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Welcome Message

Polymer Engineering and Sciences International 2025

Invitation

The Organizing Committee takes great pleasure in extending an invitation for your participation in Polymer Engineering and Sciences International (PESI) 2025, to be held in Fukuoka, Japan from June 29-July 3, 2025. The conference will be hosted at the Fukuoka University campus, where international research communities from various scientific disciplines of polymer engineering and sciences, to discuss new and exciting advances that involve polymeric materials, techniques and methodologies.

In addition to plenary and invited lectures, general symposia, and poster presentations, PESI-2025 will feature several Special Symposia focusing on up-to-date topics of polymer-related techniques and applications.

While PESI-2025 will provide a robust scientific and technological program, the social and cultural experiences offered in Fukuoka should not be overlooked. The Organizing Committee is committed to ensuring a memorable event in one of Japan's most alluring regions.

We sincerely hope you will join us at PESI-2025 for a meaningful and enjoyable time with your colleagues in the field of polymer engineering and sciences. The entire Organizing Committee looks forward to welcoming you to Fukuoka.

Yours sincerely,



Shih-Jung (Sean) Liu

Chairman
Professor
Chang Gung University



Shigeru Yao

Co-Chairman
Specially Appointed Research Professor
Fukuoka University

Conference Committee

Chairman Liu SJ, PhD (Mechanical Engineering, Chang Gung University)

Co-Chairman Yao S, PhD (Central Research Institute, Fukuoka University)

Secretariats Lee D, PhD (Mechanical Engineering, Chang Gung University)

Katsumoto Y, PhD (Faculty of Science, Fukuoka University)

Symposia

General symposia

- G1. Molding and processing
- G2. Rubber and elastomers
- G3. Polymerization and synthesis
- G4. Polymer blends and alloys
- G5. Polymer composites
- G6. Fiber, membrane and film
- G7. Mixing and compounding
- G8. Modeling and simulation
- G9. Monitoring and characterization
- G10. Rheology and rheometry

Special symposia

- S1. Additive manufacturing
- S2. Biomedical materials
- S3. Optical/Electrical applications
- S4. Nanotechnologies and nanomaterials
- S5. Benign polymers
- S6. Food engineering and science
- S7. Other techniques and applications

Plenary Speakers



Anderson PD, PhD
Eindhoven University of
Technology

**Measuring and predicting structure
development during processing
flows**



Ito K, PhD
The University of Tokyo

Polymers for the circular economy



Kuo SW, PhD
National Sun Yat-sen
University

**Solid state chemical transformation
of benzoxazine-linked porous
organic polymers**



Sundararaj U, PhD
University of Calgary

**Morphology, rheology, and structure
property relationships of electrically
conductive polymer blends and
nanocomposites**

Invited Speakers

Chen JC, PhD	National Taiwan University of Science and Technology	The incorporation of benzo[c]cinnoline unit in linear conjugated polymers: a promising way of producing C2 products and enhance production yield for CO2 photoreaction application
Di Maio E, PhD	University of Naples Federico II	Structure- and density-layered mono-material foams
Ito H, PhD	Yamagata University	Control of structure and properties for recycled plastics
Kadokawa, PhD	Kagoshima University	Development of derivatization methods in ionic liquid solvents to exhibit new properties and functions from structural polysaccharides
Kihara S, PhD	Hiroshima University	High-pressure fluids mixing on the development of rubber nanocomposites and their material recycling
Kikutani T, PhD	Institute of Science Tokyo	Verification of the influence of processing history through comparing high-speed melt spinning behavior of virgin and recycled polypropylene
Lee CH, MD/PhD	Chang Gung Memorial Hospital-Cardiology	Optimizing pro-survival effects: Exosomes from human induced pluripotent stem cells in 3D culture
Liu YL, PhD	National Tsing Hua University	Porous polymeric membranes in preparation of gel polymer electrolytes for lithium ion batteries
Saito T, PhD	Institute of Science Tokyo	Study on interfacial thermal resistance of layered heterogeneous polymers for novel thermal insulation structure
Taki K, PhD	Kanazawa University	Acoustic emission sensing for understanding filler compounding in twin-screw extrusion

Invited Speakers

Tung SH, PhD	National Taiwan University	Blends of spider silk and PEO as effective solid polymer electrolytes
Yao S, PhD	Fukuoka University	Innovative mechanical recycling process based on the "Physical Degradation and Physical Regeneration Theory"

Conference Information

Conference Venue	Central Library, Fukuoka University		
Registration Service	Date	Time	Venue
	Sunday, June 29	15:00-17:00	Hidamari (next to the Central Library)
	Monday, June 30	09:00-16:00	The multi-purpose hall of the Central Library
	Tuesday, July 1	09:00-16:00	
Conference Badge	Please ensure to wear your badge at all times to enter the conference rooms. There may also be coupons placed in your badge to exchange for additional purchase.		
Welcome Reception	Date	June 29	
	Time	15:00-17:00	
	Location	Hidamari (next to the Central Library)	
Conference Banquet	Date	Tuesday, July 1	
	Time	19:00-21:00	
	Location	Tomyoden Restaurant (宮前迎賓館 灯明殿 , https://www.tomyoden.com/)	
Lab Tour	9:00-12:00, Wednesday, July 2 (gathering at 9:00 in front of Central Library, Fukuoka University)		

Oral Presentation Schedule

Presentation Type	Total Time	Presentation Time	Q&A
Plenary Talk	40 min.	35 min.	5 min.
Invited Talk	25 min.	20 min.	5 min.
Oral Presentation	15 min.	13 min.	2 min.

Poster Presentation Schedule

Session	Date	Time	Schedule
Poster Session	Tuesday, July 1	11:00-12:00	Poster Setup
		13:30-14:30	Poster Session
		14:30-16:30	Poster Removal

Floor Plan

Central Library

1st floor



Program at a Glance

Sunday, June 29		
Time	Venue	Activity
15:00-17:00	Hidamari (next to the Central Library)	Welcome Reception

Monday, June 30	
Venue	Multipurpose Hall
09:00-09:10	Opening Ceremony Liu SJ , PhD/Chang Gung University Yao S , PhD/Fukuoka University
09:10-10:30	Plenary Talks
10:30-10:40	Break Time
Venue	Multipurpose Hall
10:40-11:55	Invited Talks
11:55-13:30	Lunch Time
Venue	Multipurpose Hall
13:30-15:15	Oral Presentations
15:15-15:35	Break Time
Venue	Multipurpose Hall
15:35-17:20	Oral Presentations

Tuesday, July 1	
Venue	Multipurpose Hall
09:00-10:20	Plenary Talks
10:20-10:30	Break Time
Venue	Multipurpose Hall
10:30-12:10	Invited Talks
12:10-13:30	Lunch Time
Venue	Multipurpose Hall
13:30-14:30	Poster Session Presentation
Venue	Multipurpose Hall
14:30-16:10	Invited Talks
16:10-16:30	Break Time
Venue	Multipurpose Hall
16:30-17:30	Oral Presentations
17:30-18:00	Closing Ceremony
Venue	Tomyoden Restaurant (宮前迎賓館 灯明殿, https://www.tomyoden.com/)
19:00-21:00	Banquet

Wednesday, July 2	
Venue	Fukuoka University
9:00-12:00	Lab Tour

Monday, June 30	
Venue	Multipurpose Hall
09:00-09:10	Opening Ceremony Liu SJ , PhD/Chang Gung University Yao S , PhD/Fukuoka University
Venue	Multipurpose Hall
Chair	Katsumoto Y (Fukuoka University)
09:10-09:50	#0000 Measuring and predicting structure development during processing flows <u>Anderson PD</u>
09:50-10:30	#0000 Polymers for the circular economy <u>Ito K</u>
10:30-10:40	Break Time
Venue	Multipurpose Hall
Chair	Hu SH (National Tsing Hua University)
10:40-11:05	#1022 Control of structure and properties of recycled plastics Kou Hashimoto, Shotaro Nishitsuji, Hisao Matsuno, Yasuhiko Otsuki, Yutaka Kobayashi, <u>Hiroshi Ito</u>
11:05-11:30	#1039 The incorporation of benzo[c]cinnoline unit in linear conjugated polymers: a promising way of producing C2 products and enhance production yield for CO2 photoreaction application <u>Jyh-Chien Chen</u>
11:30-11:55	#0000 High-Pressure Fluids Mixing on the Development of Rubber Nanocomposites and Their Material Recycling <u>Shin-ichi Kihara</u> , Naoki Hirata, Yo Yamaguchi, Soshi Akagawa, and Miyamoto Ryotaro
11:45-13:00	Lunch Time

Monday, June 30	
Venue	Multipurpose Hall
Chair	Lee D (Chang Gung University)
13:30-13:45	#1019 A self-cascade penetrating brain tumor immunotherapy-mediated by nanoflakes <u>S.H. Hu</u>
13:45-14:00	#1033 Optimizing vascularization of 3D-printed glycerol-based biodegradable scaffolds through optimized cell culture conditions <u>Lee Jie Ling</u> , Jane Wang
14:00-14:15	#1015 Control of higher-order structure and toughening of polybutylene succinate by reaction kneading <u>Y. Kitada</u> , A. Ishigami, Y. Kobayashi, Y. Suetugu, H. Taguchi, T. Kikuchi, and H. Ito
14:15-14:30	#1018 Structural design and synthesis of benzoxazine-functionalized octavinylsilsesquioxane for carbon dioxide adsorption applications <u>Ching-Wen Hsiao</u> , Mohamed Gamal Mohamed, Shiao-Wei Kuo
14:30-14:45	#1025 Fluorescent Eu-BDC MOF/epoxy multifunctional composite with flame retardancy for corrosion site fluorescence sensing in anti-corrosion applications <u>Kun-Ling Teng</u> , Yun-Yun Yan, Yuan-Hsiang Yu
14:45-15:00	#1001 Immunomodulatory CpG-loaded photosensitizer-conjugated reduced graphene oxide for melanoma immunotherapy <u>Banendu Sunder Dash</u>
15:00-15:15	#1057 Molasses impression in hyaluronic acid production from streptococcus zooepidemicus with feed batch method Andi Nina Asriana, Suprpto, Tri Paus Hutapea Hasiholan, Anisa Salma Hasna, and Fredy Kurniawan
15:15-15:35	Break Time
Chair	Di Maio E (University of Naples Federico II)
15:35-15:50	#1051 Periodic cooking: a novel technique for optimized thermal processing of eggs <u>E. Di Lorenzo</u> , P. Musto, E. Di Maio
15:50-16:05	#1052 Foamability of thermoplastic polyurethanes: influence of processing conditions <u>L. Miele</u> , E. Di Lorenzo, D. Bellisario, E. Di Maio
16:05-16:20	#1056 Synergistic osteogenic and antibacterial effects of grafting bone morphogenetic protein-2 on functionalized stainless-steel surface via polydopamine for implant applications <u>M.K. Secario</u> , Hsin-Hsin Yu, T.T.V. Truong and S.J. Lue

16:20-16:35	#1059 Radially aligned, gradient metformin-eluting nanofiber dressings enhance burn wound healing Shih-Heng Chen, Hsiao-Jui Kuo, Pang-Yun Chou, Chia-Hsuan Tsai, Shih-Hsien Chen, Yi-Chen Yao, <u>Rifky Rahardian S.</u> , Shih-Jung Liu
16:35-16:50	#1061 Enhanced triboelectric performance of graphene-filled poly (vinylidene difluoride-co-hexafluoropropylene) (PVDF-HFP) nanofibers W.K. Huang, M.F. Lin, Y.H. Kuo, <u>Ulf Anuramallia</u> , S.J. Liu, H. Ito
16:50-17:05	#1037 Photoresponsive thermoplastic polyurethane with amplitude-tunable surface relief grating <u>M.C. Lin</u> , W.K. Cheng, S.W. Kuo
17:05-17:20	#1055 Experimental and computational analysis of a corotating parallel octa-screw extruder with self-wiping capability <u>Cheng-Ying Liu</u> , Shota Mikoshiba, Yutaka Kobayashi, Akira Ishigami, Daisuke Yorifuji, Shin-ichiro Tanifuji, Hiroshi Ito

Tuesday, July 1	
Venue	Multipurpose Hall
Chair	Yao S (Fukuoka University)
09:00-09:40	#1049 Morphology, rheology, and structure property relationships of electrically conductive polymer blends and nanocomposites <u>Uttandaraman Sundararaj</u>
09:40-10:20	#1030 Solid state transformation of benzoxazine-linked porous organic polymers <u>Shaio-Wei Kuo</u>
10:20-10:30	Break Time
Venue	Multipurpose Hall
Chair	Kuo SW (National Sun Yat-sen University)
10:30-10:55	#1041 Study on interfacial thermal resistance of layered heterogeneous polymers for novel thermal insulation <u>Takushi Saito</u>
10:55-11:20	#1009 Development of derivatization methods in ionic liquid solvents to exhibit new properties and functions from structural polysaccharides <u>Jun-ichi Kadokawa</u>
11:20-11:45	#1063 Engineering PLGA Nanofiber Membranes for Controlled Extracellular Vesicle Delivery in Skin Regeneration <u>Lee CH</u>
11:45-12:10	#0000 Acoustic emission sensing for understanding filler compounding in twin-screw extrusion <u>Taki K</u>
12:10-13:30	Lunch Time
Venue	Multipurpose Hall
13:30-14:30	Poster Session Presentation

Tuesday, July 1	
Venue	Multipurpose Hall
Chair	Taki K (Kanazawa University)
14:30-14:55	#1034 Verification of the influence of processing history through comparing high-speed melt spinning behavior of virgin and recycled polypropylene <u>Kikutani T</u>
14:55-15:20	#1014 Blends of spider silk and PEO as effective solid polymer electrolytes <u>Shih-Huang Tung</u>
15:20-15:45	#1010 Molding and recycling process that contributes to the recycling of plastic resources by utilizing the self-resilience ability of polymers <u>Shigeru Yao</u>
15:45-16:10	#1050 Structure- and density-layered mono-material foams <u>Ernesto Di Maio</u>
16:10-16:30	Break Time
Venue	Multipurpose Hall
Chair	Tung SH (National Taiwan University)
16:30-16:45	#1011 Transesterification-triggered microphase separation in bio-based benzoxazine/phenolic/PEO-b-PCL diblock copolymer blends <u>Yang-Chin Kao</u> , Yi-Hsuan Ku, Mohamed Gamal Mohamed, Shiao-Wei Kuo, J.C. Lu, Y.C. Kao and S.J. Liu
16:45-17:00	#1038 The CO₂-derived poly(cyclohexene carbonate) copolymers for tunable intra/intermolecular interactions with strong hydrogen-bonded donor <u>Y.L. Kuan</u> , W.T. Du, S.W. Kuo
17:00-17:15	#1058 Biodegradable nanofibrous mats loaded with conglomerated imiquimod and metronidazole for potential cervical cancer therapy Yi-Pin Chen, Chiao-Fan Chiu, Chien-Neng Wang, Chu-Chi Lin, Chia-Rui Shen, Yi-Chen Yao, <u>Rifky Rahardian S.</u> , Shih-Jung Liu
17:15-17:30	#1060 “Hot-dog-string” drug-eluting biodegradable stents for managing stenosis in tortuous arteries C.H. Lee, S.J. Hsu, <u>Ulfi Anuramallia</u> , S.J. Liu
17:30-18:00	Closing Ceremony
Venue	Tomyoden Restaurant (宮前迎賓館 灯明殿, https://www.tomyoden.com/)
19:00-21:00	Banquet

Poster Session

Date: Tuesday, July 1

Time: 13:30-14:30

Venue: Multipurpose Hall

Category: G03. Polymerization and synthesis

001) **#1008 Synthesis of a new unnatural polysaccharide, 2-DEOXY- β (1 \rightarrow 3)-glucan, by β -1,3-glucan phosphorylase-catalyzed enzymatic polymerization**
Hayato Ishii, Tao Takagaki, Masa-aki Iwamoto, Masayasu Totani and Jun-ichi Kadokawa

002) **#1062 Water-resistant boronic ester vitrimer with hydrophobic side chain protection**
Justin Jian Qiang Mah, Hongzhi Feng, Nayli Erdeanna Binte Surat'man, Bofan Li, Sheng Wang, Zibiao Li

Category: G03. Polymer composites

003) **#1016 Investigation on Electrochemical and Mechanical Properties of Structural Supercapacitors in Series and Parallel Encapsulation**
C.L. Fan, W.B. Young

004) **#1017 Stiffness degradation at the bending point of bent bamboo fiber composites**
C.W. Ko, W.B. Young

005) **#1026 A flexible biosensor based on conjugated polymers for ultra-sensitive detection of trace biomolecules**
Yu-Wei Cheng and Jia-Lun Xu

Category: G08. Modeling and simulation

006) **#1007 Modeling the molecular weight distribution and polydispersity index of star polymers**
Lie-Ding Shiau, Jia-Hao Ye

007) **#1027 Aspen plus simulation of biomass gasification in a bubbling fluidized bed**
Jung-Chin Tsai and Chun-Yi Lin

Category: S02. Biomedical materials

008) **#1002 An RNA four-way junction for targeted cancer therapy: promoting tumor regression, inhibiting metastasis, ensuring rapid renal clearance, and demonstrating minimal toxicity**
Li-Ching Chen and Yuan-Soon Ho

009) **#1003 Therapeutic evaluation and tumor targeting of RNA Nanoparticles equipped with α 9-nAChR aptamer and anti-miR-21 for triple-negative breast cancer treatment**
Yuan-Soon Ho and Li-Ching Chen

010) **#1004 Inhibitory effects of SMAC mimetics-encapsulated nanoparticles on CIAP-1 and XIAP expressed by glioblastoma multiforme**
Yung-Chih Kuo and Zi-Jay Kao

011) **#1005 Customized cartilage tissue regeneration by three-dimensional cultivation of adipose derived stem cells in combination with three –dimensional scaffolds for knee cartilage repair**
Li-Hung Feng, Chung-An Chen, Hui-Yi Hsiao

012) **#1012 Conductive and photothermal-responsive polypyrrole-dopped silk fibroin-polydopamine hydrogels for wound dressing applications**
Yi-Cheng Huang, Yu-Chieh Kuo, Yen-Liang Chen, Tze-Wen Chung

- 013) **#1020 Development of a thermoresponsive hydrogel for bacteriophage delivery against carbapenem-resistant *Pseudomonas aeruginosa***
Y.C. Tsai and L.C. Lin
- 014) **#1021 Development of a paper-based device for recombinase polymerase amplification (RPA)-based nucleic acid amplification and detection: demonstration for *neisseria gonorrhoeae* detection**
P.Y. Chu, P.S. Huang and M.H. Wu
- 015) **#1024 Enhanced biodegradable polyester adsorption-desorption materials: A study of blends containing 80:20 PCL/PVA**
Jung-Chin Tsa, Shang-Peng Yang and Yueh-Ling Hsieh
- 016) **#1029 Synthetic mineralized lysozyme for osteoporotic bone repair**
Chi-Yun Wang, Ming-Kai Hsieh and Po-Liang Lai
- 017) **#1031 Adsorption and desorption experiments using carbon dioxide as the adsorbent for blends containing 80:20 PCL/PEG**
Jung-Chin Tsai, Jin-Wei Shi and Yu-Chia Tsai
- 018) **#1032 Synergistic modification of PEKK implants with Sr-Zn ions and polydopamine to enhance angiogenesis, osteogenesis, and antibacterial performance**
Y.H. Shao, Y.L. Huang and H.H. Huang
- 019) **#1035 Interaction between chitosan and *Leonurus japonicus*: physicochemical analysis of electrospun scaffolds**
G. Y. Weng, Y. Y. Lin, C. W. Kan and M. C. Lin
- 020) **#1040 Research on carbon dioxide adsorption and desorption experiments of blends containing 50:50 PLA/PBA**
Jung-Chin Tsai, Yi-Ru Lin and Yang Yi-Ling
- 021) **#1042 Biomechanical analysis of cement volume and distribution patterns in augmented pedicle screw fixation across various bone density test models**
Y.C. Yang, D.M. Lee, M.K. