooth execution of the society's affairs. Thanks to the efforts of the university teams hosting the major annual and international conferences, all performed well, and I want to thank them even more. Finally, I want to thank Ms. Chen Ling-Jen, who joined the secretariat with work partner. With her thorough oversight of execution, everything was successfully done.

The 18th Class of MRS-T Fellows



Jyh Ming Wu

Distinguished Professor, Department of Materials Science and Engineering, and Executive Associate Dean, Tsing Hua College

I am deeply honored to be elected as a Fellow. I sincerely thank the senior colleagues and mentors in the materials science community who have guided, encouraged, and supported me throughout my career. I am equally grateful to my students and collaborators for their dedication, and to my family for their unwavering love, understanding, and support.

My research explores how functional materials can convert mechanical energy into useful chemical reactions for clean energy and environmental sustainability. Turning fundamental discoveries into practical solutions continues to inspire my work. Nurturing young researchers is also among my most meaningful responsibilities. This honor encourages me to continue advancing materials research, strengthening interdisciplinary collaboration, and supporting the next generation. I sincerely thank the Society for this recognition and look forward to contributing further to our community, with gratitude to everyone who has been part of this journey.



Dun-Ren Jheng

Chairman, APAQ Technology Co., Ltd.

Hello everyone,

It is a great honor to be recommended and recognized by the 「Materials Science Society of Taiwan (MRS-T)」 with the title of 「Society Fellow」.

This recognition is not only from a personal achievement alone.

First, I extend my gratitude to National Cheng Kung University's Department of Materials Science and Engineering, for providing me with a rigorous foundation in R&D and engineering practice. Special thanks to my mentors and leaders. With yours trust and guidance gave me the vision to keep pushing forward."

Here I also like to express my deepest thanks to my dedicated team at APAQ Technology, keep pursuing the excellence and cutting-edge materials technologies into globally competitive solutions.

Looking ahead, this honor reminds me why I started and where I started. This recognition is not only at this moment; but also a commitment to keep going. I will be continuing applying materials science to this high tech moving forward."

2026 Outstanding Young Scholar Award



Tzu-Ying Lin

Associate Professor, NTHU Materials Science and Engineering

Receiving the Outstanding Young Scholar Award is a deeply meaningful moment for me. More than a recognition of individual achievement, it reminds me that no academic journey is ever walked alone.

I am deeply grateful to the senior faculty in our department who have guided, encouraged, and opened doors for me along the way, and to my colleagues for their generous support and companionship. I am also thankful to my family, whose love and understanding have quietly sustained me through the demanding moments.

Most of all, I am grateful to every student and member who has been part of my laboratory over the years. Your curiosity, persistence, late nights, setbacks, and breakthroughs have shaped not only our research, but also the teacher and researcher I have become. This award carries a little of each of your stories, and for that, I am truly grateful.



Tung-Han Yang

Associate Professor, NTHU Chemical EngineeringAssociate Professor, NTHU Chemical Engineering

It is a great honor to receive this award. I would like to express my sincere gratitude to the selection committee for this recognition and to National Tsing Hua University for its continued support.

My research focuses on the controlled synthesis and atomic-scale engineering of high-entropy alloy nanocrystals, particularly on understanding how composition, crystal structure, surface atomic arrangement, and local active sites influence catalytic reactions. Our recent work has been published in journals including Chemical Reviews, Science Advances, Nature Communications, Journal of the American Chemical Society, and Advanced Materials.

This recognition also belongs to my students, collaborators, mentors, and colleagues. I am especially grateful to all members of my research group for their dedication and creativity. This award is a great encouragement, and I look forward to continuing our research on high-entropy materials for catalytic applications. Thank you very much.



Chao-Yao Yang

Associate Professor, Department of Materials Science and Engineering, National Yang Ming Chiao Tung University

It is really a great honor to receive the MRS-T Young Scholar Award.

First, I would like to sincerely thank the review committee for this recognition and for giving me the opportunity to be recognized by the materials research community in Taiwan. I was trained as a materials scientist, but my research has gradually expanded into quantum physics, device technologies, and emerging applications. I believe this is one of the most exciting aspects of materials science, which connects different disciplines and creates new possibilities. This award encourages me, as well as the younger generation, to think beyond traditional boundaries and explore more interdisciplinary research.

Again, I sincerely thank MRS-T for this recognition. I look forward to contributing more to the materials research community and MRS-T in the future.

2026 Outstanding Young Materials Engineer Award



Ying-Chan Hung

SOLAR Applied Materials Technology Corp

As an engineer working in the field of materials science and engineering, I am deeply honored to have my efforts and achievements recognized by MRS-T.
Materials are the foundation of modern technology. It is both fascinating and rewarding to see that the materials we develop are eventually adopted and used in industry. As technology becomes increasingly complex and sophisticated, we face more and more challenges. At the same time, the importance of materials science and engineering continues to grow.
This recognition is a great encouragement for me and also a reminder of the responsibility we have as materials scientists and engineers. I look forward to continuing to explore new possibilities in materials and to contributing to the development of future technologies.



Yu-Wen Chen

Iron & Steel Research & Development Department, China Steel Corporation

Dr. Chen Yu-Wen has dedicated his work to the research and development of steel materials, contributing to several projects for local infrastructure. His efforts have focused on metallurgical design and process technology for applications such as high-performance bridge steels (including the SBHS400 and SBHS700 series and weathering steel plates), green energy steels (such as high- and low-temperature pressure vessel steels, 9Ni cryogenic steels, and offshore wind power steels), and seismic-resistant structural steels, offering steady support to local industrial development.
Alongside practical applications and patent development, Dr. Chen has also shared his findings through academic publications. He is deeply grateful for the recognition from organizations like the Chinese Institute of Engineers and the Materials Research Society-Taiwan, viewing it as encouragement rather than personal glory. He considers these outcomes to be the result of shared teamwork and guidance from mentors. He hopes to keep learning, work alongside his peers, and continue contributing to the field of materials engineering.



Jiun-You Liou

Material and Chemical Research Laboratories, Industrial Technology Research Institute (ITRI)

It is really a great honor to receive the MRS-T Young Scholar Award.
First, I would like to sincerely thank the review committee for this recognition and for giving me the opportunity to be recognized by the materials research community in Taiwan. I was trained as a materials scientist, but my research has gradually expanded into quantum physics, device technologies, and emerging applications. I believe this is one of the most exciting aspects of materials science, which connects different disciplines and creates new possibilities. This award encourages me, as well as the younger generation, to think beyond traditional boundaries and explore more interdisciplinary research.
Again, I sincerely thank MRS-T for this recognition. I look forward to contributing more to the materials research community and MRS-T in the future.

2026 Outstanding Woman Material Scientists and Engineers Award



Han-Yi Chen

Professor, Department of Materials Science and Engineering, National Tsing Hua University

I am deeply honored to receive the Outstanding Women Materials Scientists and Engineers Award. This recognition is not only a great encouragement to me, but also a tribute to the students, colleagues, collaborators, and mentors who have supported me throughout my academic journey. My research has focused on advanced materials for energy storage and sustainable technologies, with the hope of connecting fundamental materials science with real-world challenges. As a researcher and educator, I believe that scientific achievement is meaningful when it inspires the next generation and contributes to society. I am especially grateful for the opportunity to mentor young scientists and to encourage more women to pursue their passion in science and engineering. I will continue striving for impactful research, meaningful education, and a more sustainable future.

2026 Outstanding Materials Scientists and Engineers Award



Jeng-Kuei Chang

Distinguished Professor, Department of Materials Science and Engineering, National Yang Ming Chiao Tung University

I am deeply honored to receive the Distinguished Materials Scientist and Engineer Award from the Materials Research Society, Taiwan. I sincerely thank the Society for this recognition. Throughout my academic career, I have been fortunate to work with outstanding students and colleagues in advancing materials science, particularly in energy storage and electrochemical technologies. This award represents not only a personal honor, but also recognition of the collective efforts of my research team and collaborators. I am deeply grateful to my students, mentors, colleagues, and to National Central University and National Yang Ming Chiao Tung University for their continuous support. This recognition encourages me to pursue innovative materials research and to translate fundamental scientific understanding into practical technologies that contribute to sustainable energy and a more sustainable society.



Po-Yu Chen

Professor, Department of Materials Science and Engineering
Associate Vice President for Global Affairs, National Tsing Hua University

Dr. Chen Yu-Wen has dedicated his work to the research and development of steel materials, contributing to several projects for local infrastructure. His efforts have focused on metallurgical design and process technology for applications such as high-performance bridge steels (including the SBHS400 and SBHS700 series and weathering steel plates), green energy steels (such as high- and low-temperature pressure vessel steels, 9Ni cryogenic steels, and offshore wind power steels), and seismic-resistant structural steels, offering steady support to local industrial development. Alongside practical applications and patent development, Dr. Chen has also shared his findings through academic publications. He is deeply grateful for the recognition from organizations like the Chinese Institute of Engineers and the Materials Research Society-Taiwan, viewing it as encouragement rather than personal glory. He considers these outcomes to be the result of shared teamwork and guidance from mentors. He hopes to keep learning, work alongside his peers, and continue contributing to the field of materials engineering.

2026 MCP Journal Award for Materials Science Paper



Yu-An Shen

Associate Professor, Department of Materials Science and Engineering, Feng Chia University

Dr. Yu-An Shen is an Associate Professor in the Department of Materials Science and Engineering of Feng Chia University. His research focuses on low-melting alloys, semiconductor packaging, and metallic interfacial reactions, especially the design, mechanical properties, and reliability of low-temperature joining materials for advanced packaging, flexible electronics, and heterogeneous integration packaging.

Prof. Shen has published approximately 60 journal articles, with an H-index of 24, and was listed among the world's top 2% scientists in 2025. His achievements include the Engineering Paper Award from the Chinese Institute of Engineers and the Materials Science Paper Award from the Materials Research Society–Taiwan. In student mentorship, he supervised his undergraduate student who received the 2025 NSTC Undergraduate Research Creativity Award.

He is grateful to the Materials Research Society–Taiwan, his department, Feng Chia University, students, collaborators, and family for their support, and will continue contributing to materials science research and talent cultivation.

Award-Winning Paper:

Effect of indium addition on mechanical, thermal, and soldering properties of eutectic Sn-9Zn alloy

Materials Chemistry and Physics 315 (2024) 128992

Contents lists available at ScienceDirect

Materials Chemistry and Physics

journal homepage: www.elsevier.com/locate/matchemphys

Effect of indium addition on mechanical, thermal, and soldering properties of eutectic Sn–9Zn alloy

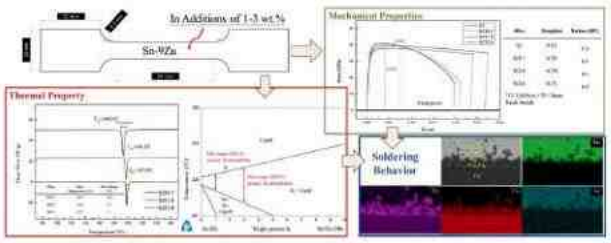
Yu-An Shen *

Department of Materials Science and Engineering, Feng Chia University, Taichung, 407, Taiwan

HIGHLIGHTS

- Improved Elongation in Eutectic Sn–9Zn through In Additions.
- Highest Elongation of Sn–9Zn by Coarsened Spacing of Zn Phase with 3.0 wt% In.
- Reinforcement of Sn–9Zn with Solid Solution of 3.0 wt%.
- Supporting Discussions with Calculations from the Sn–Zn–In Phase Diagram.
- Improved Wetting Behavior and Soldering Temperature of Sn–9Zn with 3.0 wt% In Addition.

GRAPHICAL ABSTRACT



ARTICLE INFO

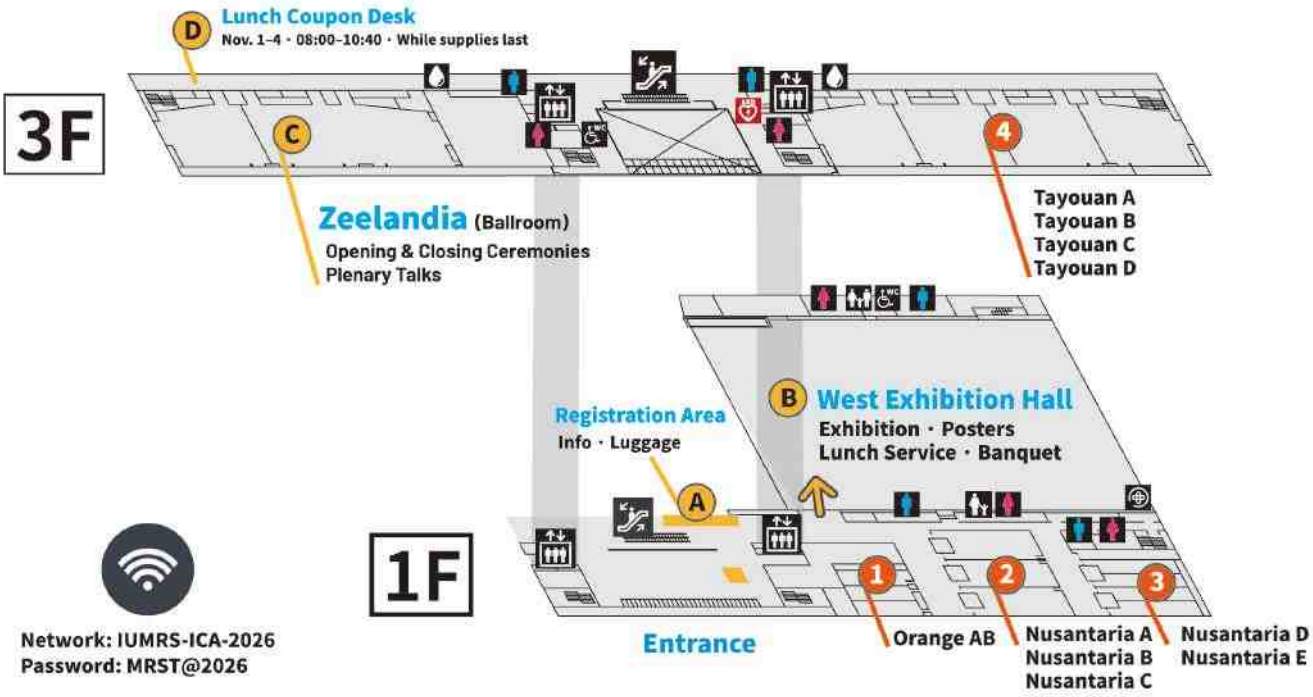
Keywords:
Eutectic Sn–Zn alloy
In addition
Ternary phase diagram
Strengthening mechanism
Soldering

ABSTRACT

This study aims to enhance the properties of eutectic Sn–9Zn (SZ) alloys as a replacement for low-melting Sn–Pb alloys by adding 0.5–3.0 wt% In, forming SZ–In (SZI) alloys (referred to as SZIx, where *x* indicates the In content in wt.%). The elongation of 19.2 % for SZ improved to 27.1 % for the SZI3.0 owing to the addition of soft In and enlarged Zn phase. SZI3.0 exhibited a higher strength (39.2 MPa) than SZI1.0 (35.5 MPa) because of the stronger reinforcement with increasing In content in the solid solutions. Moreover, SZI3.0 had a lower melting temperature (190 °C) compared to SZ (199.5 °C), thereby enhancing its soldering wettability on Cu. A reliable SZI3.0/Cu joint was achieved at a lower reflow temperature of 230 °C without a protected atmosphere. These findings revealed the promising mechanical (strength and ductility), thermal (low melting temperature), and soldering (wettability) performance of SZI3.0.

IUMRS-ICA 2026
Conference Venue & General Information

Visit our website for more information.



3F

- **C Zeelandia (Ballroom)** — Opening & Closing Ceremonies; Plenary Talks
- **D Lunch Coupon Desk** — Nov. 1–4 · 08:00–10:40; While supplies last
- **4 Tayouan ABCD** — Parallel Sessions

1F

- **A Registration Area** — Registration · Info · Luggage
- **B West Exhibition Hall** — Exhibition · Posters; Lunch Service · Banquet
- **1 Orange AB** — Parallel Sessions; Oral Competition (A/B)
- **2 Nusantaria ABC** — Parallel Sessions
- **3 Nusantaria DE** — Parallel Sessions; Oral Competition (D1/D2, E1/E2)

A REGISTRATION AREA — COUNTER GUIDE

· Please prepare your QR code and Registration ID for registration

Registration Area Opening Hours:
· Oct. 31: from 11:45 · Nov. 1–4: from 08:00

Counter	1	2	3	4	5	6	7	8	9	10
Category	Info · Luggage	International Speakers	International Participants		Local Speakers	Local	Local Participants			
Registration ID	On-site	FK-FI	FR	FS	TK-TI	TR	TS 0001-0397	TS 0398-0813	TS 0814-1194	TS 1195+

D B LUNCH INFORMATION

- **Lunch Coupon Desk:** Nov. 1–4 · 08:00–10:40
- **Lunch Service:** 12:00–13:30
  Nov. 1–3: West Exhibition Hall
  Nov. 4: Meal pick-up at the 3F Corridor; Dining in Tayouan A–D

B WEST EXHIBITION HALL PROGRAMS

- **Exhibition**
  Nov. 1, 10:00-17:40
  Nov. 2, 09:00-17:40
  Nov. 3, 09:00-15:00
- **Poster Judging**
  Nov. 1-3, 12:30-13:30
- **IUMRS-ICA Banquet**
  Nov. 3, 17:40-20:00
- **Company Presentation & Industry Exchange**
  Nov. 2, 12:30–13:30
  Taiwan Semiconductor Manufacturing Company Limited
  Nov. 3, 12:30–13:30
  Applied Materials Taiwan

MAP SYMBOLS

Elevator · Escalator · Women's Restroom · Men's Restroom · Family Restroom · Accessible Restroom · Water Dispenser · Medical Room · AED

EMERGENCY & MEDICAL
Fire / Ambulance 119
Police 110

AVAILABLE SERVICES

For assistance with the following services, please visit the Registration & Information Desk.

Breastfeeding Room · Lockers · Payphone · Power Bank Rental · Women's Prayer Room · Men's Prayer Room

IUMRS-ICA 2026
Tainan, Taiwan

IUMRS-ICA 2026
PROGRAM AT A GLANCE

Visit our website for more information.

October 31 - November 4, 2026

Location: International Convention & Exhibition Centre (ICC Tainan), Tainan City, Taiwan

Time	Sat. Oct. 31	Sun. Nov. 1	Mon. Nov. 2	Tue. Nov. 3	Wed. Nov. 4
Morning	Materials Knowledge Contest Oral Presentation Competition	Plenary Talk 3 Plenary Talk 4 Coffee Break Session 1	Plenary Talk 5 Plenary Talk 6 Coffee Break Session 4	Plenary Talk 7 Plenary Talk 8 Coffee Break Session 7	Plenary Talk 9 Plenary Talk 10 Coffee Break Session 10
	Materials Program Briefing Wah Lee Award Showcase	Lunch & Poster 1	Lunch & Poster 2	Lunch & Poster 3	Lunch
Afternoon	Opening Ceremony Plenary Talk 1 Coffee Break Plenary Talk 2	Session 2 Coffee Break	Session 5 Coffee Break	Session 8 Coffee Break	Session 11 Coffee Break
	Opening Ceremony (Cont.) Welcome Reception	Session 3	Session 6	Session 9	Closing Ceremony
Evening				IUMRS-ICA Banquet	

Exhibition (Sun. Nov. 1 – Mon. Nov. 2)

Exhibition (Mon. Nov. 2 – Tue. Nov. 3)

Exhibition (Tue. Nov. 3)

PROGRAM OVERVIEW

Event	Date & Time	Venue
Materials Knowledge Contest	Oct. 31, 09:00-12:00	Nusantaria A
Oral Presentation Competition	Oct. 31, 09:00-12:00	Orange A, B / Nusantaria D1, D2, E1, E2
Materials Program Briefing	Oct. 31, 12:30-13:00	Zeelandia
Wah Lee Materials Innovation Award Showcase	Oct. 31, 12:30-17:00	3rd Floor Corridor
Opening Ceremony / Welcome Reception	Oct. 31, 13:10-17:40	Zeelandia / 3rd Floor Corridor
Plenary Talks	Oct. 31, 14:25-15:55 Nov. 1-4, 09:00-10:20	Zeelandia
Lunch	Lunch Coupon Desk: Nov. 1-4, 08:00-10:40	3rd Floor Corridor
	Lunch Service: Nov. 1-4, 12:00-13:30	Nov. 1-3, West Exhibition Hall Nov. 4, Tayouan A, B, C, D
Exhibition	Nov. 1, 10:00-17:40 Nov. 2, 09:00-17:40 Nov. 3, 09:00-15:00	West Exhibition Hall
Poster Presentation Judging	Nov. 1-3, 12:30-13:30	West Exhibition Hall
Technical Sessions 1-11	Nov. 1-4	Orange AB / Nusantaria A, B, C, D, E / Tayouan A, B, C, D
Company Presentation & Industry Exchange	Nov. 2-3, 12:30-13:30	West Exhibition Hall
Early Career Researchers Session	Nov. 3, 15:50-17:40	Orange AB
IUMRS-ICA Banquet (Paid Event)	Nov. 3, 17:40-20:00	West Exhibition Hall
Closing Ceremony	Nov. 4, 15:50-17:40	Zeelandia
Tainan Cultural Excursion (Paid Event)	Nov. 5, 08:30-18:00	Tainan City

October 31 (Sat), 2026



14:25–15:05

Prof. Hsing-Wen Sung

National Tsing Hua University, Taiwan

Room: Zeelandia

Topic: Noninvasive Gut-to-Brain Oral Delivery Systems

Abstract

During my childhood, I often heard the belief that consuming pig brains could enhance intelligence—a notion I later realized is largely a myth. In reality, most orally administered therapeutics fail to reach diseased brain regions because they must overcome two major biological barriers along the gut–brain axis: the intestinal epithelial barrier and the blood–brain barrier.

Despite these challenges, the gut and brain are closely connected through bidirectional communication mediated by the immune system, nervous system, and microbial metabolites. This gut–brain crosstalk plays a central role in regulating neurological, metabolic, and immunological functions, positioning the gut as an attractive target for noninvasive therapy.

In this work, we develop two gut-to-brain oral drug delivery strategies: one that exploits the mucosal immune system to guide therapeutics across biological barriers, and another that leverages neural signaling to noninvasively modulate brain function. We demonstrate their applicability in treating gliomas, obesity, and obesity-associated metabolic disorders. We further examine gut microbiota–derived short-chain fatty acids (SCFAs) generated from orally administered polysaccharides such as β-glucans, which act as prebiotics to suppress neuroinflammation and improve therapeutic outcomes. Together, immune, neural, and microbial pathways form an integrated gut–brain network that can be harnessed through oral, noninvasive strategies to address diseases with limited treatment options, including cancer, sepsis, Parkinson's disease, and atrial fibrillation.

October 31 (Sat), 2026



15:15–15:55

Prof. Young-Chang Joo

Seoul National University, Korea

Room: Zeelandia

Topic: Reliable interconnects: From Chip to Advanced Packaging

Abstract

The rapid growth of artificial intelligence (AI) has accelerated the demand for advanced packaging technologies that provide higher bandwidth, greater integration density, and reduced signal delay. Beyond chip-level scaling, recent advances in 2.5D/3D integration, chiplet architectures, heterogeneous stacking, and emerging substrate materials such as glass have become essential for next-generation AI semiconductor systems. Historically, back-end-of-line (BEOL) interconnect technologies have evolved to reduce RC delay through material and structural innovations, while continuously addressing key reliability issues such as electromigration, stress-induced failure, and dielectric degradation.

