

Table of Contents

Part I Conference Schedule Summary	1
Part II Keynote Speeches and Invited Speeches	3
Keynote Speech 1: Combining Fundamental Engineering Research with Artificial Intelligence: The Key to Developing High-performance Polymer Composites for Tribological Systems	3
Keynote Speech 2: Variation of Shear Average Strength Depending on Specimen Geometry in Pull-Out/Micro-Bond Tests and Lap Shear Tensile Test	5
Invited Speech 1: A Novel Approach to Evaluate the Singular Stress Field of Interface Cracks in Orthotropic Dissimilar Materials Using Isotropic Reference Solutions	7
Invited Speech 2: High Temperature Resistant Polymers for Ultra-deep Well Drilling.....	8
Invited Speech 3: Investigation of the Stepped-lap Joint Strength Improvement Mechanism Based on the ISSF Analysis	9
Invited Speech 4: Advanced Synthesis of Highly Crystalline Carbon Nanotubes and High Aspect Ratio Structures for Multifunctional Applications	10
Invited Speech 5: High Performance Polymer Electrolyte Lithium Metal Batteries	12
Part III Oral Presentations	13
General Guidelines	13
Oral Session 1: Structural, Mechanical and Engineering Applied Materials	15
Oral Session 2: Biomedical Materials and Functional Polymer	16
Oral Session 3: Energy, Catalysis and Environmental Materials	17
Part IV Poster Presentations.....	18
Poster Presentation Guidelines	18
List of Posters.....	19
Part V Conference Venue.....	20
Part VI Acknowledgements	22

Part I Conference Schedule Summary

Tuesday, November 4, 2025/ Japan Standard Time (UTC+9)

14:00-18:00 Registration In front of Meeting Room 501 at Kunibiki Messe

Note for on-site registration:

1. Please let us know your name or abstract / paper number for registration.
2. Please pick up all the conference materials at the registration desk (Name Card, Conference Program, Lunch & Dinner Tickets, etc.).

Wednesday, November 5, 2025/ Japan Standard Time (UTC+9)

Location: Meeting Room 601, Kunibiki Messe

Host	<i>Prof. Alois K. Schlarb, Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Germany</i>	
09:00-09:05	Welcome Speech <i>Prof. Nao-Aki Noda, Kyushu Institute of Technology, Japan</i>	
09:05-09:45	Keynote Speech 1: Combining Fundamental Engineering Research with Artificial Intelligence: The Key to Developing High-performance Polymer Composites for Tribological Systems <i>Prof. Alois K. Schlarb, Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Germany</i>	
09:45-10:25	Keynote Speech 2: Variation of Shear Average Strength Depending on Specimen Geometry in Pull-Out/Micro-Bond Tests and Lap Shear Tensile Test <i>Prof. Nao-Aki Noda, Kyushu Institute of Technology, Japan</i>	
10:25-10:55	Group Photo	Location: By the Ground Entrance, Kunibiki Messe
	Coffee Break	Location: In front of Meeting Room 601, Kunibiki Messe
10:55-11:15	Invited Speech 1: A Novel Approach to Evaluate the Singular Stress Field of Interface Cracks in Orthotropic Dissimilar Materials Using Isotropic Reference Solutions <i>Prof. Kazuhiro Oda, Division of Mechanical Engineering, Faculty of Science and Technology, Oita University, Japan</i>	
11:15-11:35	Invited Speech 2: High Temperature Resistant Polymers for Ultra-deep Well Drilling <i>Assoc. Prof. Xianbin Huang, School of Petroleum Engineering, China University of Petroleum (East China), China</i>	
11:35-11:55	Invited Speech 3: Investigation of the Stepped-lap Joint Strength Improvement Mechanism Based on the ISSF Analysis <i>Assoc. Prof. Rei Takaki, Department of Mechanical and Electrical Engineering, Nippon Bunri University, Japan</i>	
11:55-12:15	Invited Speech 4: Advanced Synthesis of Highly Crystalline Carbon Nanotubes and High Aspect Ratio Structures for Multifunctional Applications <i>Dr. Guohai Chen, National Institute of Advanced Industrial Science and Technology (AIST), Japan</i>	

12:15-14:00	Lunch Break
14:00-16:45	Oral Session 1: Structural, Mechanical and Engineering Applied Materials

Thursday, November 6, 2025 / Japan Standard Time (UTC+9)

Location: Meeting Room 601

09:00-11:15 **Oral Session 2: Biomedical Materials and Functional Polymer**

11:15-12:15 **Poster Presentations**

12:15-14:00 Lunch Break

14:00-16:35 **Oral Session 3: Energy, Catalysis and Environmental Materials**

Thursday Evening, November 6, 2025 / Japan Standard Time (UTC+9)

Awarding Banquet

Location: YUUSHIEN Garden in Daikonshima

17:30 **Gathering** at the entrance of Kunibiki Messe

17:40 **Departure** from entrance of Kunibiki Messe by bus

18:15-18:45 **Japanese Traditional Performances**

18:45-19:00 **Awarding Ceremony**

19:00-20:30 **Japanese Cuisine**

Friday, November 7, 2025 / Japan Standard Time (UTC+9)

09:10 **Departure from Kunibiki Messe** (Please gather at the entrance of Kunibiki Messe)

09:30-10:30 **Visit Matsue Castle**

10:40-11:40 **Horikawa Sightseeing Boat Ride**

11:50-12:40 **Lunch Break**

13:00-15:00 **Matsue Vogel Park**

15:45 **Arrival at JR Matsue Station at 15:45 (Subject to no traffic delays)**

Notes: Please note that the itinerary, including the order of visits and time spent at each location, is subject to change based on actual circumstances.