Advanced packaging can be viewed as an extension of these interconnect technologies into complex package-level geometries. As interconnect pitches continue to shrink toward the sub-micron scale and package integration becomes more heterogeneous, reliability assessment must go beyond conventional electrical testing. Thermomechanical stress, interfacial delamination, warpage-related degradation, oxidation, and moisture absorption are becoming increasingly important reliability factors in advanced packaging architectures.

This talk presents reliability challenges in advanced BEOL and packaging. Ensuring the reliability of chips and advanced packages requires a comprehensive evaluation framework that integrates electrical, environmental, and mechanical reliability perspectives, together with a fundamental understanding of materials properties. Such an approach is essential for predicting potential risks as advanced packaging technologies move toward smaller pitch, higher integration density, and more complex geometries. Reliability concerns and design–process–materials co-optimization strategies for advanced integration schemes such as 2.5D/3D stacking, chiplet architectures, and hybrid bonding will be discussed. By linking failure physics, modeling, and experimental data, this talk provides a basis for identifying reliability challenges and guiding future research directions for robust advanced packaging technologies in AI-era semiconductor systems.

November 1 (Sun), 2026



09:00–09:40

Dr. Chia-Hong Jan

Intel (retired), USA

Room: Zeelandia

Topic: In Materials We Trust – 60 years of Material Engineering Innovations Behind Moore's Law and AI Technology

Abstract

IIn the last 60 years of Moore's Law Scaling, the digital IT industry has pushed from micron (μm), nano (nm), Angstrom (Å), and to now AI era. The influence of Moore's Law has expanded from advanced logic products (CPU/GPU) to other digital products like DRAM, Flash, CIS (CMOS Image sensors), Flat Panel Displays and Hard Disk Drives (HDD). The economic scale of the semiconductor products has grown 30 folds to close to 1 trillion USD in from 40 years ago. Moore's Law is not a law of Physics. It resulted from the integration of numerous engineering innovations.

Material innovation has been one of the most important pillar to enable continuous Moore's Law scaling. The number of material species involved in semiconductor manufacturing has grown from a dozen to more than 80% of the periodic table. The material complexity has increased from single element, binary, ternary to multi-component compounds. The geometry of the materials to support modern semiconductor process has transformed from 3-D, 2-D, 1-D to volume-less. Without these innovations, Moore's Law could have been terminated some time ago.

In this talk, we will reflect the influences and contributions of the key material innovations that enable the engineers and scientists to resolve the critical technical challenges in the scaling of Moore's Law and AI .

Long Live the Material Innovations!

November 1 (Sun), 2026



09:40–10:20

Prof. Harry A. Atwater

California Institute of Technology, USA

Room: Zeelandia

Topic: Three Grand Challenges for Photonics and Energy

Abstract

Photonics and energy sciences are yielding advances that can open paths for conceptually new energy conversion technologies. I will discuss three such "grand challenge" pathways. A first is challenging conventional wisdom and laws about the properties of the apparently incoherent emission of thermal radiation. A second challenge is that of generating chemical fuels from sunlight, suitable for aviation and heavy transport use, from advances in photoelectrochemical water splitting and carbon dioxide reduction. This requires new approaches to solar fuels systems design with unprecedented efficiency, durability, and chemical selectivity. The third challenge is space solar power innovation, powered by ultralight, inexpensive photovoltaics, flexible structures, and phased arrays. Space solar power technology can potentially enable generation of dispatchable, baseload solar electricity that doesn't exhibit the intermittency of conventional solar photovoltaic systems, representing an approach to baseload solar power generation anywhere on earth.

November 2 (Mon), 2026



09:00–09:40

Prof. R. Stanley Williams

Texas A&M University, USA

Room: Zeelandia

Topic: Entropy Production Minimization and Edge of Chaos as Keys to Neuromorphic Computing

Abstract

A prevailing hypothesis suggests that the exceptional computational efficiency of brains arises because neurons operate in the 'edge of chaos' (EOC), a critical regime between order and disorder where systems achieve maximal computational capability and adaptability. This concept has been given a concrete mathematical description in a proof by Leon Chua within the discipline of nonlinear dynamics. Parallel research by Brian Ridley focused on nonequilibrium thermodynamics of systems with negative differential resistance (NDR) and revealed that entropy production minimization (EPM) could drive them to a state of optimum thermodynamic efficiency. These two lines of research are now converging to reveal that the same aspect within nonlinear dynamics, a local non-monotonic relationship between current and voltage, optimizes both the ability to perform computation and the power efficiency of the computation. This has important implications for understanding how brains compute so efficiently and for the design of future neuromorphic systems for AI.

November 2 (Mon), 2026



09:40–10:20

Prof. Eduard Arzt

Technical University of Leoben, Austria

Room: Zeelandia

Topic: Grippers, Suckers, Stingers – Bioinspiration for Sustainable Solutions in Robotics, Medicine, and Space

Abstract

Over millions of years, natural selection has produced surface architectures that achieve remarkable functionality using minimal material. This talk follows how such examples translate into practical technologies. First, I discuss our extensive work on gecko-inspired adhesive surfaces. Geckos adhere to walls primarily through van der Waals forces, enabled by dense arrays of microscopic, hair-like fibrils. Designing synthetic analogues requires careful optimization of geometry, stiffness, and surface energy – guided by theory and simulation as much as experiment. After more than a decade of development, these bioinspired adhesives are now used in robotic pick-and-place systems, particularly for handling challenging components such as micro-LEDs and thin battery foils. We have also developed controlled release mechanisms for ultra-light micro-objects, integrated optical monitoring for process reliability, and implemented machine-learning approaches to accelerate industrial adoption. More recently, we adapted these structures for adhesion to human skin, resulting in a clinically validated prototype for ear surgery.

Second, we turn to biological suction systems found in aquatic animals. Despite their widespread occurrence, their governing failure mechanisms are not fully understood. Using elastomeric micro–suction cups equipped with pressure sensing and simultaneous optical imaging, we identified the instability mechanisms that ultimately limit attachment strength. This provides a quantitative framework for designing more reliable suction-based gripping systems.

Third, we examine sharp natural penetrators, such as stingers and spines. Across length scales—from micrometers to millimeters—these structures resolve the mechanical conflict between penetration and buckling. They do so by adopting a near-parabolic geometry with an exponent close to 2, a shape that appears to be universal. This geometry minimizes insertion force while maintaining structural stability.

Together, these examples demonstrate a central message: Nature offers highly optimized, resource-efficient design strategies. By understanding the underlying mechanics rather than merely copying form, we can translate biological principles into robust and sustainable engineering technologies.

November 3 (Tue), 2026



09:00–09:40

Prof. Jien-Wei Yeh

National Tsing Hua University, Taiwan

Room: Zeelandia

Topic: Great compositional discovery in materials history

Abstract

The new composition concept "Multi-principal-element compositions" was a breakthrough of alloy compositions. Professor Cantor and I independently explored this alloy field near the end of 20th century and published related papers in the beginning of this century. In order to emphasize the most importance of high mixing entropy in enhancing the formation of solid solution phases, high-entropy alloys are defined as those having at least five principal elements, medium-entropy alloys having 3 or 4 principal elements and low-entropy alloys having 1 or 2 elements. In addition to the high-entropy effect, three other core effects: lattice distortion, sluggish diffusion and cocktail, are proposed to help the understanding of high-entropy alloys. The concept of high entropy was extended from alloys to ceramics, polymers and composite materials, and thus constructed the world of low-entropy, medium-entropy and high-entropy materials, which almost covers all possible compositions from the periodic table. In addition to the academic research, many new materials have been presented for overcoming the bottlenecks of traditional alloys in applications and even creating new applications. The high-entropy-related papers display an exponential growth in yearly numbers since 2004, which shows a broad and far-reaching influence. In recent years, I have led a team to industrialize high-entropy material technology in order to upgrade important emerging industries.

November 3 (Tue), 2026



09:40–10:20

Prof. Masao Kimura

High Energy Accelerator Research Organization (KEK), Japan

Room: Zeelandia

Topic: Temporal and spatial observation of various reactions using synchrotron radiation and their topological data analysis

Abstract

Synchrotron radiation (SR) has been widely applied in various fields of materials science. Especially, the temporal and spatial observation of various reactions is the biggest advantage of using SR. In the presentation, in situ observations with various ranges of time and space are presented:
(a) Temporal: iron-ore sintering (~min.), Fe-C phase transition (~msec.), and metal fracture (~nano sec);
(b) Spatial: iron-ore sintering (~μm) and iron-oxide reduction (~nm).
Time-resolved XRD and XAFS successfully revealed the reaction schemes of iron ore sintering, resulting in a new concept: a CCT diagram for sintering to optimize the sintering process. The combination of XRD and DXAFS (dispersive X-ray Absorption Fine Structures) allowed us to observe changes in short- and long-range order simultaneously during reactions such as phase transition and fracture at a timescale of nano sec~msec. The metastable states with middle-range order appear during the reactions, which is crucial information for understanding and controlling the reactions.
X-ray micro-spectroscopy, which involves X-CT measurements at different energies, can visualize 3D distributions of chemical states as well as microstructures. This technique provides us with information about the heterogeneity of reactions, which is essential for controlling reactions in real materials.
Temporal and spatial observation of reactions produces multi-dimensional big data. Therefore, it is rather difficult to "see" the data and find the location and timing of the formation of "trigger sites" which initiate and control reactions. We performed topological data analysis (TDA) to find "trigger sites" automatically, which can break the limitation of the empirical approach based on previous experience and knowledge. Cracks are formed within the sinter during the reduction of iron ore sinter, which is of great interest for industrial applications. We could non-empirically identify "trigger sites" of cracking from X-ray micro-spectroscopy data using persistent homology, a TDA approach widely applied to various systems.
Finally, I would like to discuss future directions in temporal and spatial observation of various reactions using synchrotron radiation, and the application of mathematics and/or informatics to analyze multidimensional big data.

November 4 (Wed), 2026



09:00–09:40

Prof. Christopher Schuh

Northwestern University, USA

Room: Zeelandia

Topic: The Coming Age of Computationally Designed Grain Boundary Chemistry

Abstract

We have known for many decades that grain boundaries (GBs) not only affect, but often dominate, the properties of polycrystals. And yet, our understanding of structure-chemistry-property connections for GBs has largely focused on individual cases, specific alloys, and certain high-symmetry boundaries. Through that focused effort, GB science has come a long way in its ability to explain specific observations. The premise of this talk, however, is that we are now entering the age of GB design, in which the tools of computation and data science allow us, for the first time, to rigorously address the "inverse problem": designing polycrystalline materials from a blank slate to achieve GB networks with desired structures and properties.
The key to this paradigm shift is the ability to treat all the diverse atomic environments in the GB network as a quantifiable spectrum, producing a so-called "spectral model" connecting GB structure, chemistry, and properties. This talk will review what is now a complete first draft of the GB spectral model for GB chemistry in metal alloys, including all the thermodynamic elements needed to make predictions of GB configuration and energetics across the full span of an alloy phase diagram. Applications to experiments, materials design, and the commercialization of new alloys will also be discussed.

November 3 (Tue), 2026



09:40–10:20

Prof. Tetsuya Osaka

Waseda University, Japan

Room: Zeelandia

Topic: From Basic Material Resarch to Introduction of Industrialization of Electrochemical Nanotechnology ～Development of Battery and its System～

Abstract

From the perspective of battery energy research, selecting appropriate materials and arranging them effectively are essential for developing high-performance batteries. In this talk, we introduce our research on battery materials and the process of manufacturing lithium-ion batteries. We then present a battery system designed to evaluate degradation states, which is crucial for determining the end of a battery's lifespan.
In particular, we explore the application of electrochemical impedance spectroscopy as a technique for assessing degradation in energy storage systems. Finally, we introduce our Smart Energy System Innovation Center and its role in advancing these technologies.

IUMRS-ICA 2026
SYMPOSIA & FORUMS

October 31–November 4, 2026

Location: International Convention & Exhibition Centre (ICC Tainan), Tainan City, Taiwan

Code	Title	Session
A. Energy Materials		
A1	Lithium-Ion Batteries	9, 10, 11
A2	Beyond Lithium-Ion Batteries	2, 3
A3	Solid-State Batteries	10, 11
A4	Aqueous Batteries	10
A5	High-Power/Fast-Charging Devices	9, 10, 11
A6	Flow Batteries	7
A7	Fuel Cells	10,11
A8	Solar Cells	2, 3
B. Zero Carbon Emission Techniques		
B1	Green Hydrogen Production from Sea Water	7
B2	Green Hydrogen Logistics by Ammonia as Hydrogen Carrier	8
B3	Green Hydrogen Usage for the De-Carbonization and De-Fossilization of Industrial Key Sectors	1
B4	Catalysis (Photocatalysis, Electrocatalysis, Photoelectrocatalysis, Thermocatalysis)	1, 2, 3, 4
B5	Circular Economy, Resource Circulation, and Carbon Reduciton	2, 3
B6	Applications of Synchrotron Radiation in Catalysis	10, 11
C. Polymer/Soft Matter and Biomedical Materials		
C1	Polymer Chemistry: Hybrid Materials and Applications	4, 5, 6
C2	Polymer Physics and Optoelectronic Applications	7,8
C3	Emerging Functional Polymers	4, 5, 6
C4	Green and Sustainable Polymer Materials	4, 5, 6
C5	Biomechanical Materials	10, 11
C6	Biomedical Materials and Precision Medicine	4, 5, 6
C7	Functional Polymer Colloids and Thin Films	4, 5, 6
D. Composite and Nano Materials and Materials Analysis		
D1	Advanced Analytical Technology	2, 3
D2	Nano Carbon Materials	8, 9
D3	Functional Composite Materials	8, 9
D4	Metal–Organic Framework	7, 8
D5	2D Materials	1, 2, 3
D6	Biomimetic Nanomaterials	1
D7	Surface Modification and Anti-Corrosion	1, 2, 3
D8	Japan-Taiwan Joint-Session on Materials and Structures	8, 9, 10, 11
D9	Thailand-Taiwan Joint-Session on Advanced Materials	9

Code	Title	Session
E. Electronic (Dielectric, IC, Packaging, Magnetic, Optoelectronic, and Thermoelectric) and Optical Materials		
E1	Materials and Devices for Neuromorphic Computing and Technologies	4, 5, 6
E2	Advanced Packaging	2, 3, 4, 5
E3	Lead-Free Soldering and Interconnect	2, 3
E4	Taiwan–Japan Workshop on Electronic Interconnection V	5, 6
E5	International Symposium on Electronic Packaging Technology	1
E6	High-Power Electronics	1
E7	Thermoelectric Materials	7
E8	Optical Materials	9, 10, 11
E9	Magnetic, Dielectric, And Ferroelectric Materials	1, 2
E10	Crystal Growth and Neutron Scattering of Functional Materials	1
F. Ferrous and Non-ferrous Metal Materials		
F1	High-Entropy Materials	5, 6, 7, 8
F2	Low-Carbon Technology in Metallurgy	8, 9
F3	High-entropy thin films and novel applications	6
F4	Powder Metallurgy And Additive Manufacturing	4
F5	Ferrous Materials	7
F6	Non-Ferrous Materials	3, 4, 5, 6
F7	Solid Mechanics of Metals and Alloys	11
G. Artificial Intelligence and Theoretical Computation		
G1	Generative AI Applications	9
G2	AI Application In Material Structure And Process Development	10, 11
G3	Multiscale Simulation on Functional Materials and Their Applications	7, 8
H. Functional Ceramic Materials		
H1	Functional Ceramics	7, 8
H2	Optical Ceramics	7
H3	Structural Ceramics	1
X. Early Career Researchers Session		
X	Early Career Researchers Session	9

Poster Presentation Schedule

Poster Mounting: from 09:00 on the assigned presentation date

Date	Judging Time	Symposium / Topic Codes																							
Nov.1	12:30~13:30	A2	A8	B3	B4	B5	D1	D5	D6	D7	E2	E3	E5	E6	E9	E10	H3								
Nov.2	12:30~13:30	C1	C3	C4	C6	C7	E1	E4	F1	F3	F4	F6													
Nov.3	12:30~13:30	A1	A3	A4	A5	A6	A7	B1	B2	C2	C5	D2	D3	D4	D8	E7	E8	F2	F5	F7	G1	G2	G3	H1	H2

IUMRS-ICA 2026
TECHNICAL PROGRAMS

Session 1 November 1, 2026 10:40 ~ 12:30

H3 - Structural Ceramics **Chair: Jow-lay Huang** **Venue: Orange AB**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Functional Materials: Definition, Origin and Improvement of Functionality of Materials	Masahiro Yoshimura	Masahiro Yoshimura
11:10 ~ 11:40	Keynote	Use of zirconia as medical devices	Wei-Hsing Tuan	Wei-Hsing Tuan
11:40 ~ 11:55	O000119	Structural and thermal property changes of yttria-stabilized zirconia under high-temperature hydrogen atmospheric conditions	Tae Min Ko	Tae Min Ko, Ho Hyun Won, Gye Seok An
11:55 ~ 12:10	O000272	Self-healing Alumina-based Ceramics Dispersed Nickel Particles	Makoto Nanko	Makoto Nanko, Yen-Ling Kuo

E10 - Crystal Growth and Neutron Scattering of Functional Materials **Chair: Pai-chun Wei** **Venue: Nusantaria A**

Time	No./Type	Presentation Title	Presenter	Authors
10:45 ~ 11:15	Keynote	Chiral Magnons and Switchable Altermagnetic Order in MnTe: Neutron Scattering Insights into Nonrelativistic Spin Splitting	Takatsugu Masuda	Takatsugu Masuda
11:15 ~ 11:35	Invited	Giant Shear-Selective Piezomagnetism in the Altermagnet $Ni_{0.5}Co_{0.5}Te_2O_5$	Heng-Cheng Wu	Heng-Cheng Wu
11:35 ~ 11:55	Invited	Coexisting Phonon and Diffuson Transport Channels in Halide Perovskites	Pai-Chun Wei	Pai-Chun Wei
11:55 ~ 12:10	O000135	Beyond Trial-and-Error: Kinetics-Driven Dimensionality Engineering of $CsPbBr_3$ Perovskite Nanocrystals via Coordination Antisolvent Effects	Duc-Binh Nguyen	Duc-Binh Nguyen, Fu-Cai Zheng, Yi-Hsin Chien
12:10 ~ 12:25	O000221	Thickness-dependent symmetry breaking in 2D organic-inorganic hybrid perovskites $(BA)_2(MA)_{n-1}Pb_nI_{3n+1}$ (n =1-6)	Cheng-Chieh Wu	Cheng-Chieh Wu, Chi-Hung Lee, Pai-Chun Wei

E6 - High-Power Electronics **Chair: Tao-Chih Chang** **Venue: Nusantaria B**

Time	No./Type	Presentation Title	Presenter	Authors
10:50 ~ 11:05	P000229	Effects of high electric field stress and temperature on the I-V characteristics of AlGaN/GaN HEMTs	H.Hideki	H.Hideki, Y. Hayakawa, H. Taguchi
11:05 ~ 11:35	Keynote	Powering the AI Era: Challenges and Opportunities of Wide-Bandgap Semiconductors in Next-Generation AI Servers	Ke-Horng Chen	Ke-Horng Chen
11:35 ~ 11:55	Invited	Correlation of wide bandgap semiconductor material quality and high power device performance	Kung-Yen Lee	Kung-Yen Lee
11:55 ~ 12:15	Invited	Next-Generation Power Architecture for AI Data Centers -- From Grid to Chip	Huang-Jen Chiu	Huang-Jen Chiu
12:15 ~ 12:30	O000339	Electroplating-Enabled β-Ga_2O_3/Cu Heterogeneous Integration for Thermal Management	Ping-Hsien Wu	Ping-Hsien Wu, Tzu-Ming Chan, Ying-Hao Chu

E5 - International Symposium on Electronic Packaging Technology **Chair: Jun Mizuno** **Venue: Nusantaria C**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 10:45	Keynote	5 renowned Japanese company to give a speech.	Jun Mizuno	Jun Mizuno
10:45 ~ 11:05	Invited	Advanced polyimide materials for next-generation semiconductor packaging	Hiroyuki Niwa	Hiroyuki Niwa
11:05 ~ 11:25	Invited	From Materials to Solutions, Powering AI Chips	Yoshiki Takahashi	Yoshiki Takahashi
11:25 ~ 11:45	Invited	A Novel Process and Material for Hybrid Bonding of Thinner and Larger Chips Using Direct Transfer Bonding and Its Carrier Tape	Takyu Shinya	Takyu Shinya
11:45 ~ 12:05	Invited	Enhancing Quality Assurance in Electronic Packaging through Industrial X-ray CT and Inspection Data Analytics	Tsuchihashi Yuki	Tsuchihashi Yuki
12:05 ~ 12:25	Invited	Canon Lithography Technologies for Advanced Packaging Applications	Naoki Funabashi	Naoki Funabashi

D7 - Surface Modification and Anti-Corrosion **Chair: Yueh-Lien Lee** **Venue: Nusantaria D**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Chloride-induced Sress Corrosion Cracking of Stainless Steels in Dry Storage Canisters at Nuclear Power Plants	Tsung-Kuang Yeh	Tsung-Kuang Yeh
11:10 ~ 11:30	Invited	Surface Engineering of Light Metals for Enhanced Tribological and Corrosion Performance	Abdelrahman Zkria Ahmed	Abdelrahman Zkria Ahmed
11:30 ~ 11:50	Invited	Corrosion behavior and conversion coating treatment of WE43-T5 rare-earth Mg alloy	Chao-Sung Lin	Chao-Sung Lin
11:50 ~ 12:10	Invited	Electrodeposited Zn-Al Layered Double Hydroxide (LDH)-Based Composite Coatings to Improve the Corrosion Resistance of Mg Alloys	Peng-Wei Chu	Peng-Wei Chu
12:10 ~ 12:30	Invited	HEA Surface Modification for Corrosion Resistant Electrocatalysis and Biomedical Applications	Bih-Show Lou	Bih-Show Lou

B3 - Green Hydrogen Usage for the De-Carbonization and De-Fossilization of Industrial Key Sectors | **Chair: Shih-kang Lin** | **Venue: Nusantaria E**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Hydrogen Application in Carbon Management - From Vision to Industrial Application in the Projects Carbon2Chem and MacGyver	Görge Deerberg	Görge Deerberg
11:10 ~ 11:30	Invited	Energy-efficient direct air capture of CO_2 via S-TVSA with multistage steam recovery	Hirotaka Isogai	Hirotaka Isogai
11:30 ~ 11:50	Invited	Study of Organic Solvent Electrolyte Additives for CO2 and Bicarbonate Electrolysis	Yung-Tin Frank Pan	Yung-Tin Frank Pan
11:50 ~ 12:10	Invited	Dynamic Operability, Sustainability, and Safety Insights for ELectric Arc Furnace Refining	Bor-Yih Yu	Bor-Yih Yu
12:10 ~ 12:30	Invited	Amine-Based Technologies for Carbon Dioxide Removal	Hidetaka Yamada	Hidetaka Yamada

D5 - 2D Materials | **Chair: Yu-Lun Chueh** | **Venue: Tayouan A**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	MoS_2 and WSe_2 Transistors for Ultra-Low-Power Beyond-Silicon Electronics	Lain-Jong Li	Lain-Jong Li
11:10 ~ 11:30	Invited		Johnny Ho	Johnny Ho
11:30 ~ 11:50	Invited	Dual-mode Ferroelectric transistors for generative adversarial networks in imaging applications	Wanqing Meng	Wanqing Meng
11:50 ~ 12:10	Invited	Role of Subdomain as a Chromophore Confirmed by TCSPC on GQD	Seokwoo Jeon	Seokwoo Jeon
12:10 ~ 12:25	O000075	Muscovite-Enabled Atomically Flat Single-Crystal Metal Foils for 2D Material Integration	Tzu-Ming Chan	Tzu-Ming Chan, Yu-Tung Lin, Chen-Ning Li, Pei-Yu Chuang, Chih Chen, Keng-Ku Liu, Cheng-Maw Cheng, Pin-Jui Hsu, Chao-Hui Yeh, Yu-Chuan Lin, Ying-Hao Chu

E9 - Magnetic, Dielectric, And Ferroelectric Materials | **Chair: Chih-Huang Lai** | **Venue: Tayouan B**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:00	Invited	Ultra-low loss soft magnetic materials for power electronics applications	Satoshi Okamoto	Satoshi Okamoto
11:00 ~ 11:20	Invited	High Power Density and High Efficiency Magnetics Components for Emerging AI and E-Mobility Applications	Jack Weng	Jack Weng
11:20 ~ 11:40	Invited	Development of magnetic core composed of Fe-system powders and silicone toward the next-generation passive components	Yasushi Endo	Yasushi Endo
11:40 ~ 12:00	Invited	Nanostructure-engineered Fe-based rapidly solidified ribbons for energy conversion applications	H. Sepehri-Amin	H. Sepehri-Amin
12:00 ~ 12:20	Invited	Magnetic Composite Materials for EMI Suppression and Power Passive Components	Deng Shiang Shiu	Deng Shiang Shiu

B4 - Catalysis (Photocatalysis, Electrocatalysis, Photoelectrocatalysis, Thermocatalysis) | **Chair: Yi-Hsuan Lai** | **Venue: Tayouan C**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Toward Solar Hydrogen Production: Visible-Light-Induced Water Splitting via Z-scheme Photocatalysis Systems	Ryu Abe	Ryu Abe
11:10 ~ 11:30	Invited	Dynamic Landscape Engineering in Semiconducting Photoelectrodes for Light-Driven Organic Transformations	Chang-Ming Jiang	Chang-Ming Jiang
11:30 ~ 11:45	O000296	Engineering Sb_2S_3 photocathodes for solar-driven hydrogen production via absorber optimization, interface engineering, and surface protection	Mina Ghorbani	Mina Ghorbani, Irene Dei Tos, Sunil Suresh, Daniely Reis Santos, Amira ben Hjal, Sudhanshu Shukla, Bart Vermang
11:45 ~ 12:00	O000016	Revealing of unconventional electrocatalysts for hydrogen evolution reaction	Ewa Mijowska	Klaudia Zielinkiewicz, Ewa Mijowska
12:00 ~ 12:15	O000269	2D-Transition Metal Sulphides - MoS_2, WS_2: Efficient Electrocatalysts for Hydrogen Evolution Reaction	Dr. Sukanti Behera	Sukanti Behera, Avala Ramesh
12:15 ~12:30	O000325	Interfacial Synthesis of Cs_2PtCl_6 Perovskite for Strong Coupling with $V_4C_3T_x$ MXene toward Efficient Hydrogen Evolution and Urea Oxidation	Punnoli Muhsin	Punnoli Muhsin, Neermunda Shabana, Chi-Chi Wu, Ya-Yun Yang, Pi-Tai Chou

D6 - Biomimetic Nanomaterials | **Chair: Chang-Yu Sun** | **Venue: Tayouan D**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Phase-Separating Peptides as a Universal Platform for Intracellular Delivery of Macromolecular Therapeutics	Ali Miserez	Ali Miserez
11:10 ~ 11:40	Keynote	Design of Biomimetic Nanomaterials by Controlling Interfacial Water States: Intermediate Water Concept	Masaru Tanaka	Masaru Tanaka
11:40 ~ 12:00	Invited	Bone-Inspired Self-Adaptive Composites	Sung Hoon Kang	Sung Hoon Kang
12:00 ~ 12:15	O000088	Light-Driven Interfacial Soft Robotic Collectors Based on Liquid-Metal-Loaded Superhydrophobic Sponges and Biomimetic Meniscus Engineering	Hiroshi Endo	Hiroshi Endo, Aoi Goto, Kodai Moribayashi
12:15 ~ 12:30	O000231	Development of bioinspired bulk metallic glass-zirconia composites with lamellar architecture	Taeyoon Kim	Taeyoon Kim, Hyun Seok Oh, Je In Lee

Session 2 November 1, 2026 13:30 ~ 15:20

A2 - Beyond Lithium-Ion Batteries		Chair: Han-Yi Chen		Venue: Orange AB
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Na-ion and K-ion Batteries: A 20-Year Journey from Skepticism to Reality	Shinichi Komaba	Shinichi Komaba
14:00 ~ 14:20	Invited	Fabrication of Adhesive Lithium Metal Particles for High-Performance Lithium Batteries	Jeng-Kuei Chang	Jeng-Kuei Chang
14:20 ~ 14:40	Invited	Order-Disorder Interplay for Fast and Steady Ion Migration	Yong-Mook Kang	Yong-Mook Kang
14:40 ~ 15:00	Invited	Revealing the Structural Stability and Reaction Kinetics of Ni-Rich and Li-Rich Layered Oxide Cathodes in Li-Ion Batteries	Heng-Liang Wu	Heng-Liang Wu
15:00 ~ 15:20	Invited	From Structure to Discovery: Scattering Techniques as Engines of Materials Innovation	Wei Kong Pang	Wei Kong Pang

A8 - Solar Cells		Chair: Chieh-Szu Huang		Venue: Nusantaria A
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Advances in Materials and Process Technologies toward the Commercialization of Perovskite Solar Cells	Takurou N. Murakami	Takurou N. Murakami
14:00 ~ 14:20	Invited	Panchromatic Heterojunction Solar Cells Based on Lead-Free All-Inorganic Antimony Perovskites	Chih-Wei Chu	Chih-Wei Chu
14:20 ~ 14:40	Invited	Emerging Photovoltaic Technologies for Off-Grid Applications	Fang-Chung Chen	Fang-Chung Chen
14:40 ~ 15:00	Invited	Vacuum-deposited Inverted Solar Cells: Materials and Processes Consideration	Hao-Wu Lin	Hao-Wu Lin
15:00 ~ 15:20	Invited	Nanoimprinted Submicron Honeycomb-Porous Electrodes for Back-Contact Perovskite Solar Cells	Ming-Hsien Li	Ming-Hsien Li

D1 - Advanced Analytical Technology		Chair: Bernard Haochih Liu, Hung-Wei Yen		Venue: Nusantaria B
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Nanoscale Chemical Characterization of Advanced Functional Materials via Photoinduced Force Microscopy (PiFM)	Stefan Kaemmer	Stefan Kaemmer
14:00 ~ 14:20	Invited	Beyond Hardware Limits: Sub-Å Electron Ptychography and the Future of Three-Dimensional Atomic Imaging	Chein-Chun Chen	Chein-Chun Chen
14:20 ~ 14:40	Invited	A Multi-Stimulus MEMS Platform for Correlative In Situ Microscopy	Hugo Pérez-Garza	Hugo Pérez-Garza
14:40 ~ 15:00	Invited	Atomic-Scale Insights into the Formation and Catalytic Functionality of Metal Single Atoms Derived from Metal–Organic Frameworks	Ming-Yen Lu	Ming-Yen Lu
15:00 ~ 15:15	O000196	From Empirical Peak Assignment to Deep Learning: A Progressive SERS Framework for Rapid COVID-19 Screening in Hospitalized Patients	Jaya Sitjar	Jaya Sitjar, Jiunn-Der Liao, Han Lee, Ngoc Thanh Thuy Tran

B5 - Circular Economy, Resource Circulation, and Carbon Reduction Circular Economy and Resource Circulation		Chair: Cheng-Han Lee		Venue: Nusantaria C
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	The Next-generation Electrolyzers and Electrolysis	Haotian Wang	Haotian Wang
14:00 ~ 14:20	Invited	Electrochemical Ammonium Recovery toward Nitrogen Circularity: Recent Advances in Capacitive Deionization	Chia-Hung Hou	Chia-Hung Hou
14:20 ~ 14:40	Invited	Mineral Carbonation of Alkaline Industrial Wastes: Challenges, Innovations, and Pathways to Carbon Neutrality and Resource Circulation	Hsing-Jung Ho	Hsing-Jung Ho
14:40 ~ 15:00	Invited	Hydrogen purification and carbon dioxide removal with ultramicroporous, thin-film membranes: from polymers to molecular sieves.	David Wang	David Wang
15:00 ~ 15:15	O000098	Integrated bipolar membrane electrodialysis for simultaneous calcium recovery and electrochemical mineral carbonation using seawater	Vinny Ndjate Katambwe	Vinny Ndjate Katambwe, Hsing-jung Ho, Atsushi Iizuka

D7 - Surface Modification and Anti-Corrosion		Chair: Jyh-Wei Lee		Venue: Nusantaria D
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Laser-induced deposition for surface modification of biomedical materials	Shih-Fu Ou	Shih-Fu Ou
13:50 ~ 14:10	Invited	Maskless APPJ Nitriding of SKD11 Tool Steel with Cooling-Controlled Oxynitride Layer Formation for Enhanced Surface Performance	Jhao-Yu Guo	Jhao-Yu Guo
14:10 ~ 14:30	Invited	Scalable Plasma Processing for Oxygen Vacancy Engineering and Catalyst Interface Activation in Redox Flow Battery Electrodes	Song-Yu Chen	Song-Yu Chen
14:30 ~ 14:50	Invited	Bridging the Gap in Cold Spray Manufacturing:Quantifying Particle Dynamics and Deposition Probabilities on Polymers	Jung-Ting Tsai	Jung-Ting Tsai
14:50 ~ 15:10	Invited	The Influence of Zr substrate Bias during ZrN thin film deposition on hydrigen permeation resistance	Kuan-Che Lan	Kuan-Che Lan

E3 - Lead-Free Soldering and Interconnect		Chair: Yu-An Shen		Venue: Nusantaria E
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Science leading to advanced heterogeneous interconnections	Katsuaki Suganuma	Katsuaki Suganuma
14:00 ~ 14:20	Invited	Interesting and unexpected phenomena observed in solders and solder joints	Sinn-Wen Chen	Sinn-Wen Chen
14:20 ~ 14:40	Invited	Comparative Study of Strengthening and Failure Mechanisms in SAC305 and SN100CV Solder Joints by In-situ Microscopy	Kazuhiro Nogita	Kazuhiro Nogita
14:40 ~ 15:00	Invited	Light-Enhanced Direct Metal Bonding for Advanced Electronic Assembly	Jenn-Ming Song	Jenn-Ming Song
15:00 ~ 15:20	Invited	Recent Trend of Low-Temperature Solder for Electronics Packaging	Hiroshi Nishikawa	Hiroshi Nishikawa
D5 - 2D Materials		**Chair: Yu-Lun Chueh**		**Venue: Tayouan A**
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	EPITAXIAL GROWTH OF 2D TMDS WITH WAFER-SCALE CRYSTALLINITY	Vincent Tung	Vincent Tung
14:00 ~ 14:20	Invited	Defect, Phase, and Interface Engineering of Chemically Exfoliated Inorganic Nanosheets	Takaaki Taniguchi	Takaaki Taniguchi
14:20 ~ 14:35	O000244	Low-Temperature MOCVD Synthesis of Highly Crystalline MoS_2 toward BEOL-Compatible Electronics.	Yuan-Ting Chang	Yuan-Ting Chang, Cheng-Han Yang, Zhong-Jian Wei, Ting-Rui Chen, Yi Wan, Ching-Yuan Su
14:35 ~ 14:50	O000266	In silico Design of Wafer-Scale Epitaxy Growth of High-Mobility p-Type 2D Boron Carbon Nitride	Jui-Cheng Kao	Jui-Cheng Kao, Po-Yu Yang, Vincent Tung, Chun-Wei Pao
14:50 ~ 15:05	O000281	Self-Assembled ($Ti_3C_2T_x$) MXene Thin Films for Flexible Wearable Strain Sensors	Abul Hasan Ahmed	Abul Hasan Ahmed, Arijit Mitra, Che-Ning Kuo, Chuan-Pu Liu
15:05 ~ 15:20	O000340	Harnessing Interfacial Oxidation-State in MoS_2–Mo_2CT_x MXene Heterostructures Enables Ultrasensitive and Selective Dopamine Sensing	SHABANA NEERMUNDA	Neermunda Shabana, Punnoli Muhsin, Chi-Chi Wu, Ya-Yun Yang, Pi-Tai Chou
E9 - Magnetic, Dielectric, And Ferroelectric Materials		**Chair: Yen-Lin Huang**		**Venue: Tayouan B**
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Fluorite Ferroelectric and Antiferroelectric Devices for Memory and Hardware Intelligence	Min Hyuk Park	Min Hyuk Park
14:00 ~ 14:20	Invited	Radiation Resilience of $HfZrO_x$ Ferroelectric Memories: From Defect Physics to Device Engineering	Yung-Hsien Wu	Yung-Hsien Wu
14:20 ~ 14:40	Invited	Kinetic-energy controlled pulsed laser deposition of amorphous boron nitride for dielectric integration and encapsulation with 2D materials	Kai Xiao	Kai Xiao
14:40 ~ 15:00	Invited	Engineering Ultrathin Crystalline Oxides for Next-Generation Two-Dimensional Electronics	Yi Wan	Yi Wan
15:00 ~ 15:15	O000274	Two-step Ferroelectric-like Behavior in a Dumbbell-shaped Plastic Crystal	Chisato Sato	Chisato Sato, Shun Dekura, Tetsu Sato, Tomoyuki Akutagawa
15:15 ~ 15:30	O000241	Intrinsic Proton Conduction in Molecular Crystals Enabled by Internal Molecular Degrees of Freedom	Shun Dekura	Shun Dekura
B4 - Catalysis (Photocatalysis, Electrocatalysis, Photoelectrocatalysis, Thermocatalysis)		**Chair: Yung-Jung Hsu**		**Venue: Tayouan C**
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	$ZnIn_2S_4$-based Nanostructured Photocatalysts for Hydrogen Evolution Coupled with Chemical Valorization	Jih-Jen Wu	Jih-Jen Wu
14:00 ~ 14:20	Invited	Rational Design of Earth-Abundant Materials for Solar-Driven Organic Waste Upcycling toward Value-Added Chemicals	Yi-Hsuan Lai	Yi-Hsuan Lai
14:20 ~ 14:35	O000311	Bioelectrochemical Conversion of Organic Waste to Hydrogen using Non-Pathogenic Bacteria	Mallikarjun Bhavanari	Mallikarjun Bhavanari, Vishwajit Kumar, Aruna PT, Shikha Mishra, Kislay Kusum, Rama Rao Damerla, Chung-Jen Tseng, Piyush Behari Lal
14:35 ~ 14:50	O000140	Surface potential heterogeneity at high-entropy alloy-carbon interfaces probed by Kelvin probe force microscopy	Sascha Sadewasser	Parveen Dagar, Nicoleta Nicoara, Devaraj Ramasamy, S.M. Thalluri, Yury V. Kolen'ko, Sascha Sadewasser
14:50 ~ 15:05	O000191	Dry reforming of CH_4 and CO_2 on thermally stable core-shell-structured Ni-CeO_2 nanoparticles with SiO_2-Al_2O_3 overlayers	Jong Wook Bae	Jong Wook Bae, Eun Joo Jang, Jae Hyeon Kwon
15:05 ~ 15:20	O000080	Carbon nanotube-catalyzed methane pyrolysis: Active site identification and byproduct carbon characterization	Ryoshi Oda	Ryoshi Oda, Jin Miyawaki, Koji Nakabayashi
E2 - Advanced Packaging		**Chair: Chih-Ming Chen**		**Venue: Tayouan D**
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Low-Temperature Bonding Technologies for Heterogeneous Integration and Its Application in Optoelectronic Device Engineering	Eiji Higurashi	Eiji Higurashi
14:00 ~ 14:20	Invited	Chop-to-Wafer Hyberid Bonding Technology for Advanced Chiplet Integration	Takafumi Fukushima	Takafumi Fukushima
14:20 ~ 14:40	Invited	Warpage Estimation and Demonstration of Panel-level Fan-out Packaging with Cu Pillars Applied on a Highly Integrated Architecture	Chang-Chun Lee	Chang-Chun Lee
14:40 ~ 15:00	Invited	Innovative Room Temperature Wafer Bonding via Polysilazane for Advanced Packaging	Kai Takeuchi	Kai Takeuchi
15:00 ~ 15:20	Invited	Low-Temperature Atmospheric-Pressure Bonding and Solid-State Separation for Heterogeneous Integration Including Cu-Cu Interconnects	Akitsu Shigetou	Akitsu Shigetou

Session 3 November 1, 2026 15:50 ~ 17:40

A2 - Beyond Lithium-Ion Batteries | **Chair: Heng-Liang Wu** | **Venue: Orange AB**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Unveiling Charge-Storage Mechanisms in Advanced Electrode Materials for High-Energy Sodium-Ion and Aqueous Zinc-Ion Batteries	Han-Yi Chen	Han-Yi Chen
16:10 ~ 16:30	Invited	In-situ X-ray studies of high-entropy layered oxide cathode for sodium-ion batteries	Chia-Ching Lin	Chia-Ching Lin
16:30 ~ 16:50	Invited	Stabilized Thin Lithium Metal for Practical High-Loading, Lean-Electrolyte Lithium-Sulfur Cells	Sheng-Heng Chung	Sheng-Heng Chung
16:50 ~ 17:05	O000109	Atomically Polarized Boron Nitride Seed Layers Direct Horizontal Lithium Deposition	Vineeth Jacob	Vineeth Jacob, Anlin Shaju, Yu-Sheng Su, Niall Tumilty
17:05 ~ 17:20	O000015	Engineering hybrid poly(ionic liquid)/POSS artificial SEIs for high-stability lithium metal batteries	Thi-Ngoc Pham	Wei-Ting Chou, Thi-Ngoc Pham, Ta-Ching Yang, Yun-Jie Tsai, Hsisheng Teng

A8 - Solar Cells | **Chair: Hao-Wu Lin** | **Venue: Nusantaria A**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Operando-Guided Defect, Interface and Growth Engineering for Stable Perovskite Solar Cells	Yen-Hung Lin	Yen-Hung Lin
16:10 ~ 16:30	Invited	Amphiphilic Polymer Conetworks for Light Harvesting	Chieh-Szu Huang	Chieh-Szu Huang
16:30 ~ 16:50	Invited	Toward All Inorganic CTL Perovskite Solar Cell and The Tandem Solar Cell	Sheng-Wen Huang	Sheng-Wen Huang
16:50 ~ 17:05	O000285	Surface modification of CIGS photovoltaic devices for improved heterojunction quality through soaking treatment	Tzu-Yu, Liu	Tzu-Yu, Liu, Tzu-Ying, Lin
17:05 ~ 17:20	O000166	Machine learning prediction of perovskite solar-cell efficiency using physically informed feature engineering	Yousra Ishfaq	Yousra Ishfaq, Wiwittawin Sukmas
17:20 ~ 17:35	O000123	Beyond the Point-Dipole Approximation: A Morphology-Corrected FRET Model for Non-Spherical Nanocrystals	Bing -Yi Lin	Bing -Yi Lin[1], Chieh-Szu Huang[1]*

D1 - Advanced Analytical Technology | **Chair: Ming-Yen Lu** | **Venue: Nusantaria B**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Atom probe tomography for observing hydrogen atoms in advanced alloys	Eason Yi-Sheng Chen	Eason Yi-Sheng Chen
16:20 ~ 16:35	O000030	Realtime and Noncontact Analysis on Dispersion Degree of Nanoparticles Using Flash Fluorescence Detection	Noriaki Sano	Noriaki Sano, Kenichi Nakamune
16:35 ~ 16:55	Invited	Machine Learning Approaches for Advancing AFM Nanomechanical Metrology	Linh Thi Phuong Nguyen	Linh Thi Phuong Nguyen
16:55 ~ 17:15	Invited	The Challenges of In-Situ AFM Quantitative Analyses and How Machine Learning Can Help	Bernard Haochih Liu	Bernard Haochih Liu

B5 - Circular Economy, Resource Circulation, and Carbon Reduction Circular Economy and Resource Circulation | **Chair: Hsing-Jung Ho** | **Venue: Nusantaria C**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Foam glass thermal insulation material production from waste glass using silicon cutting waste as foaming agent	Li Pang Wang	Li Pang Wang
16:20 ~ 16:40	Invited	Resource circulation for Clean Energy and CO2 Neutrality Applications	Shou-Heng Liu	Shou-Heng Liu
16:40 ~ 17:00	Invited	Critical-Metal Recovery from End-of-Life Batteries for Low-Carbon Energy Materials	Cheng-Han Lee	Cheng-Han Lee
17:00 ~ 17:15	O000090	Thermal Decomposition-Assisted Size Reduction of Valuable Metals from Waste Crystalline Silicon Photovoltaic (c-Si PV) Panels	Jean Lourd Misa, Eiran Jan Flores	Jean Lourd Misa, Eiran Jan Flores, Bryan Patrick Carrasco
17:15 ~ 17:30	O000278	Recycling of Secondary Aluminum Dross into Dense and Porous Ceramic Materials	Kaito Suzuki	K. Suzuki, M.X.T. Nong, T. Suzumura, Y.L. Kuo, M. Nanko

D7 - Surface Modification and Anti-Corrosion | **Chair: Peng-Wei Chu** | **Venue: Nusantaria D**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:05	O000048	Development of Titanium Surface Functinalization by Spark-Discharge Anodic Oxidation: Multicomponent Oxide Formation and Micropatterning	Mitsunobu Iwasaki	M. Iwasaki, Y. Kojima, Y. Tanino, N. Noma, T. Fujino
16:05 ~ 16:20	O000273	Optimizing the Pack Al-Si Co-Cementation Process for Surface Modification of Alloy 718	Yen-Ling Kuo	Y.-L. Kuo, K. Matsushita, M. Nanko
16:20 ~ 16:35	O000316	Microstructural Evolution of ZrO_2-based oxide Films Deposited on AZ91D Magnesium Alloys using Plasma Electrolytic Oxidation	Chen-Chia Chou	Je-Hao Hsu, Ping-Hsi Pang, Tien-Li Tsai, Cheng-Sao Chen, Chen-Chia Chou
16:35 ~ 16:50	O000336	Laser-Induced Heterowetting Surface Engineering on PTFE/Al_2O_3 Composite for Geometry-Dependent Droplet Manipulation and SERS Sensing	Cheng Han Yu	Cheng Han Yu, Jiann Shieh
16:50 ~ 17:05	O000047	Linking the Localized Corrosion Behavior of a Biodegradable ZX21 Mg Alloy to Its Alloy Microstructure	Chih-Wei Sung	Chih-Wei Sung, Chien-Wei Fan, Chun Chen, Chen-Hsun Yang, Si-Yuan Hu, Te-Cheng Su, Peng-Wei Chu
17:05 ~ 17:20	O000184	High-Aspect-Ratio Copper Nanowires: Electrochemical Analysis and Precise Control of Anisotropic Crystal Growth	Shun Yokoyama	Shun Yokoyama, Balachandran Jeyadevan, Takashi Itoh
17:20 ~ 17:35	O000343	Plasma Surface Modification of CF/Epoxy Towpregs for Enhanced Layer Bonding in AFP Manufacturing	Omar El Khatib	Omar El Khatib

E3 - Lead-Free Soldering and Interconnect		Chair: Chih-Ming Chen		Venue: Nusantaria E
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Grain Engineering of Electroplated Copper for Advanced Electronic Packaging Applications	Yu-Ting Huang	Yu-Ting Huang
16:10 ~ 16:30	Invited	Alloy Design for Processing and Thermal Reliability of Solders	Albert Tzu-Chia Wu	Albert Tzu-Chia Wu
16:30 ~ 16:50	Invited	Crystallographic orientation control and evolution of β-Sn in lead-free solder joints through processing and thermal fatigue	Hiroaki Tatsumi	Hiroaki Tatsumi
16:50 ~ 17:10	Invited	Electroless (111)-orientation Nanotwinned Copper and Its Cu-to-Cu Direct Bonding Evaluation	Cheng-En Ho	Cheng-En Ho
17:10 ~ 17:30	Invited	Hysteresis in thermal expansion of Sn-Bi alloys and the effects of temperature ramp rate	Xin Fu Tan	Xin Fu Tan

D5 - 2D Materials		Chair: Yu-Ze Chen		Venue: Tayouan A
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Antisite mediated Intermittent Flux Epitaxy of Layered 2D Semiconductors	Nadire Nayir	Nadire Nayir
16:10 ~ 16:30	Invited	Engineering interfaces in devices with transition metal dichalcogenides via solution-based processes	Daisuke Kiriya	Daisuke Kiriya
16:30 ~ 16:50	Invited	Designing of 2D MXene based Metal-Organic-Frameworks for potential applications in Energy Storage Devices	Shyamal Kumar Saha	Shyamal Kumar Saha
16:50 ~ 17:05	O000288	Intermediate-Assisted Topotactic Phase Engineering of Metastable Semiconducting 2H-WTe_2	Sheng-Jun Hu	Sheng-Jun Hu, Bo Rui Huang, Yu-Chuan Lin, Mario Hofmann, Ya-Ping Hsieh
17:05 ~ 17:20	O000323	Decoupling Interfacial Electron Doping in MoS_2/HfO_2 Heterostructures via Ultra-Thin Amorphous Boron Nitride Insertion	Ting-I, Wu	Ting-I Wu, Yu-Chuan Lin
17:20 ~ 17:35	O000335	Layer Control of High-Quality 2L/3L WSe_2 via MOCVD Using Se versus H_2Se Precursors	Yan, Cheng-Dian	Cheng-Dian Yan, Nadire Nayir, Kun-An Chiu, Wei-Chun Chen, Wen-Hao Chang, Yu-Chuan Lin

F6 - Non-Ferrous Materials		Chair: Tsai-Fu Chung, Cheng-Ling Tai		Venue: Tayouan B
Time	No./Type	Presentation Title	Presenter	Authors
15:55 ~ 16:15	Invited	Crystallographic Analysis of Coalescence-Induced η Particles in an Al-Zn-Mg-Cu Aluminum Alloy by Atomic-Resolution HAADF-STEM	Cheng-Ling Tai	Cheng-Ling Tai
16:15 ~ 16:35	Invited	From High-Entropy Alloy Fundamentals to Initial PVD Processing of High-Entropy Alloy Thin Films	Wei-Che Hsu	Wei-Che Hsu
16:35 ~ 16:55	Invited	Recycling 7xxx Aluminum Chips via Segregation Purification & Boronation Dechromation	Ho-Lin Tsai	Ho-Lin Tsai
17:05 ~ 17:20	O000059	Manufacturing of A356 alloy lattice structures using 3D printing and pressure infiltration investment casting.	Juyoung Lee	Juyoung Lee, Taeyoon kim, Wookjin Lee
17:20 ~ 17:35	O000234	Grain Refinement and Hot-Crack Suppression in 7075 Aluminum Alloys through CALPHAD-Based Alloy Design and Laser Processing Experiments	Yen-Hsin Cheng	Yen-Hsin Cheng, Chun-Hsiang Pan, Yu-Chen Liu

B4 - Catalysis (Photocatalysis, Electrocatalysis, Photoelectrocatalysis, Thermocatalysis)		Chair: Yi-Hsuan Lai		Venue: Tayouan C
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Design of Yolk@Shell Nanocrystals for Hydrogen Production	Yung-Jung Hsu	Yung-Jung Hsu
16:10 ~ 16:30	Invited	High-Rate Single-Pass Conversion of Low-Concentration Carbon Dioxide to Carbon Monoxide via a Molecularly Engineered Electrocatalyst	Chia-Yu Lin	Chia-Yu Lin
16:30 ~ 16:50	Invited	Perovskite Photoelectrocatalysis for Solar Driven Chemical Synthesis	Virgil Andrei	Virgil Andrei
16:50 ~ 17:05	O000010	High performance catalyst CoNP for efficient electrochemical production of hydrogen peroxide	Hsiu-Chung Tu	Ko-Shan Ho, Kuan-Ying Hung, Yu-Lin Hsiao, Hsiu-Chung Tu
17:05 ~ 17:20	O000034	Gold Nanoparticles Synthesis via Ascorbic Acid Reduction and Bacterial Cell-Free Extract Capping: A Factorial Study on Size Control and Catalytic Performance	Eduardo Magdaluyo Jr	John Lorenz Amin, Ricky Kristan Raguindin, Eduardo Magdaluyo Jr
17:20 ~ 17:35	O000233	Driving C2+ Selectivity in Electrochemical CO_2 Reduction Over Tailored Copper Electrocatalysts	Omran Moradlou	Yi-Wei Chang, Omran Moradlou, Mengstu Etay Ashebir, Varad Modak, Chih-Yang Huang, Li-Chyong Chen, Kuei-Hsien Chen

E2 - Advanced Packaging		Chair: Jenn-Ming Song		Venue: Tayouan D
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Reliability of Fine-Pitch Redistribution Layers (RDLs) for Advanced Packaging	Young-Chang Joo	Young-Chang Joo
16:10 ~ 16:30	Invited	Materials Characterization and Development in Advanced Memory Packaging	Chong Leong Gan	Chong Leong Gan
16:30 ~ 16:50	Invited	Interfacial reactions at the SAC solder/ENEPIG interface: effects of Ni dissolution modulated by reflow temperature and Ni(P) layer design	Cheng-Yi Liu	Cheng-Yi Liu
16:50 ~ 17:05	O000018	Case studies of interface adhesion characterization from single die, bi-layer materials to memory packages	Vance Liu	Vance Liu, Dr. Guohua Wei, Sih-Tung Lin, Chien-Ming Chen, Dr. Chong Leong Gan, Prof. Jenn-Ming Song
17:05 ~ 17:25	Invited	GaN HEMT-Based Power Modules for High-Density AI Power Delivery Systems	Chun-Hao Chen	Chun-Hao Chen

Session 4 November 2, 2026 10:40 ~ 12:30

F4 - Powder Metallurgy And Additive Manufacturing **Chair: Che-Nan Kuo** **Venue: Orange AB**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:00	Invited	Surface Oxide Films and Dynamic Cohesion in Recoating of Inconel 713LC Powders	Akihiko Chiba	Akihiko Chiba
11:00 ~ 11:20	Invited	Microstructural engineering and validation for additively manufactured metallic structural materials	Kenta Yamanaka	Kenta Yamanaka
11:20 ~ 11:40	Invited	Creating "Plug and Play" Approach for Metal Additive Manufacturing	Swee Leong Sing	Swee Leong Sing
11:40 ~ 12:00	Invited	Development of Sintering Systems and DFT Simulations in TiB_2 Ceramics	Jhewn-Kuang Chen	Jhewn-Kuang Chen
12:00 ~ 12:15	O000165	Mechanical interlocking-assisted diffusion bonding for direction-dependent disassembly of additively manufactured steel/aluminum joints	Zhang Nan	N. Zhang, W. Miyamoto, P. T. Bui, H. Hiraga, Y. Miyashita
12:15 ~ 12:30	O000063	Effect of Intrinsic Heat Treatment on Microstructure of Fe–17Mn–5Si–10Cr–4Ni (wt.%) Shape Memory Alloy Fabricated Using L-DED	Taeyoon Kim	Taeyoon Kim, Jongwook Jung, Haeju Jo, Wookjin Lee

C3 - Emerging Functional Polymers **Chair: Changshu Kuo** **Venue: Nusantaria A**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	The Evolving Role of Chemical Suppliers in the Semiconductor Ecosystem	Hsing-Chia Wang	Hsing-Chia Wang
11:10 ~ 11:30	Invited	Lignocellulosic resins via a controlled chemical modification for a promising functional polymer	Naoki Wada	Naoki Wada
11:30 ~ 11:45	O000158	Desert beetle-inspired fog-harvesting surfaces integrating buckled microchannels and alternating wettability	Ting-Yu Xu	Ting-Yu Xu, Han-Yu Hsueh
11:45 ~ 12:00	O000321	Metal Salen Complexes: Enabling the Next Generation of Emerging Functional Polymer through ROP of Lactide	Prof. Alekha Kumar Sutar	Alekha Kumar Sutar
12:00 ~ 12:15	O000310	Tuning Benzoquinoid Structures Within Covalent Triazine Frameworks to Investigate Their CO_2 Capture Ability	Rajeshkumar Anbazhagan	Rajeshkumar Anbazhagan, Teng-Hao Chen

C4 - Green and Sustainable Polymer Materials **Chair: Jiun-Tai Chen** **Venue: Nusantaria B**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Precision Polymerization of Renewable Monomers for Functional Bio-Based and/or Degradable Polymers	Kotaro Satoh	Kotaro Satoh
11:10 ~ 11:30	Invited	Molecularly Engineered Semiconducting Polymers for Solar-Driven Hydrogen Evolution and Circular Waste Upcycling via Photoreforming	Ho-Hsiu Chou	Ho-Hsiu Chou
11:30 ~ 11:50	Invited	Sustainable Polymer Intermediates as Molecular Platforms for Designable, High-Performance Functional Materials	Chien-Hsin Wu	Chien-Hsin Wu
11:50 ~ 12:10	Invited		Min Sang Kwon	Min Sang Kwon
12:10 ~ 12:30	Invited	From Compost Degradation to Biochemical Monomer Recycling of PBAT	Jane Wang	Jane Wang

C7 - Functional Polymer Colloids and Thin Films **Chair: Hong-Cheu Lin** **Venue: Nusantaria C**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:00	Invited	Programming Complexity in Soft Frank–Kasper Matter through Water and Supramolecular Heterogeneity	Chien-Lung Wang	Chien-Lung Wang
11:00 ~ 11:20	Invited	Viscose Bioadapting Matrials: In Situ Cell-Laden Tissue Engineering	Michiya Matsusaki	Michiya Matsusaki
11:20 ~ 11:40	Invited	Tunable Self-Wrinkled Polymer Films Induced by Interfacial Fuming for Anti-Glare LEDs	Han-Yu Hsueh	Han-Yu Hsueh
11:40 ~ 12:00	Invited	Molecular Design of bio-interfaces with well-defined zwitterionic polymers for the control of preferential cell separation engineering	Yung Chang	Yung Chang
12:00 ~ 12:20	Invited	pH-Responsive Polymer Nanoparticles for Rapid Swelling and Controlled Guest Release	Shin-ichi Yusa	Shin-ichi Yusa

C1 - Polymer Chemistry: Hybrid Materials and Applications **Chair: Cheng-Liang Liu** **Venue: Nusantaria D**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:00	Invited	Precise Structural Control of Donor–Acceptor Copolymers for Organic Electronics	Keisuke Tajima	Keisuke Tajima
11:00 ~ 11:20	Invited	Novel molecular designs of functional pi-conjugated systems for electronic applications	Yutaka IE	Yutaka IE
11:20 ~ 11:40	Invited	Thienoquinoid-Based Conjugated Polymers: From Small Bandgaps to Efficient Intrachain Charge Transport	Itaru Osaka	Itaru Osaka
11:40 ~ 12:00	Invited	Topological Polyisobutene-based Semiconducting Block Copolymers for Organic Electronic Device Application	Tomoya Higashihara	Tomoya Higashihara
12:00 ~ 12:20	Invited	Molecular engineering of C-shaped benzodipyrrole-based A-D-A type acceptors for High-performance organic otpoelectronics	Yen-Ju Cheng	Yen-Ju Cheng

E1 - Materials and Devices for Neuromorphic Computing and Technologies **Chair: Jen-Sue Chen** **Venue: Nusantaria E**

Time	No./Type	Presentation Title	Presenter	Authors
10:45 ~ 11:15	Keynote	Reliable Memristors and Selectors Enabled by van der Waals Materials	J. Joshua Yang	J. Joshua Yang
11:15 ~ 11:35	Invited	Spintronics devices for spiking neural networks	Chih-Huang Lai	Chih-Huang Lai
11:35 ~ 11:55	Invited	Utilising the ionic and optoelectronic properties of halide perovskites for neuromorphic computing	Nripan Mathews	Nripan Mathews
11:55 ~ 12:15	Invited	Programmable Interface Electrostatics in van der Waals Ferroelectric Devices for Neuromorphic Sensing and Compute-in-Memory	Yen-Fu Lin	Yen-Fu Lin
12:15 ~ 12:30	O000046	Optimization of Network Size in Graphene Electric Double-Layer Transistor-Based Physical Reservoir Computing Using the Backward Method	Hina Kitano	H. Kitano, D. Nishioka, K. Terabe, T. Tsuchiya

C6 - Biomedical Materials and Precision Medicine		Chair: Peilin Chen		Venue: Tayouan A
Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Oral Delivery of BCAA-releasing Nanoparticles fo Sarcopenia Therapy	Yukio Nagasaki	Yukio Nagasaki
11:10 ~ 11:30	Invited	Coupling Electroactive Liposome Membranes with Nanoparticles	Chen-Sheng Yeh	Chen-Sheng Yeh
11:30 ~ 11:50	Invited	Self-Assembled Nanogels for Precision Immunoengineering: From Vaccines to Cancer Immunotherapy	Kazunari Akiyoshi	Kazunari Akiyoshi
11:50 ~ 12:10	Invited	Exploring the Future of Extracellular Vesicle Research in Cancer Diagnosis and Therapy	Chi-An Cheng	Chi-An Cheng
12:10 ~ 12:30	Invited	Self-Assembling Protein Nanofibers for Biomimetic Extracellular Matrices and Biomedical Applications	Ayae Sugawara-Narutaki	Ayae Sugawara-Narutaki

F6 - Non-Ferrous Materials		Chair: Hsin-Chih Lin, Tsai-Fu Chung		Venue: Tayouan B
Time	No./Type	Presentation Title	Presenter	Authors
10:45 ~ 11:15	Keynote	Hard-Soft Nanolayered Structures and Their Kink Strengthening	Yoshihito Kawamura	Yoshihito Kawamura
11:15 ~ 11:35	Invited	Effects of Tailored Heat Treatments on the Microstructure and Performance of an Al-Mg-Zn-(Cu) Alloy	Hsin-Chih Lin	Hsin-Chih Lin
11:35 ~ 11:55	Invited	Resolving Interfacial Strain of Bulk Precipitates in Al-Zn-Mg-Cu Aluminum Alloys via 4D-STEM	Tsai-Fu Chung	Tsai-Fu Chung
11:55 ~ 12:10	O000130	Effect of Zn, Sn/Zn/Sn, and In/Sn/Zn/Sn/In interlayers on the microstructure and mechanical properties of A7075 aluminum alloy joints during transient liquid phase (TLP) bonding	Trang Nguyen Thi Dieu	Trang Nguyen Thi Dieu, Shinji Koyama
12:10 ~ 12:25	O000258	Designing corrosion-resistant Mg alloys via core-shell particle engineering	Jeong-Ki Kim	Jeong-Ki Kim、Sung Soo Park
12:25 ~ 12:40	O000224	Processing-controlled defect structures and their role in deformation mechanisms of Mg–Zn–Y alloys	Zsolt Beke	Z. Beke, A. Farkas, P. Dobroň, S. Nishimoto, S.I. Inoue, M. Yamasaki, Y. Kawamura, K. Máthis, D. Drozdenko

B4 - Catalysis (Photocatalysis, Electrocatalysis, Photoelectrocatalysis, Thermocatalysis)		Chair: Chia-Yu Lin		Venue: Tayouan C
Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Functionalied Carbon Based Nanostructures for Sustainable World	Ajayan Vinu	Ajayan Vinu
11:10 ~ 11:30	Invited	Integrated Light and Reaction Management for Efficient Solar Fuel Production	Chanon Pornrungroj	Chanon Pornrungroj
11:30 ~ 11:45	O000299	Bi_2Se_3–TiO_2 Nanostructured Films and Nanocomposites for Rapid Photocatalytic Degradation of Anticancer Drugs and Enhanced Photoelectrochemical Water Splitting	Phuoc Huu Le	Nguyen Chi Toan, Thao Phuong Huynh, Tho Chau Minh Vinh Do, Phuoc Huu Le
11:45 ~ 12:00	O000071	Quantitative vibrational spectroscopy for delineating defect-property-activity relationships in gC_3N_4	Vincent Wing-hei Lau	Vincent Wing-hei Lau
12:00 ~ 12:15	O000036	Programmable Microwave-Pulsed Activation of Stable CH_4 and N_2 Molecules over a Composite Catalyst	Jianli Hu	Jianli Hu
12:15 ~ 12:30	O000217	Oxygen Oversolubility in Nanoconfined Single Atom Iron on Carbon for Oxygen Reduction Reaction investigated using Machine Learning Interatomic Potential	Jessie Manopo	Jessie Manopo, Guillaume Lambard, Mai Tomisaki, Adroit T.N. Fajar

E2 - Advanced Packaging		Chair: Jenn-Ming Song		Venue: Tayouan D
Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Driving Innovation in 3D IC and Advanced Packaging: Recent Research Advances and Future Directions	Kuan-Neng Chen	Kuan-Neng Chen
11:10 ~ 11:30	Invited	Heat dissipation packaging of power electronics	Dongjin Kim	Dongjin Kim
11:30 ~ 11:50	Invited	Constrained Target Function for Solder Alloy Design	Shuanglin Chen	Shuanglin Chen
11:50 ~ 12:05	O000331	Dominant Role of Substrate Mechanical State in Ag Sintering on Bare Cu Substrates over Grain Boundary Diffusion	Byeongchan Kim	Byeongchan Kim, Junha Baik, Dongjin Kim
12:05 ~ 12:20	O000280	Insulated Metal Substrates for Enhanced Thermal Performance and Thermo-Mechanical Reliability	Jong Eun Ryu	Pouria Zaghari, Tsung-Han Li, Yu-Jen Wang, Jen-Kuang Fang, Jen-Chun Chen, Pai-Sheng Shih, Fuh-Gwo Yuan, Jong Eun Ryu

Session 5 November 2, 2026 13:30 ~ 15:20

E4 - Taiwan–Japan Workshop on Electronic Interconnection V **Chair: Yu-chen Liu** **Venue: Orange AB**

Time	No./Type	Presentation Title	Presenter	Authors
13:35 ~ 13:45	Invited	Introduction of Taiwan Shiima Electronics Co., Ltd.	Taiwan Shiima Electronics Co., Ltd.	Taiwan Shiima Electronics Co., Ltd.
13:45 ~ 14:00	O000022	Low-Temperature Sintering of Copper Nanoparticle Systems for Semiconductor Packaging	Tetsu Yonezawa	Tetsu Yonezawa
14:00 ~ 14:15	O000001	Numerical Simulation of Diffusion Homogenization in Sn-20In-2.8Ag Alloy	Yu-Hsin Lin	Yu-Hsin Lin, C. Robert Kao
14:15 ~ 14:30	O000045	Materials Design of Electrically Conductive Pastes for Obtaining Highly Conductive Three-Dimensional Wires by Vacuum-Forming	Rina Aida	Rina Aida, Masahiro Inoue
14:30 ~ 14:45	O000029	Liquid/Solid interfacial reactions between the Sn solder and Cu-Be alloy (Alloy 25) with the Ni electroplating layer	Yi-Pin Lin	Yi-Pin Lin, Yu-Sheng Chen, Yee-Wen Yen
14:45 ~ 15:00	O000142	Low-Temperature Hybrid Bonding with Polymer Dielectrics for Reconfigured WoW 3D Integration	Naota Houshimaru	Naota Houshimaru, Miyu Takagi, Motoki Kobayashi, Chang Liu, Takafumi Fukushima
15:00 ~ 15:15	O000096	Machine Learning-Assisted Electromigration Reliability and Microstructural Evolution in Sn-Bi Low-Temperature Solders	Chi Chen	Chi Chen, Yu-chen Liu

C3 - Emerging Functional Polymers **Chair: Naoki Wada** **Venue: Nusantaria A**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Structured Polymer Electrolytes for Ion-Selective Transport Pathways	Yuki Nagao	Yuki Nagao
14:00 ~ 14:15	O000120	A Peptide Containing Poly(ethylene glycol)-block-poly(γ-benzyl-L-glutamate) Diblock Copolymer for Solid Polymer Electrolytes in Lithium Metal Batteries	Syuan-Yu Lin	Syuan-Yu Lin, Chi-Yang Chao
14:15 ~ 14:30	O000093	Next generation metafabric	Xiaoqing Yu	Xiaoqing Yu, Gunwoo Kim
14:30 ~ 14:45	O000049	CsPbBr3 Crystal Growth in Amphiphilic Polymer Conetworks	Chieh Huang	Chieh Huang, Chieh-Szu Huang
14:45 ~ 15:05	Invited	Thickness Dependence of Ion Conductivity in Anion Exchange Membranes: Impact of Morphological Factors	Ryota Segawa	Ryota Segawa
15:05 ~ 15:25	Invited	Meniscus Splitting in Aqueous Polymer Solutions as Dissipative Structures	Kosuke Okeyoshi	Kosuke Okeyoshi

C4 - Green and Sustainable Polymer Materials **Chair: Kotaro Satoh** **Venue: Nusantaria B**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Designed vitrimers with enhanced properties and applications	Ying-Ling Liu	Ying-Ling Liu
14:00 ~ 14:20	Invited	Biomanufacturing and molecular design of spider silk	Keiji Numata	Keiji Numata
14:20 ~ 14:40	Invited	Upcycling Recycled PET into Multifunctional TPEE Fibers and Films: From Reversible Sensing to Dynamic Anticounterfeiting and Self-Healing Electronics	Jiun-Tai Chen	Jiun-Tai Chen
14:40 ~ 15:00	Invited	Salt-Responsive Biopolymer Composites for Controlled Disintegration and Sustainable Materials Design	Yu-I Hsu	Yu-I Hsu
15:00 ~ 15:20	Invited	Photocurable resin with dynamic hindered urea bonds for green manufacturing applications.	Jhu-Lin You	Jhu-Lin You

C7 - Functional Polymer Colloids and Thin Films **Chair: Hsiu-Hui Chen** **Venue: Nusantaria C**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Design of Mechanofunctional Polymers Based on Radically Cleavable Molecular Motifs	Hideyuki Otsuka	Hideyuki Otsuka
14:00 ~ 14:20	Invited	Design and Exploration of Redox-active Triphenylamine-based Functional Materials	Guey-Sheng Liou	Guey-Sheng Liou
14:20 ~ 14:40	Invited	Functionalization of Polymer Hydrogels Based on Molecular Recognition	Hiroyasu Yamaguchi	Hiroyasu Yamaguchi
14:40 ~ 15:00	Invited	Supramolecular Designs of Mechanically Interlocked Molecules as Molecular Sensors and Artificial Muscles in Self-Healable Mechanophore and Actuator Materials Applications	Hong-Cheu Lin	Hong-Cheu Lin
15:00 ~ 15:20	Invited	Functional photoactive dopants for thin film systems	Michal Kohout	Michal Kohout

C1 - Polymer Chemistry: Hybrid Materials and Applications **Chair: Tomoya Higashihara** **Venue: Nusantaria D**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Development of All Printed Wallpaper OLED Displays	Junji Kido	Junji Kido
14:00 ~ 14:20	Invited	Chemical and Ion-Mediated Engineering of Conducting Polymer Composites for Electrochemical Devices	Felix Sunjoo Kim	Felix Sunjoo Kim
14:20 ~ 14:40	Invited	Metal-Azaphthalocyanine-Based Electrocatalysts for Varioous Electrochemical Reactions	Hiroshi Yabu	Hiroshi Yabu
14:40 ~ 15:00	Invited	Controlling Electrochemical Doping for Mixed Ionic/Electronic Transport in Polymer Electronics	Keun Hyung Lee	Keun Hyung Lee
15:00 ~ 15:15	O000222	Spatial Dopant Engineering for Tunable Spin Functionality in Chemically Doped Organic Semiconductor Thin Films	Dr. Wen-Shan Zhang	Wen-Shan Zhang

E1 - Materials and Devices for Neuromorphic Computing and Technologies	Chair: Takashi Tsuchiya			Venue: Nusantaria E
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Minimal Memristive Hardware for Brain Inspired Computing	Marcelo J. Rozenberg	Marcelo J. Rozenberg
13:50 ~ 14:10	Invited	Material Design for Synaptic Transistors: From Conjugated Polymers to Two-Dimensional Perovskites	Chu-Chen Chueh	Chu-Chen Chueh
14:10 ~ 14:25	O000060	Nanoscale Filament Evolution and Local Resistive Switching in Sub-Stoichiometric Yttrium Oxide Thin Films	Yen-Po Liu	Yen-Po Liu, Erkai Wang, Philipp Schreyer, Yu Duan, Yingxin Li, Luisa Bayer, Stefan Wiefels, Eszter Piros, Lambert Alff, Regina Dittmann
14:25 ~ 14:45	Invited	Ionic Nanoarchitectonics: A New paradigm for High-Performance Device Design	Kazuya Terabe	Kazuya Terabe
14:45 ~ 15:05	Invited	Soft Ferroelectric Synapses and E-Textile Neural Networks for Wearable Intelligence	Tae-Wook Kim	Tae-Wook Kim
15:05 ~ 15:20	O000185	Realization of Optical Organic Synaptic Transistors through Functional Nanocomposite Dielectrics	Qun-Gao Chen	Qun-Gao Chen, Chu-Chen Chueh, Wen-Ya Lee
C6 - Biomedical Materials and Precision Medicine	**Chair: Yunching Chen**			**Venue: Tayouan A**
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Visualizing and Engineering Nanoparticle Transport for Effective Tumor Drug Delivery	Peilin Chen	Peilin Chen
13:50 ~ 14:10	Invited	Development of Biocompatible Polylactic Acid Hollow Microneedle Device for Subcutaneous Interstitial Fluid Extraction and Continuous Glucose Monitoring	Madoka Takai	Madoka Takai
14:10 ~ 14:30	Invited	Development and Application of NanoX: A Next-Generation Programmable Nanomedicine Delivery Platform	Yih-Chih Hsu	Yih-Chih Hsu
14:30 ~ 14:50	Invited	Controlled Release of Ticagrelor via SMEDDS–Alginate Beads with pH-Responsive Behavior	Cheong-Weon Cho	Cheong-Weon Cho
14:50 ~ 15:10	Invited	Intelligent Biomaterials-Enabled Drug Delivery and Precision Cell Engineering for Disease Therapy	Wei Chen	Wei Chen
F6 - Non-Ferrous Materials	**Chair: Yo-Lun Yang, Cheng-Ling Tai**			**Venue: Tayouan B**
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Ideal Properties of Pragmatic Alloys and No Trade-off of Al-Mg Alloys	Shae K. Kim	Shae K. Kim
14:00 ~ 14:20	Invited	ECO-Almag High-Mg Al–Mg Alloys: From Structural Plates to Ultrahigh-Strength Foils and AM Feedstocks	Hyo Yun Jung	Hyo Yun Jung
14:20 ~ 14:40	Invited	Transient Solute Uptake as a Strain-Relief Pathway in Topologically Close-Packed Phase Transformations	Yu-Ning Chiu	Yu-Ning Chiu
14:40 ~ 14:55	O000014	From Conventional Brazing to Industry 4.0 Joining: Induction and Blue Laser Solutions for Welding of Copper	António Pereira	António Pereira, Nélia Silva, Catarina Bastos, Dina Silva, Bernardo Mascate
14:55 ~ 15:10	O000038	Controlling interface atomic structure and distribution of oxide particles for improved ductility in Mo alloys	Ming Wang	Zhi Dong, Ming Wang, Mingxin Huang
15:10 ~ 15:25	O000259	Development of Mg alloys with controlled degradation for biodegradable stent applications	Du-Won Min	Du-Won Min, Sung Soo Park
F1 - High-Entropy Materials	**Chair: An-Chou Yeh**			**Venue: Tayouan C**
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Effect of Stacking Fault Energy and Grian Size on Mechanical Performance in H/MEAs with FCC-HCP Transformation	Koichi Tsuchiya	Koichi Tsuchiya
14:00 ~ 14:20	Invited	Phase-field Modeling of Solidification Microstructures and Solute Segregation in Medium-Entropy Alloys across Wide-ranging Thermal Conditions	Te-Cheng Su	Te-Cheng Su
14:20 ~ 14:40	Invited	Lattice Distortion–Controlled Dislocation Mobility in FCC Systems	Yu-Chieh Lo	Yu-Chieh Lo
14:40 ~ 15:00	Invited	CALPHAD-Guided Design of High-Entropy Alloys via Constrained Target Functions	Chuan Zhang	Chuan Zhang
15:00 ~ 15:15	O000345	PRISM: A Glass-Box AI Framework for Refractory High-entropy Alloy Design and Mechanistic Discovery	Yu-Chuan Hsu	Yu-Chuan Hsu, Hung Yen, Po-Heng Chou, Tung-Yu Chang, Jumi Choi, Eun-Chan Kim, Hyoung Seop Kim, Stéphane Gorsse, An-Chou Yeh
E2 - Advanced Packaging	**Chair: Yu-An Shen**			**Venue: Tayouan D**
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Lattice and Defect Engineering of $BaCoO_3$–δ Oxygen Electrodes for Reversible Protonic Ceramic Electrochemical Cells	Kang Taek Lee	Kang Taek Lee
14:00 ~ 14:20	Invited	Next-Generation Ag-Si Composite Sintering Technology for High-Reliability Die Bonding in Wide-Bandgap Power Devices	Minoru Ueshima	Minoru Ueshima
14:20 ~ 14:35	O000150	Effect of Transition Metal Co-Electroplating on the Thermal Stability of Nanotwinned Copper Films	Chih-Chi Tsai	Chih Chen, Chih-Chi Tsai
14:35 ~ 14:50	O000220	Design of High-Strength Sn–In-Based Low-Temperature Solders via CALPHAD and Machine Learning	Hao-Wei Kuo	Hao-Wei Kuo, Yu-Chia Chang, Yu-chen Liu
14:50 ~ 15:05	O000003	Ag-coated Ni Metallization for Fluxless Indium-Based TIM Bonding	Yuan-Han Ku	Yuan-Han Ku, Cheng-Yan Yang, Yu-Hsiang Lu, C. Robert Kao

Session 6 November 2, 2026 15:50 ~ 17:40

E4 - Taiwan–Japan Workshop on Electronic Interconnection V | **Chair: Yu-Chen Liu** | **Venue: Orange AB**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:05	O000275	Package-Level On-Chip Microchannel Cooling for High-Power Density AI and HPC Devices: Design, Fabrication, and Experimental Characterization	Heng-Ching Mie	Heng-Ching Mie, Yu-Hao Lo, Jun Mizuno, Hsuan-Hao Chang, Yu-Ting Wu, Muhammad Firman Friyadi
16:05 ~ 16:20	O000154	Electromigration Test in Solder Joints Using a Cross-Section Exposed Specimen	Atsushi Jo	Atsushi Jo, Hiroaki Tatsumi, Makoto Iioka, Hiroshi Nishikawa
16:20 ~ 16:35	O000328	Formic Acid Engineered Cu nanoclusters for enhancing Cu–Cu direct bonding	Yun-Tai Wu	Sarim Khan, Yun-Tai Wu, Jenn-Ming Song
16:35 ~ 16:50	O000317	Ether-Enabled Continuous Delivery of a Copper Precursor for Supercritical Fluid Deposition	Y. Kawai	Y. Kawai, T. Momose
16:50 ~ 17:05	O000072	Microstructure and Properties of Sn–Bi–In–Zn Alloys for Electronic Packaging Interconnects	Chen-Yu Hsiao	Chen-Yu Hsiao, Yi-Fan Lu, Yu-An Shen
17:05 ~ 17:20	O000149	Low-temperature, low-stress bonding of laser diode chips with Au hollow pyramidal bumps	Haruto Saito	Haruto Saito, Shintaro Goto, Kai Takeuchi, Eiji Higurashi
17:20 ~ 17:35	O000039	Sequential Electrodeposition of Sn/Bi Bilayer Structures for Low-Temperature Soldering	Chih-Hui Yu	Chih-Hui Yu, Sinn-Wen Chen, Chih-Ming Chen

C3 - Emerging Functional Polymers | **Chair: Hideyuki Murata** | **Venue: Nusantaria A**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Surface Functionalization Strategies for Reducing Flammability of Nylon, Cotton, and NyCo Fabrics	Jayant Kumar	Jayant Kumar
16:20 ~ 16:40	Invited	Functional Polymers for Protection of Cells and Proteins	Kazuaki Matsumura	Kazuaki Matsumura
16:40 ~ 16:55	O000248	Dynamic Boronic Ester-Based Liquid Crystal Actuators with Self-Healing Properties	Yu-Ju Chang	Yu-Ju Chang, Min-Hsien Wang, Chun-Yen Liu, Chung-Yu Kuo
16:55 ~ 17:10	P000065	Synthesis of Stretchable and Self-Healable Semiconducting Polymers with Novel Hybrid Side Chains for Thermoelectric Materials	T. Fujita	T. Fujita, T. Higashihara

C4 - Green and Sustainable Polymer Materials | **Chair: Min Sang Kwon** | **Venue: Nusantaria B**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Rethinking Polyethylene End-of-Life through Post-synthetic Modification and Depolymerisation	Jason Lim	Jason Lim
16:10 ~ 16:30	Invited	Sustainable Bio-Based UV-Curable Polyesters for 3D Printing: Synergy of Diol Architecture and Naphthalene Incorporation	Chin-Wen Chen	Chin-Wen Chen
16:30 ~ 16:50	Invited	Developing lightweight polyamide foams for high-performance electromagnetic interference shielding based on upcycling of recycled poly(ethylene terephthalate)	Yi-Huan Lee	Yi-Huan Lee
16:50 ~ 17:10	Invited	Marine Biodegradability of Biodegradable Plastics and Its Control Methods	Miwa Suzuki	Miwa Suzuki
17:10 ~ 17:25	O000064	Reprocessable Polymalonamide Membranes for Sustainable CO_2 Separation	Yu-Xuan Huang	Yu-Xuan Huang, Yu-Xiang Wang, Chien-Chieh Hu, Ting-Yu Liu, Ru-Jong Jeng, Chien-Hsin Wu
17:25 ~ 17:40	O000082	Upcycling Post-Consumer PET into Hydroxyl-Functionalized Chemical Building Block	Hsiu-I Hung	Hsiu-I Hung, Ying-Chi Huang, Ru-Jong Jeng, Chien-Chieh Hu, Chien-Hsin Wu

C7 - Functional Polymer Colloids and Thin Films | **Chair: Han-Yu Hsueh** | **Venue: Nusantaria C**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Using SAXS and Rheology in Bioink Design	Shan-hui Hsu	Shan-hui Hsu
16:20 ~ 16:40	Invited	Fabrication of Mesophases with Complex Nonlinear Responsiveness	Tomoyuki Akutagawa	Tomoyuki Akutagawa
16:40 ~ 17:00	Invited	Cooperative Crystallization-Driven Morphology Control in Polymer–Photochromic Liquid Crystal Hybrid Thin Films for Transistors	Hsiu-Hui Chen	Hsiu-Hui Chen
17:00 ~ 17:20	Invited	Programming Nanoparticle Supracrystals through Interfacial and Polymer-Brush Engineering	Hongseok Yun	Hongseok Yun
17:20 ~ 17:40	Invited	Single-ion conducting polymers artificial SEI and binders for lithium ion battery anodes	Chi-Yang Chao	Chi-Yang Chao

C1 - Polymer Chemistry: Hybrid Materials and Applications | **Chair: Keun Hyung Lee** | **Venue: Nusantaria D**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Self-Assembly Behavior of Polymer/POSS Hybrids	Shiao-Wei Kuo	Shiao-Wei Kuo
16:20 ~ 16:40	Invited	Anisotropic Liquid Crystal Networks for Directed Heat Transfer Materials	Kwang-Un Jeong	Kwang-Un Jeong
16:40 ~ 17:00	Invited	Relaxation Dynamics of Complex Coacervate Core Hydrogel	Soo-Hyung Choi	Soo-Hyung Choi
17:00 ~ 17:20	Invited	Design of Electroactive Polymers with High Mechanical Properties for Intrinsically-Stretchable Solar Cells	Bumjoon Kim	Bumjoon Kim
17:20 ~ 17:35	O000318	Conductive Polymer-Based Composites for Supercapacitor Application	Prof. Tungabidya Maharana	Tungabidya Maharana

E1 - Materials and Devices for Neuromorphic Computing and Technologies | **Chair: Chu-Chen Chueh** | **Venue: Nusantaria E**

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	In-materio Reservoir Computing Utilizing Ions, Electrons, and Spins, and Its Applications to Processing Sensor Signals	Takashi Tsuchiya	Takashi Tsuchiya
16:10 ~ 16:25	O000137	Improved Inference Accuracy Despite Higher Variability in 28 nm CMOS Integrated 1T1R RRAM Arrays	Ankit Bende	Ankit Bende
16:25 ~ 16:45	Invited	Ultraflexible Organic Optoelectronics for Wearable Communication and Human–Machine Interaction	Sungjun Park	Sungjun Park
16:45 ~ 17:05	Invited	Stretchable Elastomers for Artificial Synapses and Neuromorphic Computing	Wen-Ya Lee	Wen-Ya Lee
17:05 ~ 17:20	O000144	Halide Composition Engineering for Simultaneously High-Performance and Photostable Perovskite Synaptic Memristors	Po-Kai Kung	Po-Kai Kung
17:20 ~ 17:40	Invited	Neuron-Synapse Integration via Threshold and Resistive Switching Oxide Memristors	Jen-Sue Chen	Jen-Sue Chen

C6 - Biomedical Materials and Precision Medicine		Chair: Yih-Chih Hsu		Venue: Tayouan A
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Uncovering hidden tumor-reactive T cells through biomimetic materials engineering	Che-Ming Hu	Che-Ming Hu
16:20 ~ 16:40	Invited	Development of Carbon Monoxide-based Novel Therapeutic Agent As a Gaseous Therapeutic Molecule for Ulcerative Colitis	Tomohisa Takagi	Tomohisa Takagi
16:40 ~ 17:00	Invited	Nanocarrier-Driven Immune Remodeling Ignites Cold Tumors	Yunching Chen	Yunching Chen
17:00 ~ 17:20	Invited	Development of self-assembled antioxidant polymeric nanoparticles as drug delivery systems for treating gastrointestinal inflammation	Long Binh Vong	Long Binh Vong
17:20 ~ 17:40	Invited	Diels–Alder-Functionalized Magnetic Nanoparticles Enable Magnetically Triggered, On-Demand Drug Release.	James Lai	James Lai

F6 - Non-Ferrous Materials		Chair: Cheng-Ling Tai, Tsai-Fu Chung		Venue: Tayouan B
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Development of novel lightweight Ti-rich Medium Entropy Alloys	Shian-Ching Jason Jang	Shian-Ching Jason Jang
16:20 ~ 16:40	Invited	A Constitutive Framework for Non-Isothermal Plasticity through Micro-Mechanism Informed Artificial Neural Networks	Yo-Lun Yang	Yo-Lun Yang
16:45 ~ 17:00	O000043	Influence of hydrogen ingress and capture on the mechanical properties of spray formed 2195 aluminum alloy	Xiaoxu Yang	Xiaoxu Yang, Jiantang Jiang, Xiaoya Wang
17:00 ~ 17:15	O000128	Hydrogen Induced Microstructural Evolution and Its Effect on the Mechanical Performance of Ti-6Al-4V Alloy	Marcin Wiśniewski	Marcin Wiśniewski, Daria Drozdenko, Patrik Dobroň, Ladislav Havela
17:15 ~ 17:30	O000155	High-Pressure Torsion Processing of ECO-Almag Al–8.5Mg Alloy: Ultrafine-Grained Structure and High Hardness	Shahabodin Rafiei	Shahabodin Rafiei, Hyo Yun Jung, Kwang-Min Choi, Ji-Sung Park, Hyun-Ae Kim, Bong-Hwan Kim, Shae K. Kim

F1 - High-Entropy Materials		Chair: Che-Wei Tsai		Venue: Tayouan C
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	High-throughput synchrotron x-ray-based combinatorial stoichiometry & microstructure hardness mapping via machine learning-assisted prediction & validation of advanced alloys	E-Wen Huang	E-Wen Huang
16:10 ~ 16:30	Invited	Influence of alloying addition on the strain hardening behavior of AlxCo1.5CrFeNi1.5Tiy High Entropy Alloy.	Jayant Jain	Jayant Jain
16:30 ~ 16:50	Invited	Unveiling the potential application of high entropy alloy thin films in harsh environments	Jyh-Wei Lee	Jyh-Wei Lee
16:50 ~ 17:10	Invited	Research and Development of Medium-to-High Entropy Alloys Processed by LPBF for Elevated Temperature Applications	Jhuo-Lun Lee	Jhuo-Lun Lee
17:10 ~ 17:25	O000303	Composition-Dependent Shape Memory Effect in CoCrNi Medium-Entropy Alloy	Nolasco Aguilera Ana Paula	Nolasco Aguilera Ana Paula, Jinsurang Lim, Hwi Yun Jeong, Je In Lee
17:25 ~ 17:40	O000219	Effect of Elevated Operating Temperature on Defect Recovery and Functional Stability of a High-Entropy $Ti_{45}Zr_5Pt_{19}Pd_{25}Co_6$ Shape Memory Alloy	Hsu, Yi-Ting	Y.T. Hsu, Y.N. Shen, Y.Yamabe-Mitarai, C.H. Chen

F3 - High-entropy thin films and novel applications High Entropy, And Alloy Thin Films		Chair: Jyh-Ming Wu		Venue: Tayouan D
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Magnetron sputtered high entropy alloys and their nitride and carbide formation	Sven Ulrich	Sven Ulrich
16:20 ~ 16:40	Invited	Hydrogen Trapping by High-Entropy Carbide in Steels	Hung-Wei Yen	Hung-Wei Yen
16:40 ~ 17:00	Invited	Nature-Inspired Piezocatalysis Driven by Low-Frequency Water Flow: From 2D Materials to High-Entropy Ferroelectrics	Jyh-Ming Wu	Jyh-Ming Wu
17:00 ~ 17:20	Invited	Development of Functional High-Entropy Materials	Chuan-Feng Shih	Chuan-Feng Shih
17:20 ~ 17:35	O000329	Functional Magnetism in Epitaxial High Entropy Spinel Oxides	Quynh Le Thi	Le Thi Quynh, Chun- Chung Hsu, Yi – Cheng Chen, Jheng – Cyuan Lin, Ying-Hao Chu, Yu Chieh Ku, Chang-Yang Kuo

Session 7 November 3, 2026 10:40 ~ 12:30

B1 - Green Hydrogen Production from Sea Water | **Chair: Chung-Jen Tseng** | **Venue: Orange AB**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Hydrogen ready? Obstacles and Objectives for a Green Hydrogen Economy	Rüdiger-A. Eichel	Rüdiger-A. Eichel
11:10 ~ 11:30	Invited	Theoretical Modeling of critical processes in alkaline low-temperature AEM and high-temperature SOEC electrolysis at the atomistic scale	Christoph Scheurer	Christoph Scheurer
11:30 ~ 11:50	Invited		Sheng-Wei Lee	Sheng-Wei Lee
11:50 ~ 12:10	Invited	Multiphysics Analysis of PBSCCuF on Electrochemical Performance and Thermal Stress in Protonic Ceramic Electrolysis Cells	Yen-Hsin Chan	Yen-Hsin Chan
12:10 ~ 12:25	O000270	Enhanced Alkaline Water Electrolysis Performance of KOH-Doped Polybenzimidazole Ion-Solvating Membranes via the Synergistic Effect of Membrane Modification and Phosphoric Acid Pretreatment	Li-Cheng Jheng	Li-Cheng Jheng, Yi-Zhao Chang, Chia-Yu Lee, Lien-Chung Hsu

F5 - Ferrous Materials | **Chair: Hung-Wei Yen** | **Venue: Nusantaria A**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Revisiting Martensite Formation: The Transition from Thin-Plate Martensite to Lenticular Martensite	Jer-Ren Yang	Jer-Ren Yang
11:10 ~ 11:40	Keynote	Importance of boundary segregation on microstructure and properties of alloyed steels	Tadashi Furuhara	Tadashi Furuhara
11:40 ~ 12:00	Invited	Anisotropic Lattice Distortion Makes Ultrastrong Martensitic Steel Ductile	Mingxin Huang	Mingxin Huang
12:00 ~ 12:15	O000056	Laser Surface Hardening with Carbon Black Powders for Hacksaw Tooth	Yang-Tao Chen	Che-Wei Tsai, Yuan-Jen Chang, Yang-Tao Chen
12:15 ~ 12:30	O000066	Study on Fe/Zn Interfacial Reactions and its Application to 55-Gallon Hot-Dip Galvanized Steel Drum	Hsien-Ming Hsiao	Hsien-Ming Hsiao, Yu-En Huang, Mao-Wei Chen, Yee-Wen Yen

H2 - Optical Ceramics | **Chair: Fan-Bean Wu;Man-Ping Chang** | **Venue: Nusantaria B**

Time	No./Type	Presentation Title	Presenter	Authors
10:45 ~ 11:05	Invited	From Materials to Modulators: Advanced Processing of Electro-Optic Ceramics for Optical Modulation	Chun An Lu	Chun An Lu
11:05 ~ 11:25	Invited	Development of Low-Melting Glasses for Optical and Optoelectronic Applications	Yi-Sheng Lai	Yi-Sheng Lai
11:25 ~ 11:45	Invited	Ion-Exchange Strengthening of Transparent Glass-Ceramics	Yueh-Ting Shih	Yueh-Ting Shih
11:45 ~ 12:00	O000173	Structural, Optical, and Electronic Property Modulation of $ZnGa_2O_4$ Thin Films via Sequential RF Magnetron Sputtering	Deveshwar Sasikumar	Deveshwar Sasikumar, Venkatesh Narasihman, Wei Sheng Liu, Balaji Gururajan
12:00 ~ 12:20	Invited	Luminescence Aging: A Critical Challenge Restricting the Application of Cr^{3+}-Activated Near-Infrared Phosphors	Lei Chen	Lei Chen

D4 - Metal–Organic Framework | **Chair: Teng-Hao Chen** | **Venue: Nusantaria C**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Post-synthetically modified MOFs for selective gas separation	Chang Seop Hong	Chang Seop Hong
11:10 ~ 11:30	Invited	In Situ Insights into Structural Flexibility in Metal–Organic Frameworks for Targeted Separation	Ken-Ichi Otake	Ken-Ichi Otake
11:30 ~ 11:50	Invited	Molecular-Level Engineering Strategies for Enhanced Charge Transport in Metal–Organic Electrode Materials	Watchareeya Kaveevivitchai	Watchareeya Kaveevivitchai
11:50 ~ 12:10	Invited	Metal–Organic Frameworks as Robust Platforms for Copolymerization and CO_2 Valorization	Chen-Yen Tsai	Chen-Yen Tsai
12:10 ~ 12:30	Invited	Azole-Based Metal–Organic Frameworks for Photocatalytic H_2 Production	Sareeya Bureekaew	Sareeya Bureekaew

A6 - Flow Batteries | **Chair: Yu-Lin Kuo** | **Venue: Nusantaria D**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:00	Invited	Enhanced Vanadium Redox Flow Battery Performance Enabled by Atmospheric-Pressure Plasma-Deposited Multimetal Oxide Catalysts	Yu-Lin Kuo	Yu-Lin Kuo
11:00 ~ 11:20	Invited	Non-Invasive Optical Tracking of SOC and Capacity Fading in VRFBs	Chau-Chang Chou	Chau-Chang Chou
11:20 ~ 11:40	Invited	Tailoring Electronic Structure and Lattice Distortion in High-Entropy Spinel Oxide/rGO Electrocatalysts for Accelerated Kinetics in Vanadium Redox Flow Batteries	Chen-Hao Wang	Chen-Hao Wang
11:40 ~ 12:00	Invited	Synergitic Modification Stratergies for Graphite felt Electrodes toward enhanced Kinetics and Durability in Vanadium Redox Flow Batteries	I-Ming Hung	I-Ming Hung
12:00 ~ 12:20	Invited		Yao-Ming Wang	Yao-Ming Wang

C2 - Polymer Physics and Optoelectronic Applications | **Chair: Yeo-Wan Chiang** | **Venue: Nusantaria E**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Designing Coordination Nanosheets for Functional Materials	Hiroshi Nishihara	Hiroshi Nishihara
11:10 ~ 11:30	Invited	Fullerene polymerized nanochains for nanoscale binary resistance switching device	Kazuhito Tsukagosh	Kazuhito Tsukagosh
11:30 ~ 11:50	Invited	Multifunctional Additive Engineering of Perovskite Solar Cells	Dhruba B. Khadka	Dhruba Bahadur Khadka
11:50 ~ 12:10	Invited	Colorful Conductive Inks Enabled by Photonic Glass Formation through Spontaneous Jammed Packing	Wei-Tsung Chuang	Wei-Tsung Chuang
12:10 ~ 12:30	Invited	High-Performance Organic Electrochemical Transistors for Wearable Health Monitoring	Jiajun Song	Jiajun Song

G3 - Multiscale Simulation on Functional Materials and Their Applications		Chair: Yu-Chieh Lo		Venue: Tayouan A
Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Neural-Network Atomistic Simulations of Dislocation-Mediated Plasticity in Functional Ceramics	Shigenobu Ogata	Shigenobu Ogata
11:10 ~ 11:30	Invited	Comparative Atomistic Investigation of Phase Transformation and Mechanical behaviors in CoCrFeMnNi High-Entropy Alloy and CoCrNi Medium-Entropy Alloy	Chin-Lung Kuo	Chin-Lung Kuo
11:30 ~ 11:50	Invited	Multiscale Simulations of Melt Spinning in Mg–Zn–Y Alloys Using Machine-Learning Potentials	Takao Tsumuraya	Takao Tsumuraya
11:50 ~ 12:10	Invited	Understanding Gas Sensing through Multiscale Simulations of Impurity-Modulated Charge Transport	Kun-Han Lin	Kun-Han Lin
12:10 ~ 12:30	Invited	AI-Enabled First-Principles Design of Oxide Semiconductor Interfaces for Advanced Gas Sensing Applications	Po-Liang Liu	Po-Liang Liu

H1 - Functional Ceramics		Chair: Ying-Chieh Lee, Chia-Chen Li		Venue: Tayouan B
Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	High Entropy Resistive Switching Oxides - From Powders to RRAM Devices -	Christian Pithan	Christian Pithan
11:10 ~ 11:30	Invited	Ion-conductive ceramic materials for solid oxide fuel cells and all solid-state lithium-ion batteries	Yen-Yu Chen	Yen-Yu Chen
11:30 ~ 11:50	Invited	Glass-ceramic crystallization and glass-assisted densification for low-K and low-loss LTCC materials	Kuei-Chih Feng	Kuei-Chih Feng
11:50 ~ 12:10	Invited	High-Entropy Ceramic Thin Films for Enhanced Ferroelectric Energy Storage	Wei Sea Chang	Wei Sea Chang

F1 - High-Entropy Materials		Chair: Wei-Lin Hsu		Venue: Tayouan C
Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Design and Development of High Entropy Alloys for High Temperature Applications	Hideyuki Murakami	Hideyuki Murakami
11:10 ~ 11:30	Invited	Enhanced Oxidation Resistance in Nanotwinned High-Entropy Alloy Thin Films at Elevated Temperatures	Fan-Yi Ouyang	Fan-Yi Ouyang
11:30 ~ 11:50	Invited	Exploring Functional Coatings with High Entropy Alloy Powders: Synthesis, Properties, and Performance	Shih-Hsun Chen	Shih-Hsun Chen
11:50 ~ 12:10	Invited	Investigate microstructure and mechanical property of heterogeous welding on non-equimloar CoCrFeMoNi FCC high-entropy-alloy	Che-Wei Tsai	Che-Wei Tsai
12:10 ~ 12:25	O000344	Unraveling the Corrosion Mechanism of aHigh-Entropy Alloy through Chemical Short-Range Ordering and Passive Film Formation	Po-Heng Chou	Po-Heng Chou, Yu-Chuan Hsu, An-Chou Yeh

E7 - Thermoelectric Materials		Chair: Hsin-Jay Wu		Venue: Tayouan D
Time	No./Type	Presentation Title	Presenter	Authors
10:45 ~ 11:15	Keynote	Zintl Phases and Thermoelectrics: A Chemist's Perspective	Franck Gascoin	Franck Gascoin
11:15 ~ 11:35	Invited	Band Engineering of SnS for Low-cost Thermoelectric Applictions	Kuei-Hsien Chen	Kuei-Hsien Chen
11:35 ~ 11:55	Invited	Insights into the crystal chemistry of thermoelectric sulfides and sulfohalides	Emmanuel Guilmeau	Emmanuel Guilmeau
11:55 ~ 12:15	Invited	Conventional Thermoelectrics vs Emerging 'Ionic Thermoelectric' Systems	Leigh Aldous	Leigh Aldous
12:15 ~ 12:35	Invited	Computationally guided discovery of two-dimensional thermoelectric materials	Hung Tuan Nguyen	Hung Tuan Nguyen

Session 8 November 3, 2026 13:30 ~ 15:20

B2 - Green Hydrogen Logistics by Ammonia as Hydrogen Carrier **Chair: Chung-Kuang Yang** **Venue: Orange AB**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Microenvironment-Engineered Nanomaterials for Sustainable Ammonia Synthesis	Zongyou Yin	Zongyou Yin
14:00 ~ 14:20	Invited	Integrated CO_2 Capture and Utilization: A Synergistic Pathway to Carbon Neutrality	Wen-Hui (Sophia) Cheng	Wen-Hui (Sophia) Cheng
14:20 ~ 14:40	Invited	Non-stoichiometric Sr-Perovskite Electrode for Hydrogen and Ammonia-Fueled Solid Oxide Fuel Cells	Hong-Yi Chang	Hong-Yi Chang
14:40 ~ 15:00	Invited	Phase-Dependent Hydrogen Production from Ammonia over Mo_2N Catalysts	Yi-Hsuan Lee	Yi-Hsuan Lee
15:00 ~ 15:20	Invited	Enhancing the Performance and Durability of Direct NH3-Fueled Intermediate-Temperature Solid Oxide Fuel Cells via Sputtered CoMoFeNiCu High-Entropy Alloy Anode Catalysts	Chung-Kuang Yang	Chung-Kuang Yang

F2 - Low-Carbon Technology in Metallurgy **Chair: Shih-kang Lin** **Venue: Nusantaria A**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Hydrogen-based direct reduction: Kinetic and thermodynamic possibilities and constraints	Petrus Christiaan Pistorius	Petrus Christiaan Pistorius
14:00 ~ 14:20	Invited	Progress of Low Carbon Blast Furnace Initiatives at CSC	Tsung-Yen Huang	Tsung-Yen Huang
14:20 ~ 14:40	Invited	From Powder to Plant: A Validated Multiscale Model for Hydrogen Direct Reduction of Iron	Christian Geitner	Christian Geitner
14:40 ~ 15:00	Invited	The Direct Reduction-Electric Smelting Route as a Solution for Depleting DR-Grade Pellet Supply	Matthias Fabry	Matthias Fabry
15:00 ~ 15:20	Invited	Atomic-Scale CO–H_2 Site Competition during Iron Oxide Reduction: An Ab Initio Metadynamics Study	Yu-Ning Chiu	Yu-Ning Chiu

D2 - Nano Carbon Materials **Chair: Che-Ning Yeh** **Venue: Nusantaria B**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Fluorination of Carbon Materials and Their Applications	Young-Seak Lee	Young-Seak Lee
14:00 ~ 14:20	Invited	Engineering Functional Two-Dimensional Materials toward Advanced Lithium Metal Batteries: From Solid Electrolytes to Anode Modifiers	Ching-Yuan Su	Ching-Yuan Su
14:20 ~ 14:40	Invited	Operando Structural Analysis of Carbon Electrodes for Electrochemical Devices	Yoshikiyo Hatakeyama	Yoshikiyo Hatakeyama
14:40 ~ 15:00	Invited	Polymer-Mediated TOF-SIMS Fingerprinting Enables AI-Assisted Diameter Classification of Carbon Nanotubes	Wen-Shan Zhang	Wen-Shan Zhang
15:00 ~ 15:20	Invited	Moluclar Engineering EDA/Graphene Oxide for Water/Soil Remediation	Yi-Ting Lai	Yi-Ting Lai

D4 - Metal–Organic Framework **Chair: Teng-Hao Chen** **Venue: Nusantaria C**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	MOF membranes for CO2 capture: recent advances and challanges	Dun-Yen Kang	Dun-Yen Kang
13:50 ~ 14:10	Invited	Phase-transition MOFs for composite catalytic systems	Hiroyasu Tabe	Hiroyasu Tabe
14:10 ~ 14:30	Invited	Engineering Catalytic Environments in Metal–Organic Frameworks for Organic Transformations	Min Kim	Min Kim
14:30 ~ 14:50	Invited	Processable metal-organic frameworks for environmental applications	Kanokwan Kongpatpanich	Kanokwan Kongpatpanich
14:50 ~ 15:05	O000153	Solvent-Less and Cost-Effective Synthesis of MAF-6 via Mechanochemical Route	Punnarai Sumrannit	Punnarai Sumrannit, Taya Ko Saothayanun, Yollada Inchongkol, Sareeya Bureekaew
15:05 ~ 15:20	O000301	In Situ Construction of Conductive Polypyrrole on NH_2-MIL-101(Cr) for High-Performance Cr(VI) Removal by Single-Pass Capacitive Deionization	Dugasa Jabesa Nemera	Dugasa Jabesa Nemera

D8 - Japan-Taiwan Joint-Session on Materials and Structures **Chair: Masato Sone** **Venue: Nusantaria D**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Rational Nano-Structural Design of Crystalline Complex Oxide Catalysts	Keigo Kamata	Keigo Kamata
14:00 ~ 14:20	Invited	Electrochemical Energy Storage: Shaping the Future of Carbon Free Fuels	Sangaraju Shanmugam	Sangaraju Shanmugam
14:20 ~ 14:40	Invited	Crystalline Sulfated Complex Metal Oxides as a Novel Class of Acid Catalysts	Satoshi Ishikawa	Satoshi Ishikawa
14:40 ~ 15:00	Invited	Solution Routes to Heterostructured Transition Metal Hydroxide Electrocatalysts for Oxygen Evolution Reaction	Asako Taniguchi	Asako Taniguchi
15:00 ~ 15:15	O000065	Strategies for Exploring Photocatalysts in a Vast Materials Space	Yohei Cho	Yohei Cho

C2 - Polymer Physics and Optoelectronic Applications **Chair: Wei-Tsung Chuang** **Venue: Nusantaria E**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Ordered Nanonetwork Structures from Block Coplymer Self-Assemby	Yeo-Wan Chiang	Yeo-Wan Chiang
14:00 ~ 14:20	Invited	Molecular Engineering of Covalent Organic Frameworks for Efficient Visible-Light-Driven Photocatalytic Hydrogen Evolution	Ahmed EL-Mahdy	Ahmed EL-Mahdy
14:20 ~ 14:40	Invited	Weak-Magnetic-Field Control of Microstructural Phase Transitions in Soft-Matter Materials	Che-Yi Chu	Che-Yi Chu
14:40 ~ 14:55	O000041	Effect of Radical Additives Blended with PEDOT:PSS on Organic Electrochemical Transistor-Based Biosensors	Teeratada Yanwattana	Teeratada Yanwattana, Daniel Quiñones, Yu-Sheng Hsiao
14:55 ~ 15:10	O000121	A Multi-Stage Fluid Particle Dynamics Model for Viscoelastic Phase Separation in Amphiphilic Polymer Conetworks	Ching Hsiang Huang	Ching-Hsiang Huang, Jiaxing Yuan, Chieh-Szu Huang

G3 - Multiscale Simulation on Functional Materials and Their Applications		Chair: Te-Cheng Su		Venue: Tayouan A
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Microstructure formation during rapid heating and cooling conditions in metal additive manufacturing	Masayuki Okugawa	Masayuki Okugawa
13:50 ~ 14:10	Invited	Construction of CALPHAD Databases and their application	Taichi Abe	Taichi Abe
14:10 ~ 14:30	Invited	Deep Material Networks for Multiscale Simulation of Heterogeneous Functional Materials: From Microstructure to Multiphysics Applications	Chuin-Shan (David) Chen	Chuin-Shan (David) Chen
14:30 ~ 14:50	Invited	Machine Learning and Microstructure of Advanced 2D Functional Materials	Chun-Wei Pao	Chun-Wei Pao
14:50 ~ 15:10	Invited	Multiscale and multi-physics methods for laser powder bed fusion additive manufacturing by lattice Boltzmann method linked with multi-phase field method	Sukeharu Nomoto	Sukeharu Nomoto
15:10 ~ 15:25	O000147	Coarse-grained molecular dynamics classifies liquid–liquid phase separation and aggregation of short peptides	Brandon MezaGonzalez	Brandon MezaGonzalez, Keiji Numata

H1 - Functional Ceramics		Chair: Chia-Chen Li, Hsing-I Hsiang		Venue: Tayouan B
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	MICAtronics: Flexible Functional Ceramics via van der Waals Heteroepitaxy	Ying-Hao Chu	Ying-Hao Chu
14:00 ~ 14:30	Keynote	Watching Antiferroelectricity in Action: Interfacial Strain–Confined Tetragonal Pathways in Zirconia Ultrathin Films	Tzong-Lin Jay Shieh	Tzong-Lin Jay Shieh
14:30 ~ 14:50	Invited	Electronic and Structural Modulation of Co_3CuN Anti-Perovskites via Zn-Substitution for Enhanced Oxygen Evolution Catalysis	Wenjea Tseng	Wenjea Tseng
14:50 ~ 15:10	Invited	Controlling Proton Transport Through Dynamic Structural Flexibility in Ge-Crosslinked Phosphate Glasses	Takahisa Omata	Takahisa Omata
15:10 ~ 15:25	O000032	Thermally Regulated Grain Evolution and Defect Chemistry in $SrCeO_3$: Implications for Mechanical and Dielectric Response	Arpita Tripathi	Arpita Tripathi, Pramod Kumar, Praveen Chandra Pandey, Shail Upadhyay

F1 - High-Entropy Materials		Chair: An-Chou Yeh		Venue: Tayouan C
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	A New Phase Inversion Mechanism in Refractory High-Entropy Superalloys: Volumetric Phase Inversion Driven by an Asymmetric Miscibility Gap	Ming-Hung Tsai	Ming-Hung Tsai
13:50 ~ 14:10	Invited	High-throughput Creep Evaluation of the $Al_{10}Co_{25}Cr_8Fe_{15}Ni_{36}Ti_6$ compositionally complex alloy in bending	Anna Maria Manzoni	Anna Maria Manzoni
14:10 ~ 14:30	Invited	Engineering Metastability in CoCrFeMnNi High-Entropy Alloy Thin Films: Linking Phase Evolution, Surface Chemistry, and Functional Properties	Nur Izzati Muhammad Nadzri	Nur Izzati Muhammad Nadzri
14:30 ~ 14:45	O000262	Catalyzing Magnesium by TiNiAlCoCr High-Entropy Alloy and Carbon Aerogel for Hydrogen Storage	Naser Einollahi	Song-Jeng Huang, Naser Einollahi, Farsana Mampulliyalil
14:45 ~ 15:00	O000208	Unlocking multifunctionality in Non-equimolar High entropy layered double hydroxides for supercapacitors and piezoelectric energy harvesting	Ezhilarasan Murugesan	Ezhilarasan Murugesan, Jhansirani Kesavan, Yen-Pei Fu
15:00 ~ 15:15	O000083	Oxidation behavior of $Al_{10}Co_{25}Cr_8Fe_{15}Ni_{36}Ti_6$ with Hf and Zr additions after exposures at high temperatures	Melanie Zitzmann	M. Zitzmann, S. Kuntze, A. S. Ulrich, A. M. Manzoni
15:15 ~ 15:30	O000129	Enhancing Selective Al_2O_3-Formation of $Al_{10}Co_{25}Cr_8Fe_{15}Ni_{36}Ti_6$ (at.-%) during High Temperature Oxidation by Slurry Aluminizing and Fluorine Effect	Stephan Kuntze, M.Sc.	S. Kuntze, M. Zitzmann, A.M. Manzoni

D3 - Functional Composite Materials		Chair: Meng-Fang Lin		Venue: Tayouan D
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Programmable functional composites for soft actuators	Pooi See Lee	Pooi See Lee
14:00 ~ 14:20	Invited	Flame-Retardant Bilayer Polymer Electrolyte for Lithium Metal Batteries	Jae Hyun Kim	Jae Hyun Kim
14:20 ~ 14:40	Invited	A Flexible 3D Nanofibrous Plasmon Biosensor for Real-Time Aquatic Antibiotic Surveillance	Koji Toma	Koji Toma
14:40 ~ 15:00	Invited	Surface and Interface Engineering of 3D-Printed Polymers for Functional Materials and Sensors	Chya Yan Liaw	Chya Yan Liaw
15:00 ~ 15:20	Invited	Electronic Trap Detection with Carrier-Resolved Photo-Hall Effect	Jihong Min	Byungha Shin

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X - Early Career Researchers	Chair: Hong-Kang Tian	Venue: Orange AB

Time	No./Type	Presentation Title	Presenter	Authors
15:55 ~ 16:05	O000084	Scalable Low-Dimensional Semiconductors for Heterogeneous Integration of 2D Materials and III–V Epitaxy	Chang-Hsun Huang	Chang-Hsun Huang
16:05 ~ 16:15	O000134	Multiscale Molecular Simulation: From Soft Matter Systems to Machine-Learned Potentials for Solid-State Electrolytes	Yi-Chen Tsai	Yi-Chen Tsai
16:15 ~ 16:25	O000178	Molecular Design and Process Optimization of Conjugated Polymer Photocatalysts for Visible-Light-Driven Hydrogen Evolution	Wei-Cheng Lin	Wei-Cheng Lin, Ho-Hsiu Chou
16:25 ~ 16:35	O000190	Electron-Wind-Induced Quenching Distortion in FCC Au Thin Strips	Shubhayan Mukherjee	Shubhayan Mukherjee, Yu-Ning Chiu, Yu-Chen Liu, Ming-Wei Hung, Ciou-Ren Lee, Kuan-Hsueh Lin, Shang-Jui Chiu, Shih-Kang Lin
16:35 ~ 16:45	O000199	Curriculum Vitae of Duc-Binh Nguyen	Duc-Binh Nguyen	Duc-Binh Nguyen
16:45 ~ 16:55	O000205	CurriculumVitae of Vinh-Phuc Ha	Vinh-Phuc Ha	Vinh-Phuc Ha, Yi-Hsin Chien
16:55 ~ 17:05	O000261	Benzo[c]cinnoline-Based Conjugated Polymers as Organocatalysts for Photocatalytic CO_2 Reaction	Kuang-Hao Cheng	Kuang-Hao Cheng, Ho-Hsiu Chou
17:05 ~ 17:15	O000298	Curriculum Vitae	Neon Vicente III Rosell	Rosell, Neon Vicente III, Bacarro
17:15 ~ 17:25	P000762	From Defect Chemistry to Device Reliability: Multiscale Engineering of Thermoelectric Materials	Bo-Chia Chen	Bo-Chia Chen, Hsin-Jay Wu
17:25 ~ 17:35	O000347	Additive Manufacturing of High-Entropy Alloys for High-Temperature and Extreme-Environment Applications	Jhuo-Lun Lee	Jhuo-Lun Lee

F2 - Low-Carbon Technology in Metallurgy	Chair: Shan-Wen Du	Venue: Nusantaria A

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Pathways for China Steel Corportation (CSC) to achieve Carbon Neutrality in 2050	I-Ching Hsiao	I-Ching Hsiao
16:10 ~ 16:30	Invited	Modelling and analysis of new ironmaking technologies	Shibo Kuang	Shibo Kuang
16:30 ~ 16:50	Invited	Composite Layer Sintering Technology for the Large-Amount Utilization of De-phosphorized Fine Iron Ore	Daisuke Maruoka	Daisuke Maruoka
16:50 ~ 17:10	Invited	Extending ANSYS Fluent for Solid–Liquid Phase Transitions in Porous Scrap Melting	Fu-Ling Yang	Fu-Ling Yang
17:10 ~ 17:25	O000099	Numerical Model of Shaft Furnace for Operational Efficiency Assessment under Hydrogen-Rich Conditions	Tai-Yu Pan	Tai-Yu Pan, Wen-Dung Hsu, Jia-Shyan Shiau
17:25 ~ 17:40	O000170	Multiscale Computational Screening of Transition-Metal-Doped UiO-66 for CO_2 Capture and Conversion: Identifying the Optimal Metal	Chao-Lung Chiang	Chao-Lung Chiang, Jung-Chia Yang, Po-Shao Li

D2 - Nano Carbon Materials	Chair: Yi-Ting Lai	Venue: Nusantaria B

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Synthesis of Graphene Oxide Nanoribbons and Nanocarbons for Photoelectrochemical Sensing and Energy Storage	Chia-Liang Sun	Chia-Liang Sun
16:10 ~ 16:30	Invited	^{129}Xe–NMR Spectroscopy: A Pore Structure Analysis Method for Disordered and Complex Nanoporous Carbon Materials	Jin Miyawaki	Jin Miyawaki
16:30 ~ 16:50	Invited	Kilogram-Scale Hard-Carbon Production from Agricultural Waste Under O2/CO Atmosphere Generated by Oyster-Shell Decomposition	Hong-Ping Lin	Hong-Ping Lin
16:50 ~ 17:10	Invited	Graphene-Enabled Interfacial Engineering for Advanced Lithium Batteries	Yu-Sheng Su	Yu-Sheng Su
17:10 ~ 17:25	O000108	Enhanced Antimicrobial Activity and biocompatibility of Metallic Substrates by Quench-Produced Diamond Coatings for Biomedical Implants	Hend Elshabrawy	Hend A. Elshabrawy, Moustafa M Zohair, Kuniyoshi Shimizu, Tsuyoshi Yoshitake, Abdelrahman Zkria Ahmed
17:25 ~ 17:40	O000182	Revealing and Designing Mechanical Flexibility in Porous Carbons	Tian Xia	Tian Xia, Bo Yang, Shunsuke Shimizu, Hiromi Sayama, Zheng-Ze Pan, Shiho Mukaida, Takeharu Yoshii, Mahmoud Mousavi, Hirotomo Nishihara

G1 - Generative AI Applications	Chair: Chi-Hua Yu	Venue: Nusantaria C

Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Dual-Constrained Diffusion Model for Nonlinear Microstructure Inverse Design with Direct Evaluation	Seunghwa Ryu	Seunghwa Ryu
16:20 ~ 16:40	Invited	Machine Learning-Driven Virtual Screening and First-Principles Validation for High-Voltage Lithium-Ion Battery Electrolytes	Wen-Dung Hsu	Wen-Dung Hsu
16:40 ~ 17:00	Invited	Learning from Nature: Bone-Inspired Design of Tunable Mechanical and Thermal Materials	Shu-Wei Chang	Shu-Wei Chang
17:00 ~ 17:20	Invited	Hybrid materials, electrocatalysts, electrodeposition	Tomoyuki Kurioka	Tomoyuki Kurioka
17:20 ~ 17:40	Invited	Advanced Material Analysis Workflows in Microelectronics – from Predictive to Generative AI	Roland Brunner	Roland Brunner

D8 - Japan-Taiwan Joint-Session on Materials and Structures		Chair: Chun-Yi Chen		Venue: Nusantaria D
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Unlocking the Potential of Surface-Enhanced Raman Scattering in Precision Medicine	Dehui Wan	Dehui Wan
16:10 ~ 16:30	Invited	Hydrogen detection via electrical resistance of films and thin-wires	Takashi Harumoto	Takashi Harumoto
16:30 ~ 16:50	Invited	Influence of Interparticle Distance on the Dissolution Behavior of Platinum Nanoparticles under Simulated PEFC Operating Conditions	Azusa Ooi	Azusa Ooi
16:50 ~ 17:10	Invited	Investigation of Magneto-Mechanical Coupling Behavior in Ni–Mn–Ga Single Crystalline Particle Composites	Wan-Ting Chiu	Wan-Ting Chiu
17:10 ~ 17:25	O000287	Effect of Thermal History on Hardness Distribution in Directed Energy Deposition Hot Work Tool Steel	Katsunari Takeuchi	Katsunari Takeuchi, Takayuki Koike, Hitoshi Hiraga, Nan Zhang, Yukio Miyashita
17:25 ~ 17:40	O000313	Study on Effect of Defects on Plane Bending Fatigue Strength in Additively Manufactured Maraging Steel Based on Fracture Mechanics	Yukio Miyashita	Yukio Miyashita, Ryosuke Ujiie、Nan Zhang
D9 - Thailand-Taiwan Joint-Session on Advanced Materials		Chair: Santi MAENSIRI		Venue: Nusantaria E
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:10	Invited	Nanomaterials and Their Composites for Energy Storage Applications	Santi Maensiri	Santi Maensiri
16:10 ~ 16:30	Invited	Nanoparticle-Engineered Biodegradable Polymer Sorbents: From Materials Design to Sustainable Oil Spill Remediation	Pranut Potiyaraj	Pranut Potiyaraj
16:30 ~ 16:50	Invited	Development of bulk Silver Selenide-based Thermoelectric Materials through Cold Sintering Process Approach	Supree Pinitsoontorn	Supree Pinitsoontorn
16:50 ~ 17:10	Invited	Graphene Electronics for Next Generation of Sensors and Energy Storages	Adisorn Tuantranont	Adisorn Tuantranont
E8 - Optical Materials		Chair: Ying-Chiao Wang		Venue: Tayouan A
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Advanced Interface Engineering via Operando Multi-Energy Photoelectron Spectroscopy for Next-Generation Electronics	Takahiro Nagata	Takahiro Nagata
16:20 ~ 16:40	Invited	Advanced Functional Materials for Energy Conversion and Storage Applications	Muhammad Monirul Islam	Muhammad Monirul Islam
16:40 ~ 17:00	Invited	Exploring the potential of naphthalenediimide (NDI)-based polymers for lithium-ion battery applications	Wonho Lee	Wonho Lee
17:00 ~ 17:20	Invited	From Molecular Design to AI-driven Discovery: Advancing Interfaces in Perovskite Solar Cells	Zhanglin Guo	Zhanglin Guo
17:20 ~ 17:40	Invited	Non-Volatile Floating-Gate Organic Photomemory for Neuromorphic Computing	Jung-Yao Chen	Jung-Yao Chen
A1 - Lithium-Ion Batteries		Chair: Fu-Ming Wang		Venue: Tayouan B
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Renovating Electrolytes for Fast-Charging and High-Energy Li-ion Batteries	Hongkyung Lee	Hongkyung Lee
16:20 ~ 16:40	Invited	Bridging the Interface of Silane-Engineered LLZTO Composite Electrolytes for Next Generation Solid-State Batteries	Ru-Shi Liu	Ru-Shi Liu
16:40 ~ 17:00	Invited	Electrolyte and Interface Control for Battery Safety	Seung-Wan Song	Seung-Wan Song
17:00 ~ 17:30	Keynote	Engineering Ni-Rich Cathode-Solid Electrolyte Interfaces for Low-Pressure All-Solid-State Lithium-Ion Batteries	Nae-Lih Wu	Nae-Lih Wu
17:30 ~ 17:50	Invited	Synthesis and Electrochemical Performance of O3-Type Cathodes for Sodium-Ion Batteries	Hsiu-Fen Lin	Hsiu-Fen Lin
A5 - High-Power/Fast-Charging Devices		Chair: Wei-Ren Liu		Venue: Tayouan C
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote	Designs of High-rate Hard Carbons with a High Low-potential Plateau Capacity for Li-/Na-ion Storage	Chi-Chang Hu	Chi-Chang Hu
16:20 ~ 16:40	Invited	Promoting Mn^{4+}/Mn^{2+} Redox Reaction in Aqueous Zn–MnO_2 Batteries	Tzu-Ho Wu	Tzu-Ho Wu
16:40 ~ 17:00	Invited	Recycled NiCo-LDH Composite Electrodes from Spent NiMH Batteries: A Circular Path to High-Power Supercapacitors for AI and Robotic Systems	Hsun-Yi Chen	Hsun-Yi Chen
17:00 ~ 17:20	Invited	Enhanced Rate Capability and Stability of Lithium Battery Solid-Electrolyte Interphases via Surface Modification	Chih-Chieh Wang	Chih-Chieh Wang
17:20 ~ 17:35	P000087	Comparing Chemical and Physical Activation of Ginkgo Fruit-Derived Carbons for Electric Double-Layer Capacitors	Jongyun Choi	Jongyun Choi, Jihwan Park, Sumin Jung, Wonjong Jung, Ji Chul Jung
D3 - Functional Composite Materials		Chair: Ting-Yu Liu		Venue: Tayouan D
Time	No./Type	Presentation Title	Presenter	Authors
15:50 ~ 16:20	Keynote		Xinge Yu	Xinge Yu
16:20 ~ 16:40	Invited	A soft future - From electronic skins and triboelectric nanogenerators to autonomous wearables and soft robots	Ying-Chih Lai	Ying-Chih Lai
16:40 ~ 17:00	Invited	Defect-Engineered PCN-250 Enables Enhanced Loading and Stabilization of Perovskite Quantum Dots for Efficient Photocatalytic CO_2 Reduction	Chun Che Lin	Chun Che Lin
17:00 ~ 17:20	Invited	Dielectric-Templated Metal Nanostructure Arrays for Plasmonic Color-Based Refractive-Index Sensing	Mana Toma	Mana Toma
17:20 ~ 17:40	Invited	2D Nanomaterials Developments in Electrochemical Sensors and Energy Applications	Mani Govindasamy	Mani Govindasamy

Session 10 November 4, 2026 10:40 ~ 12:30

B6 - Applications of Synchrotron Radiation in Catalysis **Chair: Yu-Chang Lin** **Venue: Orange AB**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:00	Invited	Capabilities of XEOL and TR-XEOL at the TPS 23A X-ray Nanoprobe Beamline	Bi-Hsuan Lin	Bi-Hsuan Lin
11:00 ~ 11:30	Keynote	XAFS studies on ammonia synthesis catalysts	Hitoshi Abe	Hitoshi Abe
11:30 ~ 11:50	Invited		Wei-Nien Su	Wei-Nien Su
11:50 ~ 12:10	Invited	Decoration of atomic Co, Sn Ni and Pt clusters triggers the quantum leap of oxygen reduction reaction on Pd Nanoparticles	Tsan-Yao Chen	Tsan-Yao Chen
12:10 ~ 12:30	Invited	Advanced Soft X-ray Spectromicroscopy for Catalysis at TPS 27A1: Applications and Perspectives	Wan-Ting Chen	Wan-Ting Chen

C5 - Biomechanical Materials **Chair: Pei-Chun Wong** **Venue: Nusantaria A**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Microfluidic Platform for Studying Cell Dynamics under Controlled Oxygen and pH Conditions	Kenichi Funamoto	Kenichi Funamoto
11:10 ~ 11:30	Invited	Electrospun Fiber Scaffolds for Biophysical Analysis and Regulation of Glioblastoma Cell Migration	Satoshi Fujita	Satoshi Fujita
11:30 ~ 11:50	Invited	Smart E-skin Systems for Soft Robotics and Wearable Motion Sensors	Ching-Te Kuo	Ching-Te Kuo
11:50 ~ 12:05	O000175	Microstructural Characterization of Quail (Coturnix japonica) Eggshell Biominerals and its Correlation with Micromechanical Properties	Huang Pin Jui	Huang Pin Jui、Chang-Yu Sun
12:05 ~ 12:20	O000214	Biomechanical investigation and characterization of the interfacial tissues between Avian Flight Feathers and the skeleton of the wing.	Haydn Whitehouse-Lloyd	Haydn Whitehouse-Lloyd, Professor Po-Yu Chen, Dr Riaz Akhtar

A4 - Aqueous Batteries **Chair: Tzu-Ho Wu** **Venue: Nusantaria B**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:00	Invited	From Corrosion to Passivation: Understanding Interfacial Evolution of Aluminum-Based Anodes in Aqueous Electrolytes	Meng-Chang Lin	Meng-Chang Lin
11:00 ~ 11:20	Invited	Engineering Polymer Gel Electrolytes for Next-Generation Aqueous Zinc-Based Batteries	Aishuak Konarov	Aishuak Konarov
11:20 ~ 11:40	Invited	Engineering Zinc Anodes in Aqueous Electrolytes: From Deposition Chemistry to Interphase Design	Soorathep Kheawhom	Soorathep Kheawhom
11:40 ~ 12:00	Invited	Electrolyte Structure Engineering for Highly Reversible Aqueous Zn/Li Hybrid-Ion and Zn//MnO_2 Batteries	Chun-Jern Pan	Chun-Jern Pan
12:00 ~ 12:15	O000044	Unlocking Charge Storage in Ultrahigh-Mass-Loading NiCo-LDH Electrodes through Hydrogen-Vacancy Engineering	Cheng-Hong Du	Cheng-Hong Du, Ying-Chu Chen, Yu-Kuei Hsu

G2 - AI Application In Material Structure And Process Development **Chair: Wen-Dung Hsu** **Venue: Nusantaria C**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Ion Transport in Superionic Amorphous Halides	De-En Jiang	De-En Jiang
11:10 ~ 11:30	Invited	Fine-Tuned Machine Learning Interatomic Potentials for Accelerated Materials Structure Screening and Dynamic Atomistic Simulations	Hong-Kang Tian	Hong-Kang Tian
11:30 ~ 11:50	Invited	Toward Interpretable AI for Materials and Mechanics	Tsung-Hui Alex Huang	Tsung-Hui Alex Huang
11:50 ~ 12:05	O000067	Surface Degradation Mechanisms in Li-Argyrodite Solid Electrolytes Using Machine Learning Interatomic Potentials	Jing-Yan Wu	Jing-Yan Wu、Hong-Kang Tian
12:05 ~ 12:20	O000215	Scalable and Resource-Efficient Quantum Machine Learning Force Fields via Local Neighborhood Aggregation	Hsu-Kai Cheng	Hsu-Kai Cheng、Chun-Wei Pao

D8 - Japan-Taiwan Joint-Session on Materials and Structures **Chair: Chun-Yi Chen** **Venue: Nusantaria D**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Materials Design for Phonon Transport Control in Thermoelectrics and Thermal Management	Takayoshi Katase	Takayoshi Katase
11:10 ~ 11:30	Invited	Material & Structural Design of Multi-layered Ti/Au Micro-components by Electrodeposition Towards Ultra-high Resolution MEMS accelerometer	Masato Sone	Masato Sone
11:30 ~ 11:50	Invited	Electronic and Magnetic Evolution of High-Entropy Rare-Earth Ferrites during Lithium Storage	Hwai-En Lin	Hwai-En Lin
11:50 ~ 12:10	Invited	Trace-Level NH3 Sensors Based on Flame-Synthesized RuO2-Loaded In2O3 Nanostructures: A Feasibility Study for Non-Invasive Diagnosis of Hepatic and Renal Diseases	Chaikarn Liewhiran	Chaikarn Liewhiran
12:10 ~ 12:25	O000092	Graphene-Scaffolded Ultrathin Perovskite Films on Photonic Membranes for Amplified Energy Localization	Shao-Ku Huang	Ya-Lun Ho, Jui-Han Fu, Kuniaki Konishi, Vincent Tung, Yu-Ming Chang, Chun-Wei Chen, Shao-Ku Huang

A3 - Solid-State Batteries **Chair: Ping-Chun Tsai** **Venue: Nusantaria E**

Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Solvent-Free Synthesis of Solid-State Polymer Electrolytes for High-Energy Lithium Batteries	Hsisheng Teng	Hsisheng Teng
11:10 ~ 11:30	Invited	Interfacial Engineering of Sulfide-Based All-Solid-State Batteries	Bing Joe Hwang	Bing Joe Hwang
11:30 ~ 11:50	Invited	Multiscale Lithium-Ion Dynamics in Solid-State Battery Materials: Insights from NMR and SIMS	Naoaki Kuwata	Naoaki Kuwata
11:50 ~ 12:10	Invited	Interfacial Chemistry-Governed Reaction Dynamics and Microstructural Evolution in All-Solid-State Batteries	Sung-Kyun Jung	Sung-Kyun Jung
12:10 ~ 12:30	Invited	Halide Solid Electrolytes for Stable High-Voltage All-Solid-State Sodium-Ion Batteries	Seungho Yu	Seungho Yu

E8 - Optical Materials		Chair: Tsung-Yu Huang, Chia-Yun Chen		Venue: Tayouan A
Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:00	Invited	Coordination Nanosheets for Photovoltaic Applications	Ying-Chiao Wang	Ying-Chiao Wang
11:00 ~ 11:20	Invited	Layered material-based optoelectronics via heterostructure design	Chia-Yun Chen	Chia-Yun Chen
11:20 ~ 11:40	Invited	Nanowire Array Infrared Photodetectors	Lan Fu	Lan Fu
11:40 ~ 11:55	O000105	Interface-Engineered $CuAlO_2$/MgZnO All-Oxide Heterojunction for Visible-Blind Deep-UV Photodetection	Dr. Balaji Gururajan	Balaji Gururajan, Venkatesh Narasihman, Deveshwar Sasikumar, Wei Sheng Liu
11:55 ~ 12:10	O000250	Thickness engineering of ultrathin tellurium interface layers for β-Ga_2O_3 MSM deep-ultraviolet photodetectors	Kai-Chun Peng	Cheng-Yeh Huang, Kai-Chun Peng, Jia-Chi Yao, Lee Wei-Hao, Yun-Mai Hsu, Tai-Chen Kuo

A1 - Lithium-Ion Batteries		Chair: Nae-Lih Wu		Venue: Tayouan B
Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:00	Invited	Heterostructured Composite Anodes for Sodium-Ion Batteries	Sang-Ok Kim	Sang-Ok Kim
11:00 ~ 11:20	Invited	Synergistic Engineering of Lithiophilicity and Mass Transport in Non-Alloying 3D Hosts for Stable Lithium Metal Anodes	Wonchul Park	Wonchul Park
11:20 ~ 11:40	Invited	Moisture-tolerant Mg metal electrodes for practical rechargeable Mg batteries	Si Hyoung Oh	Si Hyoung Oh
11:40 ~ 12:00	Invited	Nano-Structural Engineering of Conversion–Alloying Anodes for Reversible Sodium-Ion Storage	Seongmin Bak	Seongmin Bak
12:00 ~ 12:20	Invited	Understanding and mitigating calendar aging losses in next-generation batteries	Yuzhang Li	Yuzhang Li

A5 - High-Power/Fast-Charging Devices		Chair: Jeng-kuei Chang		Venue: Tayouan C
Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:00	Invited	Oxygen vacancies engineering via Sc^{3+} doping to boost Li-ion transport and cycling stability in $TiNb_2O_7$ anodes	Wei-Ren Liu	Wei-Ren Liu
11:00 ~ 11:20	Invited	Development of All-Solid-State Chloride-Ion Batteries	Atsushi Inoish	Atsushi Inoish
11:20 ~ 11:40	Invited	Engineering Electrochemical Interfaces for Fast-Charging and High-Power Batteries	Che-Ning Yeh	Che-Ning Yeh
11:40 ~ 11:55	O000037	Novel rock salt phase (NiCoCu)O synthesized via argon treatment: A comparative study for enhanced supercapacitor performance	Rameshwar.P. Bongane	Rameshwar.P. Bongane, Yu-Min Shen, Hsing-I Hsiang
11:55 ~ 12:10	P000385	Biomass-Derived Porous Carbon Microspheres with Localized Graphitic Domains for Supercapacitor Applications	Fa-Yi Chen	Fa-Yi Chen, Ming-Che Cheng, Du-Cheng Tsai, Fuh-Sheng Shieu

A7 - Fuel Cells		Chair: Kuan-Zong Fung		Venue: Tayouan D
Time	No./Type	Presentation Title	Presenter	Authors
10:40 ~ 11:10	Keynote	Surface and Interfacial Modification for High Performance Solid Oxide Fuel Cells	Pei-Chen Su	Pei-Chen Su
11:10 ~ 11:30	Invited	Integrating Electrolysis Technology into Sustainable Aviation Fuel (SAF) Production-the e-SAF development	Wei-Cheng Wang	Wei-Cheng Wang
11:30 ~ 11:50	Invited	Performance of Nanoparticle-Modified $Sr_2Fe_xMo_{2-x}O_{6-\delta}$ Electrodes in SOECs for H_2O and CO_2 Electrolysis	Yi-Hsuan Lee	Yi-Hsuan Lee
11:50 ~ 12:05	O000337	Mixed ion conducting electrolyte material for Fuel cell Application	Shivam Sharma	Shivam Sharma, Jay Narayan Mishra, Pritam Singh, Prabhakar Singh
12:05 ~ 12:20	O000330	Screening Metal-Doped BNC_2 Monolayers for Reversible Hydrogen Storage	Audomsak Sripothongnack	Audomsak Sripothongnack, Watcharin Teeranattapong, Tawan Paensuk, Pakpoom Reunchan

Session 11 November 4, 2026 13:30 ~ 15:20

B6 - Applications of Synchrotron Radiation in Catalysis **Chair: Bi-Hsuan Lin** **Venue: Orange AB**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Facet-Depenent Behaviors of Semiconductor Crystals Are Linked to Their Lattice Deviations	Michael Hsuan-Yi Huang	Michael Hsuan-Yi Huang
13:50 ~ 14:10	Invited	Recent development of	Hiroki Yamada	Hiroki Yamada
14:10 ~ 14:30	Invited	Unveiling Dynamic Electronic and Geometric Landscapes: Frontier Multi-modal X-ray Spectroscopy at the TPS 38A Beamline	Yu-Chang Lin	Yu-Chang Lin
14:30 ~ 14:50	Invited	Harnessing Transformation of Metal-Ligand Coordination in Dinuclear Ni(II)-Schiff Base Coordination Polymer for Promoting Electrochemical Oxygen Evolution	Chun-Hong Kuo	Chun-Hong Kuo
14:50 ~ 15:10	Invited	Combined XAS and TXPS at the Tender X-ray Beamline TPS 32A of Taiwan Photon Source	Po-Yang Peng	Po-Yang Peng

C5 - Biomechanical Materials **Chair: Kenichi Funamoto** **Venue: Nusantaria A**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Current Advances in Bone Graft Substitutes for Spinal Fusion Surgery	Cheng-Li Lin	Cheng-Li Lin
13:50 ~ 14:10	Invited	3D-Printed Gold Plasmonic Blackbody-Integrated Polycaprolactone Scaffolds for Photothermal Bone Tissue Engineering	Pei-Chun Wong	Pei-Chun Wong
14:10 ~ 14:30	Invited	From Engineered Microenvironments to Precision Tumor Models: Applications of FormuGel™ Hydrogel in Organoid Culture, Microdevices, and Drug Delivery	Shih-Chieh Tsai	Shih-Chieh Tsai
14:30 ~ 14:45	O000198	Influence of Topological Segmentation and Interfacial Friction on the Energy Absorption of Turtle Shell-inspired Composites	Yu-Han Weng	Yu-Han Weng, Po-Yu Chen
14:45 ~ 15:00	O000197	Bio-inspired Hybrid Metamaterial with Zero Poisson's Ratio Behavior for Enhanced Energy Absorption	Yuan-Wen Liu	Yuan-Wen Liu, Po-Yu Chen
15:00 ~ 15:15	O000125	Biomimetic Coating of 3D-Printed PLLA Scaffolds with Biogenic Hydroxyapatite Derived from Bovine Bone Waste	Ananthika Vijayan	Ananthika Vijayan, Gurunathan Saravana Kumar, Sreedha Sambhudevan

F7 - Solid Mechanics of Metals and Alloys **Chair: Bo-Shiuan Li** **Venue: Nusantaria B**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Indentation at Extreme Strain Rates and the Quantitative Study of Phonon Drag-Limited Plasticity	Christopher Schuh	Christopher Schuh
13:50 ~ 14:10	Invited	Effects of Alloying Elements on the Brittle-to-Ductile Transition in Steels	Masaki Tanaka	Masaki Tanaka
14:10 ~ 14:30	Invited	Small-Scale Mechanical Testing for Advanced Metallics - from Brittle Ductile Transition to Activation Volume	Bo-Shiuan Li	Bo-Shiuan Li
14:30 ~ 14:50	Invited	Effect of Cu doping on Strength and Deformation Mechanisms in Nanotwinned Ag Films	Leh-Ping Chang	Leh-Ping Chang
14:50 ~ 15:05	O000117	Solute-Enriched Layered Microstructures for High-Performance Low-Alloyed Mg Alloys	Daria Drozdenko	Daria Drozdenko, Andrea Farkas, Gergely Farkas, Patrik Dobroň, Jenő Gubicza, Zsolt Beke, Michiaki Yamasaki, Soya Nisimoto, Shin-Ichi Inoue, Kristián Máthis, Yoshihito Kawamura
15:05 ~ 15:20	O000138	Mechanical Response of SLM $Al_{0.2}Co_{1.5}CrFeNi_{1.5}Ti_{0.2}$ High-Entropy Alloy in Hydrogen Environment	Yen Ming Ko	Yen Ming Ko、An-Chou Yeh、Hung-Wei Yen

G2 - AI Application In Material Structure And Process Development **Chair: Chun-Wei Pao** **Venue: Nusantaria C**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Regulating LPSC stability and Li cation diffusion through doping and disorder via machine learning interatomic potential	Jyh-Chiang Jiang	Jyh-Chiang Jiang
13:50 ~ 14:10	Invited	Accelerating Molecular and Material Design with Machine Learning and Uncertainty Quantification	Yi-Pei Li	Yi-Pei Li
14:10 ~ 14:30	Invited	From Materials Literature to AI-Ready Knowledge: Graph-RAG and Intelligent Data Extraction for Materials Research	Wen-Jay Lee	Wen-Jay Lee
14:30 ~ 15:00	Keynote	A Unified Thermodynamic Framework: From Equilibrium and Nonequilibrium to Zentropy, Cross Phenomena, and Applications in AI and AI Safety	Zi-Kui Liu	Zi-Kui Liu
15:00 ~ 15:15	O000239	Unveiling the Plasticity of Highly Distorted and Chemically Complex Intermetallic Alloys via Machine Learning Potential and Unsupervised Clustering	Po-Yu Yang	Po-Yu Yang, Yu-Hsuan Wang, Chun-Wei Pao

D8 - Japan-Taiwan Joint-Session on Materials and Structures **Chair: Dehui Wan** **Venue: Nusantaria D**

Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Antiferroelectric Titanite: Development of High-Quality Thin Films and Their Electrical Properties	Shintaro Yasui	Shintaro Yasui
13:50 ~ 14:10	Invited	Three-Dimensional Aqueous–Ceramic Interfaces for Quasi-Solid-State Batteries	Yosuke Shiratori	Yosuke Shiratori
14:10 ~ 14:25	O000300	Comparactive Fatigue behavior of friction stir welded similar and dissimilar materials butt joints in additively manufactured and rolled Aluminum alloys	Y.Takahashi	Y. Takahashi, H. Hiraga, N. Zhang, Y. Miyashita, N. Seo
14:25 ~ 14:40	O000291	Effect of Internal Lattice Structural Distribution on the Mechanical Properties of Laser Powder Bed Fusion manufactured periodic beams	Ryota Yokoyama	Ryota Yokoyama, Hitoshi Hiraga, Nan Zhang, Yukio Miyashita, Takahiro Tomioka, Hisashi Hori
14:40 ~ 14:55	O000293	Fatigue Crack Growth Characteristics Evaluation Based on Crack-tip Strain Distribution Measured by SEM-DIC	Yusaku Hashimoto	Yusaku Hashimoto, Bui Phuong Thao, Yukio Miyashita
14:55 ~ 15:10	O000297	Effects of Raster Offset on the Tensile Properties of polylactic acid Manufactured by Fused Deposition Modeling	Kouji Miyake	Kouji Miyake, Yukio Miyashita, Nan Zhang, Hitoshi Hiraga, Takayuki Koike

A3 - Solid-State Batteries		Chair: Hsisheng Teng		Venue:Nusantaria E
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 14:00	Keynote	Foundation Potentials for Massive-Scale Design of Solid Electrolytes for Rechargeable Alkali-Ion Batteries	Shyue Ping Ong	Shyue Ping Ong
14:00 ~ 14:30	Keynote	Microstructure-Driven Battery Modeling and Simulations: A New Analysis and Design Tool for All-Solid-State Batteries	Yong Min Lee	Yong Min Lee
14:30 ~ 14:50	Invited	Durable Solid State Batteries by Compressible Solid Electrolytes	Stefan Adams	Stefan Adams
14:50 ~ 15:10	Invited	When Can Ceramic Fillers Enhance Ion Transport in Composite Solid Electrolytes? A Multiscale Perspective	Andreas Heuer	Andreas Heuer
15:10 ~ 15:30	Invited	A Multiscale Framework for Heterogeneous Electrolyte Interfaces and Ion Transport in Solid-State Batteries	Ping-Chun Tsai	Ping-Chun Tsai

E8 - Optical Materials		Chair: Wei-Cheng Chen, Jung-Yao Chen		Venue: Tayouan A
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:45	O000228	Inherently Chiral Single-Photon Emission from Individual Perovskite Quantum Dots	Hung-Ming Chen	Hung-Ming Chen, Chi-Chi Wu, Dun-Jie Jhan, Hao-Cheng Lin, Hao-Wu Lin
13:45 ~ 14:00	O000256	Optical Emission Tuning of InAs Quantum Dots on GaAs Substrates Using Al-Containing InAlGaAs Strain-Reducing Layers for Silicon Photonics	Kuan-Ting Shih	Kuan-Ting Shih, Wei-Sheng Liu, Bhavya Kondapavuluri, Zhi-Han Lin, Deng-Yi Shen, Jen-Inn Chyi
14:00 ~ 14:15	O000089	First Determination of the Electron Diffusion Length of ZnO-Nanoparticle Based UV LEDs	Rizwan Afridi	Rizwan Afridi, Toshiyuki Yoshida, Yasuhisa Fujita
14:15 ~ 14:30	O000069	Fluorophlogopite Plasmonic Heterostructures for Extreme-Temperature Backside SERS	Yu-Jen Hsiao	Yu-Jen Hsiao, Ci-Syun Chen, Chia-Ling Kuo, Yu-Hsien Lee, Kuo-Ping Chen, Dehui Wan, Wen-Hui Sophia Cheng, Ying-Hao Chu
14:30 ~ 14:45	O000124	Transparent UV-Blocking Structures Based on Refractive Index Contrast-Induced Light Scattering	Sihyun Jang	Sihyun Jang, James Laurence Ruello, Gunwoo Kim
14:45 ~ 15:00	O000112	AI-Driven Design and Control of Spectrally Selective Polymeric Optical Materials for Radiative Cooling	Gayeong Kim	Gayeong Kim, Gunwoo Kim
15:00 ~ 15:15	O000209	Potential Privacy Issues Related to Fabrics in Thermal Infrared Imaging	Pei-Yu Shen	Pei-Yu Shen, Pei-Chi Hsieh, Wei-Hsuan Kung, Shan-Chiao Yang, Sih-Wei Chang, Hsuen-Li Chen
15:15 ~ 15:30	O000341	Cooling or Dazzling: Anti-Solar-Glare Strategy for Snowfield-Like Diffuse Radiative Cooling Surfaces	Yau-En Chang	Yau-En Chang, Yen-Jen Chen, Shan-Chiao Yang, Dehui Wan, Hsuen-Li Chen

A1 - Lithium-Ion Batteries		Chair: Hongkyung Lee		Venue: Tayouan B
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited		Chia-Chin Chang	Chia-Chin Chang
13:50 ~ 14:10	Invited	In-situ Formation SEI and CEI at Electrode and Composite Solid-State Electrolyte Interphases doe Lithium Metal Batteriies	Chun-Chen Yang	Chun-Chen Yang
14:10 ~ 14:30	Invited	Current Collector and Interfacial Engineering for Stable Lithium and Zinc Metal Batteries	Shu-Hao Chang	Shu-Hao Chang
14:30 ~ 14:50	Invited	Atomic layer deposited protective coatings improve performance of Li-ion batteries	Karol Frohlich	Karol Frohlich
14:50 ~ 15:05	O000131	Single-Ion Conducting Latex Binders with Improving Lithium-Ion Conductivity for Natural Graphite Anodes in Lithium-ion Batteries	Huai-Shu Yang	Huai-Shu Yang, Chi-Yang Chao

A5 - High-Power/Fast-Charging Devices		Chair: Yu-Sheng Su		Venue: Tayouan C
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Zwitterionics in Tuning Water State to Enable Water Decoupled Ion Conduction for Zinc Batteries	Ta-Chung Liu	Ta-Chung Liu
13:50 ~ 14:10	Invited	Copper/nickel-based bimetallic heterostructures integrated with nitrogen-doped porous carbon for high-energy lithium and sodium-ion-based supercapacitors	Pin-Yi Chen	Pin-Yi Chen
14:10 ~ 14:25	O000314	Ce_2MoO_6 Double Perovskite with Nano-Fern Hierarchy: Unlocking High Power and Long Cycle Stability in Symmetric Energy Application	Joel Skaria Joseph	Joel Skaria Joseph, Subramanian Sakthinathan, Te-Wei Chiu
14:25 ~ 14:40	P000779	Calcination Temperature-Dependent Performance of BiOBr Electrodes for Supercapacitor Applications	Swapnil Nikalje	Swapnil Nikalje, Yi-Jia Chen
14:40 ~ 14:55	P000105	First-Principles Insights into Jahn–Teller Distortion Suppression in V-doped NFM111	Thuy-Duong Doan	Thuy-Duong Doan, Ngoc Thanh Thuy Tran, Shih-Kang Lin
14:55 ~ 15:10	P000308	Improving heat dissipation of the GaN HEMTs using a hybrid NCD/DLC capping layer	Yi-An Chen	Yi-An Chen, Wen-Cheng Ke

A7 - Fuel Cells		Chair: Pei-Chen Su		Venue: Tayouan D
Time	No./Type	Presentation Title	Presenter	Authors
13:30 ~ 13:50	Invited	Solid Oxide Cells for AI-Driven Data Centers (AIDC) and Net-Zero Emission	Kuan-Zong Fung	Kuan-Zong Fung
13:50 ~ 14:10	Invited		Jenn-Kun Kuo	Jenn-Kun Kuo
14:10 ~ 14:30	Invited	Interface Engineering of PGM-Free Electrocatalysts for Anion Exchange Membrane Fuel Cells	Chih-Liang Wang	Chih-Liang Wang
14:30 ~ 14:50	Invited	Porous Crystalline Nanomaterial–Modified Polybenzimidazole Membranes for High-Temperature Proton Exchange Membrane Fuel Cells	Li-Cheng Jheng	Li-Cheng Jheng

IUMRS-ICA 2026
EXCURSION

Visit our website for more information.

Optional paid program

November 5, 2026

Location: Tainan City, Taiwan

• Cultural Heritage

Exploring the historical context of Tainan through visits to the Confucius Temple, Anping Fort, and Old Street.





• Group Luncheon

Enjoying traditional clay-pot roasted chicken at Zhu Xiang Yua(竹香園).



• Excursion Schedule

MEETING & DROP-OFF
Meeting Point: Tainan Railway Station
Drop-off: Tainan HSR Station / Tainan Railway Station

Time	Activity
08:30 - 08:45	Meet at Tainan Railway Station
08:45 - 09:00	Railway Station to Tainan Confucius Temple
09:00 - 10:00	Tainan Confucius Temple
10:00 - 10:20	Confucius Temple to Anping Old Fort / Old Street
10:20 - 11:20	Anping Old Fort / Anping Old Street
11:20 - 11:30	Anping to Zhu Xiang Yuan (Anping Branch)
11:30 - 13:00	Lunch at Zhu Xiang Yuan
13:00 - 13:25	Zhu Xiang Yuan to Sicao Green Tunnel
13:25 - 14:35	Sicao Green Tunnel
14:35 - 14:55	Sicao to Luermen Mazu Temple
14:55 - 15:55	Luermen Mazu Temple
15:55 - 17:00	Mazu Temple to Tainan HSR Station
17:00 - 17:15	Arrival at Tainan HSR Station
17:15 - 18:00	HSR Station to Tainan Railway Station

• Ecological Observation

Taking a boat ride through the Sicao Green Tunnel to discover its rich wetland ecology.



• Religious Architecture

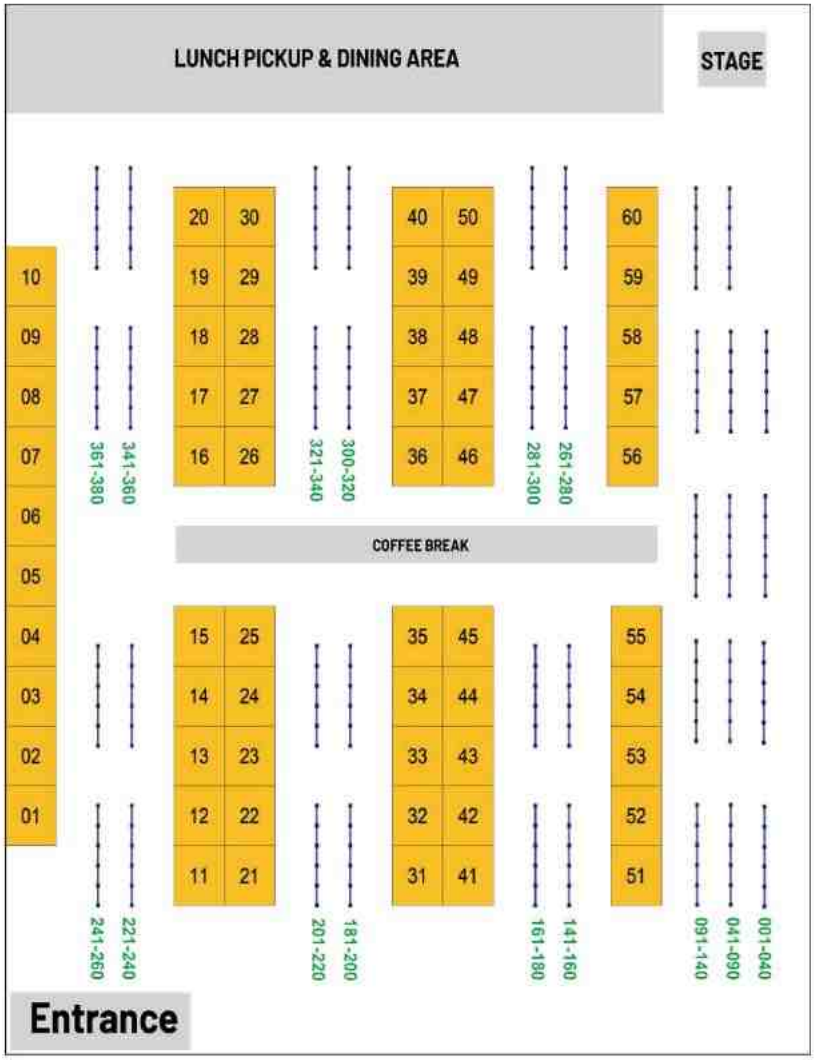
Visiting the Orthodox Luermen Shengmu (Mazu) Temple to observe traditional architectural layouts.



IUMRS-ICA 2026
EXHIBITION

Visit our website for more information.

EXHIBITION BOOTHS 01–60
Venue: 1F, West Exhibition Hall
Sun., Nov. 1 · 10:00–17:40
Mon., Nov. 2 · 09:00–17:40
Tue., Nov. 3 · 09:00–15:00



01 | 02 Advance Instrument Inc. 茂凱科技有限公司

03 CompuTherm LLC

04 LI SHUN HING TECHNOLOGY CO., LTD. 立順興資源科技股份有限公司

05 SINOM CORPORATION 子嘉企業有限公司

06 Waters Asia Limited, Taiwan Branch (U.S.A.)美商沃特斯國際股份有限公司台灣分公司

07 Core Facility Center, NCKU 國立成功大學(核心設施中心)

08 Marketech International Corp. 帆宣系統科技股份有限公司

09 Kingyoup Enterprises Co., Ltd. 勤友企業股份有限公司

10 Findinno Corporation 原想創新股份有限公司

11 | 15 | 21 | 25 National Cheng Kung University Department of Materials Science and Engineering and Mining Engineering Alumni Association 國立成功大學材料科學及工程學系系友會

16 Agriest Technology Inc. 農森科技股份有限公司

17 BRUKER TAIWAN CO., LTD. 台灣布魯克生命科學股份有限公司

18 TechMax Technical Co., Ltd. 科邁斯科技股份有限公司

19 DERIGHT PRECISION MACHINERY CO., LTD. 德瑞精密機械有限公司

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40 Materials and Electro-Optics Research Institute 國家中山科學研究院材料暨光電研究所

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43 RayNext Semiconductor Co., Ltd. 瑞鼎科技股份有限公司

44 | 45 SunPro International Inc. 勝博國際(股)公司

47 FPC Inspection & Testing Center 台塑塑膠工業股份有限公司 台塑檢驗中心

48 Cyntec Co., Ltd. 台達電子零組件事業群_乾坤科技股份有限公司

49 UCSM Technology Corp. 見微科技股份有限公司

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60 E HONG INSTRUMENTS CO., LTD. 益弘儀器股份有限公司

CONVENIENT ACCESS TO ICC TAINAN

ICC Tainan is conveniently located in the Shalun area of Tainan, with excellent access by public transportation and car. Participants may travel by **Taiwan High Speed Rail (THSR)** to Tainan Station or by **Taiwan Railways (TRA) to Shalun Station**, both of which provide convenient access to the venue. For those arriving by car, ample parking facilities are available around the convention center.

To make local transportation more convenient during the conference, participants will also receive an **EasyCard**, which can be used on public transportation and at participating stores throughout Taiwan.

Detailed information for the three recommended transportation options is provided below.



EasyCard for Convenient Travel

An EasyCard will be provided to participants for convenient use of public transportation in Taiwan.

High-Speed Rail

Reaching our venue via Taiwan High-Speed Rail is incredibly convenient. Simply disembark at **Tainan HSR** Station, and within a mere 5-minute walk from **exit 2**, you'll find yourself at **ICC TAINAN**.

👉 Scan to view walking directions on Google Maps:

Train

Just as easy as it is to reach ICC TAINAN from the HSR Station, you can also take the journey to our venue through Taiwan's Railway. Simply disembark at Shalun Station, and within a short walk you will arrive at ICC TAINAN.

👉 Scan to view walking directions on Google Maps:

Bus

- H31: Tainan City Government to Tainan HSR Station
- H62: Tainan HSR Station to Chi Mei Medical Center
- 8042: Tainan HSR Station to Shih Chien University
- Red14: Chang Jung Christian University to Tainan HSR Station to Guanmiao
- Red3: Tainan to Tainan HSR Station to Guanmiao
- Green16: Tainan HSR Station to Guanmiao to Hsinhua

Car

Located right outside of Tainan City, reaching ICC TAINAN by car is quick and convenient. Depending on your starting location, here are two recommended routes to reach ICC Tainan:

👉 If you're coming from Tainan, take Provincial Highway No. 86 and head towards Shanglun Interchange. Then, take the exit at DaTen, and you'll arrive at ICC TAINAN.

👉 If you're traveling from Taipei, Taichung, or Kaohsiung, take either National Highway No. 1 or National Highway No. 3. At Rende Interchange, transition to Provincial Highway No. 86. Continue until you reach Shanglun Interchange, where you'll exit at DaTen. From there, you'll find yourself at ICC TAINAN.

When arriving on site, our venue offers several convenient parking options, ensuring a hassle-free experience for visitors arriving by car.

ICC TAINAN Parking Lots

Rates: Indoor parking – 40 TWD/hour, daily maximum 160 TWD
Indoor Parking: B1F, 3F, 4F (550 car spaces)
Outdoor Parking: East Plaza (250 car spaces, 464 motorcycle spaces)

Street Parking Spaces

Rates: 20 TWD/hour, daily maximum 100 TWD
Locations:
Guiren 10th Road (42 car spaces)
Guiren 12th Road (30 car spaces)
Guiren Boulevard Lane 88 (19 car spaces)

Public Parking Lots

Rates: 20 TWD/hour, daily maximum 100 TWD
Lots:
1st (95 car spaces)
2nd (100 car spaces)
A (95 car spaces, 133 motorcycle spaces)
B (95 car spaces, 88 motorcycle spaces)
C to I (344 car spaces)

Private Parking Lots

Rates: According to the pricing regulations of each parking lot
Lots: P1 to P17



國家中山科學研究院材料暨光電研究所
Materials and Electro-Optics Research Division ,NCSIST

國家中山科學研究院材料暨光電研究所致力於材料及光電兩大領域之關鍵技術研發，涵蓋金屬、複材、陶瓷、電能、光電、半導體、雷射、紅外線等材料及技術，秉持「材料創新、光電領航」之宗旨，積極投入各項創新技術及產品開發，以提升我國國防及民生產業之自主性及全球競爭力。

本院多年來配合國家政策，將國防技術轉移至民生產業，衍生產品計有防超高溫火焰耐燃工作服、車輛軌道零組件、碳化鉭塗層坩堝、高精度光學元件、高強度藍寶石光窗、中波長紅外線影像感測模組、高強度鋼板、陶瓷複合裝甲等，均為關鍵產業未來發展之主軸產品。未來將持續發揮技術與產業加乘綜效，掌握國際新材料與光電科技發展趨勢，以冀提高我國材料與光電研發水準與地位。





PANDAT™ SOFTWARE | PandatAi

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Exhibition · Nov 1–3, 2026 · Tainan, Taiwan

Pandat™ Software for Materials Design

CALPHAD-based software and databases since 1996 — now with PandatAi in Pandat 2026A

Core CALPHAD Platform

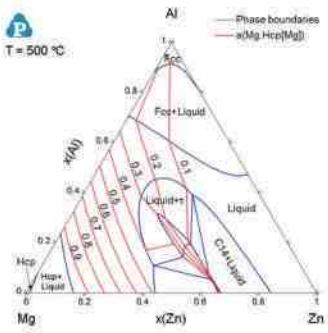
PanPhaseDiagram: phase equilibria, phase and property diagrams, Scheil solidification

Kinetic modules: PanSolidification, PanEvolution, PanDiffusion, PanPhaseField

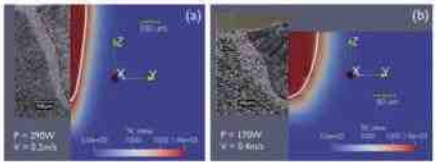
PanLink: runtime coupling with FEM, phase-field, ICME and AI frameworks

PanPython & PanEngine SDKs: high-throughput calculation and custom applications

PanDatabases: thermodynamic, mobility and thermophysical databases for Al, Mg, Fe, Co, Mo, Nb, Ni, Ti, TiAl, Zn, noble-metal, magnetic, HEA and RHEA alloys



Al-Mg-Zn isotherm at 500 °C · PanPhaseDiagram



Melt pool in Ti-6Al-4V vs. experiment · PanLink

NEW **PandatAi**

Ask a materials question in plain language. PandatAi designs and runs the calculation, then plots, interprets and reports the results.

1. **Ask the question**
2. **Pandat performs the simulation**
3. **AI analyzes & reports**

Phase diagrams · Solidification · Precipitation · Diffusion

New solidification plugins

Cellular Automaton (CA) plugin: grain structure prediction

OpenPhase (OP) plugin: multicomponent phase-field solidification

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Pandat Workshop 2026 Pandat 工作坊：熱力學計算與材料工程應用

成功大學 材料系	2026 / 10 / 30	13:30 – 16:00
清華大學 化工系	2026 / 11 / 06	09:30 – 12:00

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- 離子研磨速度高，Si材料300μm/h, 50μm 切割高度，可滿足實驗室高效率要求
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- 透過觸控螢幕進行簡單操控，不需要特別的操作技巧
- 樣品處理過程可即時監控，可以透過立體顯微鏡或 HD-TV CCD 觀察
- LED 照明，便於觀察樣品和位置校準
- 內置式真空系統，提供一個無振動的觀察視野
- 在製備好的平整切割截面上可再進行離子束蝕刻處理，增強樣品表面對比 (如晶界)
- 通過USB 即可進行參數和程序上的備份與載入

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Adhesives Nonconductive Tabs/Tapes
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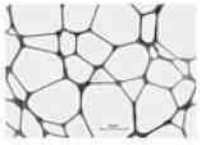

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