Part II Keynote Speeches and Invited Speeches

Keynote Speech 1: Combining Fundamental Engineering Research with Artificial Intelligence: The Key to Developing High-performance Polymer Composites for Tribological Systems



Prof. Alois K. Schlarb

*Professor, Rheinland-Pfälzische Technische Universität
Kaiserslautern-Landau, Kaiserslautern, Germany;
Visiting Professor, Qingdao University of Science and Technology,
China*

Biography: Professor Alois K. Schlarb currently serves as Senior Research Professor at the Rheinland-Pfälzische Technische Universität (RPTU), is a member of the State Research Center OPTIMAS at RPTU, and a visiting professor at Qingdao University of Science and Technology (QUST), PR China. Alois K. Schlarb studied mechanical engineering at the University of Kaiserslautern, specializing in production engineering and company organization. After his graduation in 1984 he relocated to the University of Kassel, working as a scientific assistant to Prof. Dr.-Ing. Dr. e.h. Ehrenstein. He was awarded a doctorate in 1989 for his thesis on polymer processing. From 1988 until 1989 he was also head engineer at the university's Institut fuer Werkstofftechnik (Institute of Materials Technology). In the following 13 years Professor Schlarb held different positions in the industry, e.g. the polymer laboratory of BASF SE as material scientist and project manager researching composites, last as Vice President and head of marketing, research and development with B. Braun Medical AG, Switzerland. In November 2002 Alois Schlarb was appointed to a full professorship for "Composite Materials" at the Technische Universität Kaiserslautern (now RPTU Kaiserslautern-Landau) and held this position until March 31, 2022. From 2002 to 2008 he served in parallel as Chief Executive Officer of the Institut für Verbundwerkstoffe GmbH (Institute of Composite Materials). Since 2018 Alois Schlarb also holds a visiting professorship at Qingdao University of Science and Technology, Qingdao, PR China. Professor Schlarb served as Spokesman of the Scientific Alliance of Polymer Technology (WAK) from 2009 - 2015 and as President of the Society for the Advancement of Materials and Processing Engineering SAMPE Deutschland e.V. from 2003 - 2015. He is on the editorial board or scientific advisory board of several journals and has more than 150 publications in peer-reviewed journals. He is also the editor/author/co-author of several books and book chapters. The focus of his research activities is on process-structure-property-relations and tribology of polymer-based hybrid materials.

Abstract: 20% of the world's energy is used to overcome friction losses in moving systems. Of this, 18 to 40% can be saved using new technologies 1. Plastic-based composite materials can make a significant contribution to this in sliding contacts. The qualification of tribological systems is a complex process. The load spectrum of such systems is essentially defined by the combination of surface pressure and sliding velocity; in addition, parameters such as ambient temperature, surface properties of the system partners or component geometries play an important role. By modifying the plastics with various fillers, the reliable development of tribological pairings leads to a

multidimensional investigation window with an almost unmanageable experimental effort. A completely new approach using novel intelligent test technology in combination with artificial intelligence tools can reliably determine the impact of a large number of parameters. The presentation highlights the relationships and mechanisms that have been explored over the past decades, but also the limitations of this approach for the targeted development of high-performance tribocomposites. The talk shows that artificial neural networks can solve this problem. They are superior to the human brain in pattern recognition and thus in predicting tribological properties depending on a variety of loads. However, ANNs require a large amount of data as input, which can be achieved in a time and cost-efficient manner with the intelligent testing technology presented here.

Keynote Speech 2: Variation of Shear Average Strength Depending on Specimen Geometry in Pull-Out/Micro-Bond Tests and Lap Shear Tensile Test



Prof. Nao-Aki Noda

*Professor Emeritus, Kyushu Institute of Technology, Japan
Specially Appointed Professor, China University of Petroleum
Beijing, China*

Biography: Nao-Aki Noda received his Ph.D. degree in Mechanical Engineering from Kyushu University, Japan in 1984. He has been doing research and teaching at Kyushu Inst. Tech., Kitakyushu, Japan, 1984-2022. He is an author of Theory of Elasticity useful for engineers and a co-author of Safety Engineering for Workers in Industry and other several books. He is a co-editor of Stress Intensity Factors Handbook, vol. 4 & 5, Advances in Finite Element Analysis for Computational Mechanics. He is a recipient of Outstanding Paper Medal of Japan Soc. Tech. Plasticity, Sokeizai Industry Technology award from the Materials Process Tech. Ctr., a fellow of JSME (Japan Soc. Mech. Engrs.) and a fellow of JSAE (Soc. Automotive Engrs. Japan), JSMS Award for Academic Contribution and JSME Materials and Mechanics Division Award. Nao-Aki Noda supervised more than 28 PhD students including 18 international students, most of whom are supported by MEXT. He also supervised more than 30 international master students most of whom are working in Japanese companies. He invited more than 25 international researchers to Kyushu Tech for collaboration. For contributing to the development of excellent international students and foreign researchers, he received the Commendation of Consulate-General of China in Fukuoka. His achievements include research in stress analysis for notched material testing specimens, and development for large ceramics structures used for steel manufacturing machinery and special bolt-nut connection improving anti-loosening and fatigue strength. In 2025, he received the Society of Automotive Engineers of Japan's Best Paper Award and the International Society for Advanced Materials' Advanced Materials Scientist Medal.

Abstract: In fiber reinforced composites, the fiber/matrix combination produces certain mechanical properties that cannot be achieved by either of the constituents acting alone. Many different alternative test set-ups and experimental techniques have been developed in recent years to gain more insight into the basic mechanisms, dominating the properties of the fiber/matrix interface. Pull-out/micro-bond tests are commonly used to investigate the interface properties by using the ultimate average shear stress without considering the singular stress fields (ISSFs). By using these methods, the macroscopic properties of the composite are being improved by increasing the fiber/matrix debonding strength. The ultimate average shear stress is also used in lap shear tensile test specified in JIS to describe adhesive shear strength. In those pull-out/micro-bond tests and lap shear tests, an interface crack initiates at interface end and propagates causing final failure. Therefore, the intensity of the singular stress field (ISSF) at the interface end controls the strength as can be expressed by $\text{ISSF}=\text{const}$. Instead, the ultimate average shear stress varies depending on the specimen geometry. In this study, by using $\text{ISSF}=\text{const}$, variations of the ultimate average shear stress are discussed for pull-out/micro-bond tests as well as lap shear tests. It is found that the ultimate average shear stress decreases with increasing

the bond length l_b . It is also found that the ultimate average shear stress decreases significantly with decreasing the knife edge opening less than $l_g \leq 10\mu\text{m}$.

Invited Speech 1: A Novel Approach to Evaluate the Singular Stress Field of Interface Cracks in Orthotropic Dissimilar Materials Using Isotropic Reference Solutions



Prof. Kazuhiro Oda

Division of Mechanical Engineering, Faculty of Science and Technology, Oita University, Japan

Biography: Professor Kazuhiro Oda is a faculty member in the Mechanical Engineering Program, Faculty of Science and Technology, Oita University. He received his Ph.D. in Engineering from Kyushu Institute of Technology in 1995. His research interests include strength of materials, elasticity, and fracture mechanics, with a particular focus on stress analysis and singular stress fields at dissimilar material interfaces and strength design of adhesive structures. After completing his doctoral studies in 1995, he served as a Research Fellow of the Japan Society for the Promotion of Science (JSPS) and later joined Tokuyama College of Technology, where he held positions as Associate Professor and Professor. In 2012, he moved to Oita University as Professor in the Faculty of Engineering (now the Faculty of Science and Technology). He is currently engaged in research on advanced strength evaluation methods for adhesive joints and stress intensity factor analysis for orthotropic dissimilar materials. Professor Oda also serves as Special Assistant to the President for Industry–Academia Collaboration, promoting partnerships between the university and industry. He was a Board Member of the Society of Materials Science, Japan (2020–2024). With numerous publications and contributions, he is recognized as one of the leading researchers in fracture mechanics–based design of dissimilar material joints. In 2025, he received the Society of Automotive Engineers of Japan’s Technical Paper Award.

Abstract: Cracked orthotropic dissimilar plate specimens are often used to evaluate the strength of fiber-reinforced composites. For isotropic dissimilar plates, the stress state is determined by so-called Dundurs parameters α^{iso} , β^{iso} . Similar composite parameters are proposed for orthotropic dissimilar plates as α , β , Γ_A , Γ_B , ρ_A , ρ_B . Compared to two parameters in isotropic cases, orthotropic cases have such six independent parameters, making it much more difficult to use previous analysis results and requiring a new analysis each time. In this study, by applying the mesh-independent proportional method the interface edge crack in orthotropic dissimilar materials is widely analyzed considering previous studies. Then, the singular stress field in orthotropic materials is compared with that in the isotropic dissimilar material under the condition $\alpha = \alpha^{iso}$, $\beta = \beta^{iso}$. The results show that the singular stress field in orthotropic dissimilar material can be evaluated within a few percent error in most cases from that in isotropic dissimilar material when $\alpha = \alpha^{iso}$, $\beta = \beta^{iso}$. In this isotropic replacement by applying $\alpha = \alpha^{iso}$, $\beta = \beta^{iso}$, the singular interface stress distributions in orthotropic dissimilar plates can be estimated within the 8% error even in the worst case where the material anisotropy changes significantly.

Invited Speech 2: High Temperature Resistant Polymers for Ultra-deep Well Drilling



Assoc. Prof. Xianbin Huang

*School of Petroleum Engineering, China University of Petroleum
(East China), China*

Biography: Dr. Xianbin Huang is an associate professor and a graduate supervisor in the School of Petroleum Engineering at China University of Petroleum (East China). He graduated from China University of Petroleum (Beijing) in 2017, majoring in oil and gas well engineering. His research interests include drilling fluids, polymers for high-temperature resistant drilling fluids, and materials for wellbore stabilization. He actively participates in product industrialization and engineering practice. Several high-temperature-resistant materials were industrialized and field applied in the drilling engineering. He is the leader of two National Nature Science Foundation of China (NSFC) research projects and six industry projects. It is a great honor for him to participate in the research of key technologies for China's 10,000-meter-deep wells. In 2022, he was honored as an Engineer of Excellence in Shandong Province, China. He is Youth Editorial Board Members for Petroleum Science and several Chinese academic journals.

Abstract: With the gradual depletion of shallow oil and gas resources, deep (>4,500m) and ultra-deep (>6,000m) oil and gas have become the main focus of oil and gas exploration and development in China. With the advancement of technology, the drilling depth has been gradually increased, and there are more than 200 oil and gas wells exceeding 8000m now in China. It is encouraging that China already has two wells deeper than 10,000 meters, one of which has been completed. However, the high temperature in the deep formation poses a great challenge to the temperature resistance of drilling fluids, which plays a vital role in carrying and suspending drill cuttings, stabilizing wellbores, and lubricating and cooling drill bits during drilling engineering. Water-soluble polymers mainly regulate rheology and control filtration in drilling fluids, but their performance falls under high-temperature and high salts conditions, which is a serious problem for safety and efficiency. This report will focus on the topic of high temperature resistant polymers used in drilling fluids. It will cover the technical challenges of deep well drilling, the challenges for polymers and research on high temperature resistant polymers (filtration control additive and plugging agent) from our team. Finally, the technical challenges that still need to be addressed will be presented.

Invited Speech 3: Investigation of the Stepped-lap Joint Strength Improvement Mechanism Based on the ISSF Analysis



Assoc. Prof. Rei Takaki

Department of Mechanical and Electrical Engineering, Nippon Bunri University, Japan

Biography: Rei Takaki received his Ph.D. in Engineering from the Kyushu Institute of Technology in Japan in 2022. He has been conducting research and teaching at Nippon Bunri University, Oita, Japan, since 2022. He is a co-editor of Strength of Materials Focusing on Equilibrium. He has received the JSAE Graduate Research Encouragement Award from the Society of Automotive Engineers of Japan, the JSMS Young Researcher Presentation Award, the JSMS Research Paper Award from the Society of Materials Science, the JSME Young Researcher Presentation Fellowship Award, and the JSME Hatakeyama Award from the Japan Society of Mechanical Engineers. His achievements include research on stress analysis of adhesive joints and strain-rate concentration analysis of notched specimens. In 2025, he received the Society of Automotive Engineers of Japan's Technical Paper Award.

Abstract: Step joints have some special features compared to other joints. For example, the joint area is larger than that of an ordinary straight joint, and thus the joint strength can be expected to be improved. Unevenness of the bonding interface can be simulated by changing the number of steps. To clarify the improvement mechanism in stepped joints, this study focused on the singular stress fields as well as the ISSFs, which control the adhesive strength. The initial debonding stress evaluated from the fully bonded stepped joint with a constant ISSF agrees well with the initial debonding stress $\sigma (c \text{ EXP})^{\text{Initial}}$. Furthermore, the variation of the second debonding stress σ_c^{2nd} evaluated from the partially delaminated stepped joint agrees well with the variation of the final fracture stress σ_c^{Final} . The reason why the final fracture strength $\sigma (c \text{ EXP})^{\text{Final}}$ is much larger than the initial debonding strength as $\sigma (c \text{ EXP})^{\text{Initial}} \ll \sigma (c \text{ EXP})^{\text{Final}}$ when $N_s \geq 6$ can be explained as follows. The dimensionless ISSF F_{σ}^B under a constant load in the partially delaminated stepped joint decreases largely with increasing N_s although F_{σ}^A under a constant load in the fully bonded stepped joint does not change very much.

Invited Speech 4: Advanced Synthesis of Highly Crystalline Carbon Nanotubes and High Aspect Ratio Structures for Multifunctional Applications



Dr. Guohai Chen

Senior Researcher, National Institute of Advanced Industrial Science and Technology (AIST), Japan

Biography: Dr. Guohai Chen is a senior researcher at the National Institute of Advanced Industrial Science and Technology (AIST), Japan. His research encompasses the synthesis, characterization, and application of nanomaterials, with a current focus on machine learning-assisted CNT synthesis and application development of CNT-based electronic devices/thermal/electrical materials. He has published ~50 research articles and holds 5 patents. He serves as an Associate Editor for Frontiers in Materials and a Guest Editor for Nanomaterials.

Abstract: The precise synthesis and versatile applications of carbon nanotubes (CNTs) are essential for advancing nanotechnology and leveraging their extraordinary properties across various domains [1, 2]. Machine learning has emerged as a powerful tool in CNT research, enabling optimization of synthesis and application development [3-5]. In this talk, we introduce a machine-learning-assisted approach to address the trade-off between crystallinity and growth efficiency in CNT synthesis [5]. Additionally, by utilizing a multi-step chemical vapor deposition (CVD) reactor combined with atmospheric microplasma, we achieved the production of highly crystalline CNTs [6-8]. In addition to synthesis, we demonstrate the practical applications of CNTs. High aspect ratio (60:1), free-standing, 1.2 mm-tall, 20 μm -diameter vertically aligned CNT post arrays were fabricated [9]. These CNT posts served as neural probes, exhibiting rapid electrochemical responses to methyl viologen and dopamine. Furthermore, they were incorporated into CNT-Cu composites for through-silicon-via interposers, showcasing copper-level electrical conductivity and silicon-level low thermal expansion [10]. Our work highlights the integration of advanced synthesis techniques and precise structural manipulation to address critical challenges in CNT research, including trade-offs in structural control and productivity. These advancements demonstrate the potential of CNTs in diverse applications, driving progress in nanomaterials science.

Keywords: Carbon nanotube, microplasma, crystallinity, neural probe, interposer

Acknowledgements: G.H. Chen acknowledges support from JSPS KAKENHI Grant Number JP23K04552.

Reference:

- [1] G. H. Chen, et al., ACS Nano 7 (2013) 10218-10224.
- [2] D.-M. Tang, et al., G. H. Chen, et al., Science 374 (2021) 1616-1620.
- [3] G. H. Chen, D.-M. Tang, Nanomaterials 14 (2024) 1688.

- [4] G. H. Chen, et al. J Mat Sci Technol 231 (2025) 30-35.
- [5] D. Lin, et al., G. H. Chen*, ACS Nano 17 (2023) 22821-22829.
- [6] T. Tsuji†, G. H. Chen†, et al., Mater Today Chem 44 (2025) 102576.
- [7] G. H. Chen, et al., Chem Eng J 444 (2022) 136634.
- [8] T. Tsuji†, G. H. Chen†, et al., Nanomaterials 11 (2021) 3461.
- [9] G. H. Chen, et al., ACS Biomater Sci Eng 4 (2018) 1900-1907.
- [10] G. H. Chen, et al., ACS Appl Nano Mater 4 (2021) 869-876.

Invited Speech 5: High Performance Polymer Electrolyte Lithium Metal Batteries



Prof. Weiqiang Han

School of Materials Science and Engineering, Zhejiang University, China

Biography: Prof. Han is a Chair Professor in the School of Materials Science and Technology at the Zhejiang University. He was the director of Institute of New Energy Technology at the Ningbo Institute of Materials Technology and Engineering (NIMET), Chinese Academy of Sciences before 2015.9. Before 2012.10, he was a Scientist in the Center for Functional Nanomaterials at Brookhaven National Laboratory. Prof. Han has been developing Micro-Nano low-dimensions materials and their applications in renewable energies, especially for advanced lithium batteries, catalysts, He has published more than 200 papers in peer-reviewed journals, such as Nature, Science. The total number of SCI citation is over 20000. Selected as a highly cited scholar by Elsevier China from 2014 to 2024. He obtained the award of “Inventor of the Year for 2007” from Battelle.

Abstract: In this presentation, we provide a comprehensive overview of fundamental issues related to high reactivity and migrated interfaces in LMBs [1]. Furthermore, we propose improved strategies involving interface engineering, 3D current collector design, electrolyte optimization, separator modification, application of alloyed anodes, and external field regulation to address these challenges [2-3]. The utilization of solid-state electrolytes (including polymer electrolytes), can significantly enhance the safety of LMBs and represents the only viable approach for advancing them.

Acknowledgements: The Technologies R&D Program of Huzhou City (No. 2022JB01)

Reference:

- [1] Z. Zhang, W. Q. Han, From Liquid to Solid-State Lithium Metal Batteries: Fundamental Issues and Recent Developments, *Nano-Micro Letters*, 16, 24 (2024)
- [2] J. Wang, W. Q. Han, A Review of Heteroatom Doped Materials for Advanced Lithium – Sulfur Batteries, *Advanced Functional Materials*, 32, 2107166 (2022)
- [3] L. Cai, H. Ying, W. Q. Han, Crystal engineering strategies for advanced electrocatalysts in lithium-sulfur batteries, *Materials Today*, 85, 319 (2025)

Part III Oral Presentations

General Guidelines

- ✚ All presentation times are shown in **Japan Standard Time (UTC+9)**;
- ✚ Duration for Invited Oral Presentation: 20 Minutes of Presentation including 3-5 Minutes of Q&A;
- ✚ Duration for Regular Oral Presentation: 15 Minutes of Presentation including 2-3 Minutes of Q&A;
- ✚ All presenters are requested to reach the Session Room 15 minutes prior to the schedule time and complete their presentation on time;
- ✚ Presenters should prepare PowerPoint or PDF Files for Presentation with Paper No. (PCM****) marked on the last page;
- ✚ Signed and stamped presentation certificate would be awarded at the conclusion of the session.

Oral Presentation Guidelines

Devices Provided by the Conference Organizer:

- ✚ Laptops (with MS-Office & Adobe Reader)
- ✚ Projectors & Screen
- ✚ Laser Sticks
- ✚ Microphones
- ✚ Please send us the PowerPoint once it is ready and have the PPT back up in a U-disk. For presenters who do not send the PowerPoint, please save it in the laptop of the corresponding session 15 mins in advance. Kindly tell the Session Chair (before the start of your session) that you are presenter.

Best Oral Presentations Selection Guidelines

Selection Criteria:

ONE best presentation will be selected from EACH session based on the following criteria:

- ✓ Research Quality
- ✓ Presentation Performance
- ✓ Presentation Language
- ✓ Interaction with Listeners
- ✓ PowerPoint Design
- ✓ Effective Communications

Selectin Procedure:

- ✓ An assessment sheet will be delivered to listeners before the session.
- ✓ Write the numbers of two best presentations and submit the filled assessment sheet (with the listener's name and signature) to the Session Chair before the session termination.
- ✓ The Session Chair will count the votes for each presentation and name the winner based on the maximal number of votes. The Session Chair has three votes but can use only one in favor of his/her own presentation (if any). To avoid any conflict of interests, only registered listeners are entitled to vote.

Nature of the Award:

- ✓ This award consists of free registration to the next conference PCM 2026 and a certificate.
- ✓ The awards will be announced at the official website after the conference.

Assessment Sheet Sample

PCM 2025 Oral Presentation Assessment

Dear participants,

After carefully listening to the presentations of this session, please kindly recommend two excellent Oral Presentations with reference to the following evaluation criteria.

The Session Chair will count the votes from each presentation and select ONE Best Oral Presentation in this session. If there is a tie, the Session Chair will make the final decision.

The winner will be announced at the official website after the conference.

You can refer to the following Criteria:

Items	Assessment
Content	Right, Logical, Original, Well-Structured
Language	Standard, Clear, Fluent, Natural
Performance	Spirited Appearance, Dress Appropriately, Behaves Naturally
PPT	Layout, Structure, Typeset, Animation, Multimedia
Reaction	Build a Good Atmosphere, Speech Time Control Properly

Please write down paper ID and give reasons for your recommendation:

Paper ID	Reasons

Evaluated by: _____ (Paper ID: _____)

Note: When the session finished, please fill it out and give it to the Session Chair so that the Best Oral Presentation in this session can be selected.

Oral Session 1: Structural, Mechanical and Engineering Applied Materials

Time: 14:00-16:45, November 5, 2025

Location: Meeting Room 601, Kunibiki Messe

Session Chair: Assoc. Prof. Seksak Asavavisithchai, Chulalongkorn University, Thailand

14:00-14:15	PCM3431	Photopyroelectric Technique for Thermal Diffusivity Measurements of Colloidal suspensions of Carbon Nanotubes <i>Prof. José Abraham Balderas-López, Instituto Politécnico Nacional-UPIBI, México</i>
14:15-14:30	PCM3453	Fabrication of Closed-cell Aluminium Foams with Zirconium Silicate <i>Assoc. Prof. Seksak Asavavisithchai, Chulalongkorn University, Thailand</i>
14:30-14:45	PCM3458	Characteristics of Open-hole Laminates with/without Bolt Under Compression Fatigue <i>Assoc. Prof. Xueshu Liu, Dalian University of Technology, China</i>
14:45-15:00	PCM3469	Study on the Bonding of Heterogeneous Interface of Carbon Fiber Reinforced Aluminum Alloy Laminates Reinforced by Groove Structure <i>Dr. Zhen Liu, Dalian Maritime University, China</i>
15:00-15:15	PCM3473	Research on Evaluation Method of Small Punch Test for HDPE After Aging <i>Prof. Bo Zhao, China Special Equipment Inspection and Research Institute, China</i>
15:15-15:30	Coffee Break	
15:30-15:45	PCM3475	Investigation of the Structure–performance Relationship of Zwitterionic Water-soluble Polymers for Temperature and Salt Resistance in Drilling Fluids <i>Dr. Yuanwei Sun, China University of Petroleum (East China), China</i>
15:45-16:00	PCM3481	Application of Ultra-high Temperature Resistant Gemini Primary Emulsifier in Oil-based Drilling Fluids <i>Dr. Xu Meng, China University of Petroleum (East China), China</i>
16:00-16:15	PCM3483	High-temperature Resistant Zwitterionic Polymer Viscosifier for Saturated CaCl₂ Brine Drill-in Fluids <i>Dr. Jian Wang, China University of Petroleum (East China), China</i>
16:15-16:30	PCM3484	Numerical Investigation on the Influence of Prestress Distribution on Stress Concentration in Single Lap Joints <i>Dr. Dong Chen, Zhengzhou University, China</i>
16:30-16:45	PCM3489	Synthesis and Performance Evaluation of a Novel Organic-inorganic Wellbore Enhancing Agent for Wellbore Stability in Water-based Drilling Fluids <i>Dr. Juan He, China University of Petroleum (East China), China</i>

Oral Session 2: Biomedical Materials and Functional Polymer

Time: 09:00-11:15, November 6, 2025

Location: Meeting Room 601, Kunibiki Messe

Session Chair: *Prof. Maciej Mazur, University of Warsaw, Poland*

09:00-09:15	PCM3436	Nature-inspired Composite Materials as a Sustainable Approach for Sample Preparation in Analytical Chemistry <i>Dr. Justyna Werner, Poznan University of Technology, Poland</i>
09:15-09:30	PCM3438	Integrated COSMO-RS and Experimental Strategy for Developing Stable, 3D-Printed PLA-Based Methotrexate Formulations <i>Dr. Alma Lucia Villela Zumaya, University of Chemistry and Technology Prague, Czech Republic</i>
09:30-09:45	PCM3452	Polymer Spherical-cap Particles on Planar Surfaces <i>Prof. Maciej Mazur, University of Warsaw, Poland</i>
09:45-10:00	PCM3455	Crystallization Property of Polyamide 4 Modified by Deep Eutectic Solvents <i>Mr. Guanfeng Lyu, East China University of Science and Technology, China</i>
10:00-10:15	Coffee Break	
10:15-10:30	PCM3463	Thermal Degradation Mechanisms of Carbon Fiber Reinforced Polymers <i>Dr. Johannes Bibinger, University of the Bundeswehr Munich, Germany</i>
10:30-10:45	PCM3471	Microcrystallization-gelation Enabled Mechanocompatible and Antibacterial Hydrogels for Cartilage Repair <i>Mr. Tailong Shi, Beijing University of Chemical Technology, China</i>
10:45-11:00	PCM3492	Effect of Diol Structure on the Thermal and Mechanical Properties of Itaconic Acid-derived Bio-Based UV-curable Unsaturated Polyesters for 3D Printing <i>Ms. Chih-Yu Jao, National Taipei University of Technology</i>
11:00-11:15	PCM3493	Improving Photostability of Unsaturated Polyesters through Naphthalene Dicarboxylate Integration <i>Ms. Yu-Chen Chen, National Taipei University of Technology</i>

Oral Session 3: Energy, Catalysis and Environmental Materials

Time: 14:00-16:35, November 6, 2025

Location: Meeting Room 601, Kunibiki Messe

Session Chair: Assoc. Prof. Fatima Hassouna, University of Chemistry and Technology, Czech Republic

14:00-14:15	PCM3430	Biobased Nonwoven Materials for Improved Sound Absorption: Development, Optimization, and Comparative Evaluation <i>Dr. Benji Mojzes, University of Technology Chemnitz, Germany</i>
14:15-14:30	PCM3439	Engineered Silicon Nanostructures in Silicon-based Anodes for High Performance Li-ion Battery <i>Assoc. Prof. Fatima Hassouna, University of Chemistry and Technology, Czech Republic</i>
14:30-14:45	PCM3488	Valorisation of Carbon Fibre Reinforced Polymer Waste Through Catalytic Pyrolysis for Valuable Chemicals Production <i>Ms. Alina Ashraf, University of Strathclyde, UK</i>
14:45-15:00	PCM3494	Synergistic Enhancement of Catalytic Cracking and Heat Sink Capacity in Ethylcyclohexane via a Pseudohomogeneous Calixarene-capped Platinum Nanofluid <i>Dr. Xinyang Chen, Zhejiang University, China</i>
15:00-15:15	Coffee Break	
15:15-15:30	PCM3495	Performances of Nano-Pt/Ceria Catalysts in Steam Reforming, Thermal Cracking, and Combustion of Novel Emulsified Hydrocarbon Fuels <i>Dr. Chongkun Shao, Zhejiang University, China</i>
15:30-15:45	PCM3498	Research on the Formation Mechanism and Properties of Water/Hydrocarbon Fuel Emulsion Gel <i>Dr. Yiming Wei, Zhejiang University, China</i>
15:45-16:00	PCM3501	Brewer's Spent Grain as a Sustainable Feedstock for High Value Carboxymethyl Cellulose <i>Assoc. Prof. Sasithorn Kongruang, King Mongkut's University of Technology North Bangkok, Thailand</i>
16:00-16:20	PCM3503 (Invited)	High Performance Polymer Electrolyte Lithium Metal Batteries <i>Prof. Weiqiang Han, Zhejiang University, China</i>
16:20-16:35	PCM3447	Rice Husk Modified Kaolinite Adsorbent for Removal of Cr⁶⁺ from Tannery Effluent <i>Assoc. Prof. Suleiman Yunusa, Ahmadu Bello University, Nigeria</i>

Part IV Poster Presentations

Poster Presentation Guidelines

Materials Provided by the Conference Organizer:

- ✧ X Racks & Base Fabric Canvases
- ✧ Adhesive Tapes or Clamps

Materials Provided by the Presenters:

- ✧ Home-made Posters
- ✧ Posters printed by PCM 2025 Committee

Requirements for the Posters:

- ✧ Materials: not limited, can be posted on the Canvases
- ✧ Size: W1200mm*H2100mm
- ✧ Horizontal Head: please make the conference name 'PCM 2025' and the paper number 'PCM****' as the head of the poster in order to make all the posters unified.



Best Poster Presentation Selection Procedure

Selection Criteria:

- Research Quality
- Presentation Skill
- Design

Samples of Stickers



Selection Procedure:

- 6-8 volunteers will be invited from the participants to serve as the judges to review the posters. (Note: A judge would not have a poster or know the participant exhibiting a poster.)
- 2 red stickers and 2 green stickers will be provided for the judges. The red sticker stands for "Research Quality" with a value of 2 points; the green sticker stands for "Presentation Skill and Design" with a value of 1 point.
- Each judge will go around the poster session and give the stickers to the poster which he/she thinks is of high quality or well designed and well presented, please be notified that the judge cannot give 2 red or 2 green stickers to the same poster (one red and one green sticker is acceptable).
- After the poster session, the conference secretary will count the points from each poster and **ONE** best poster presentation with more points will be selected. If there is a tie, the one with more red (Research Quality) stickers wins.

Nature of the Award

- This award consists of free registration for the PCM 2026 and a certificate.
- **One Best Poster Presenter** will be selected and honored with a certificate during the award ceremony. The winner will be announced at the banquet and featured on the PCM 2026 official website.

List of Posters

Time: 11:15-12:15, November 6, 2025

Conference Room: Meeting Room 601, Kunibiki Messe

PCM3437	3D Fiber Deposition for Natural Fiber Composites: A Novel Approach to Sustainable Lightweight Design <i>Dr. Florian Tautenhain, University of Technology Chemnitz, Germany</i>
PCM3441	Photoacoustic Technique Study of Thermal Diffusivity of Polymeric Matrices of Carbon Nanotubes <i>Ms. Yesenia Spánchez Fuentes, Instituto Politécnico Nacional, México</i>
PCM3456	Poly (lactic acid) (PLA) Microplastic Generation by High-energy Wet Milling: Particle Size and Structural Evaluations <i>Mr. Roberto Cárdenas Zapata, Instituto Politécnico Nacional, México</i>
PCM3457	Direct Quantification of Proteins in Solution by Photothermal Techniques <i>Ms. Andrea Marisol Medina Solano, Instituto Politécnico Nacional, México</i>
PCM3460	Optimizing Microwave Dielectric Properties of Li_2SnO_3 Ceramics for Satellite Communication Antenna Applications <i>Prof. Yih-Chien Chen, Lunghwa University of Science and Technology</i>
PCM3485	Construction and Crosslinking Regulation Mechanism of High-temperature Resistant Gel Fracturing Fluid for Ultra-deep Reservoirs <i>Prof. Mingwei Zhao, China University of Petroleum (East China), China</i>
PCM3486	Research on the Performance Enhancement of Guar Gum Fracturing Fluids by Boron-Zirconium Co-modified Nano Crosslinkers <i>Prof. Yining Wu, China University of Petroleum (East China), China</i>
PCM3499	Environmentally Friendly Sustainable Thermoset Vitrimer-containing Polyrotaxane <i>Dr. Shota Ando, The University of Tokyo, Japan</i>
PCM3500	Long-term Sustained Release of Small Molecular Surfactants Using Microcapsules <i>Prof. Liyuan Zhang, China University of Petroleum (East China), China</i>
PCM3504	Non-covalent Modification of Carbon Nanotubes with Amino-substituted Perylene Derivatives as Catalyst Supports for Oxygen Reduction Reaction <i>Dr. Hongjie Song, China University of Petroleum-Beijing, China</i>
PCM3505	Preparation and Properties of SPEEK/Zeolite A Composite Proton Exchange Membranes <i>Dr. Xi Li, China University of Petroleum-Beijing, China</i>
PCM3506	Nanofilled poly(ethylene oxide) Composite Phase-change Material for Thermal Energy Storage <i>Prof. William Tai Yin Tze, University of Minnesota, USA</i>

Part V Conference Venue

Kunibiki Messe

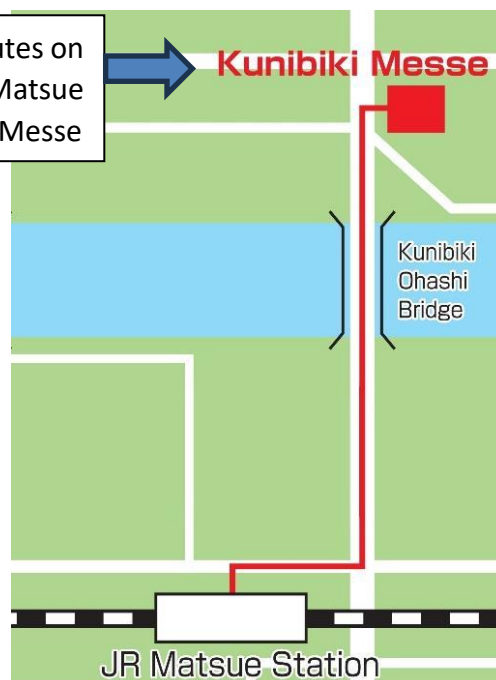
(Shimane Prefectural Convention Center)

The biggest convention center in Shimane prefecture, Kunibiki Messe, is located in the center of Matsue City. There are Exhibition Hall (4,018 sqm), Multipurpose Hall (686 sqm), International Conference Hall (510 sheets), and 19 meeting rooms.

Free Wi-Fi is available in building.



It takes only 7 minutes on foot from JR Matsue Station to Kunibiki Messe



Kunibiki Messe

Address: 1-2-1 Gakuen Minami Matsue City, Shimane, JAPAN 690-0826

Tel: +81+852-24-1111

Fax: +81+852-22-9219

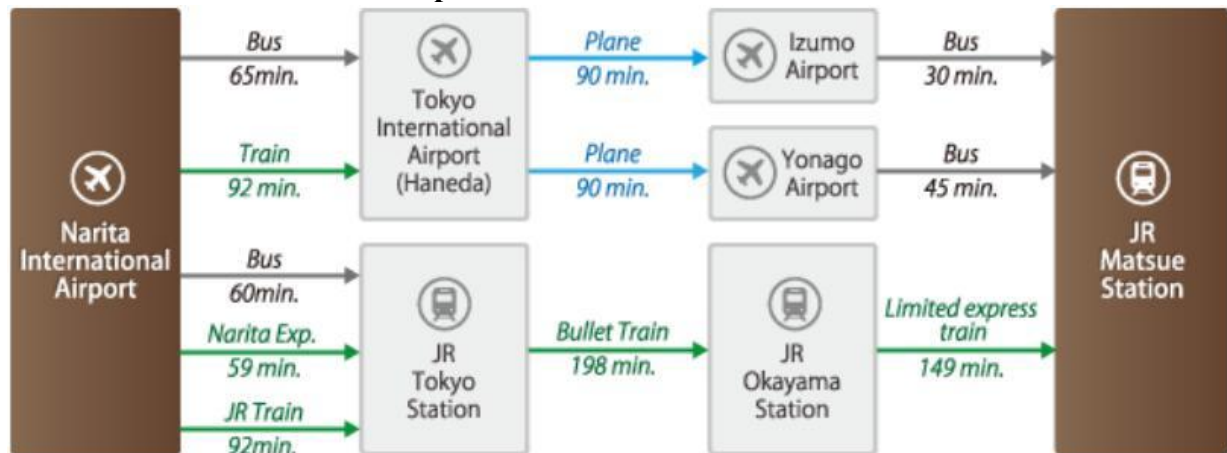
E-mail: kunibiki@kunibikimesse.jp



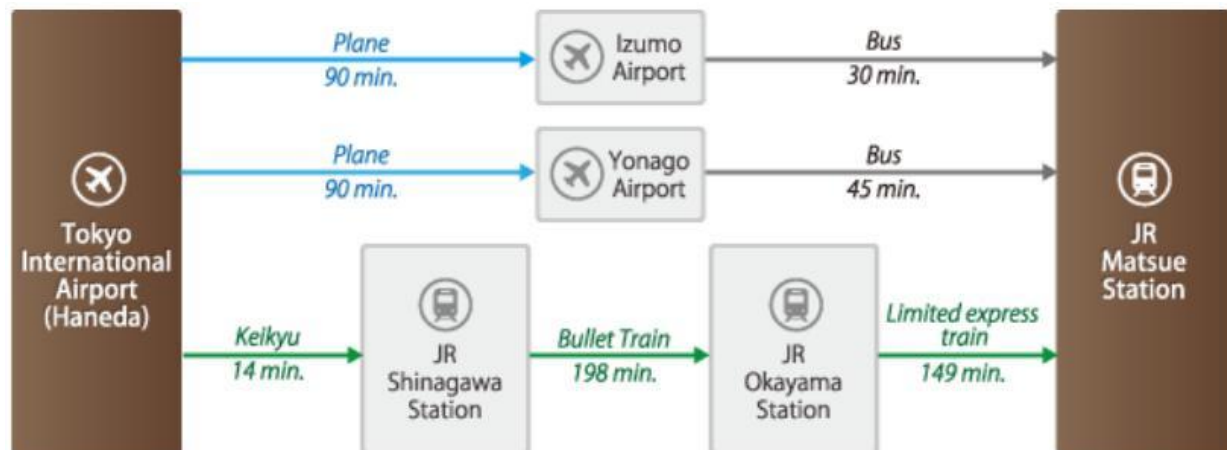
Access to JR Matsue Station:



1. From Narita International Airport



2. From Tokyo International Airport



3. From Kansai International Airport



Part VI Acknowledgements

On behalf of the PCM 2025 Organizing Committee, we would like to take this opportunity to express our sincere gratitude to our participants. We would also like to express our acknowledgements to the Technical Program Committee members who have given their professional guidance and valuable advice as reviewers. For those who contribute to the success of the conference organization without listing the name below, we would love to say thanks as well.

PCM 2025 Technical Program Committee

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Memo Pages

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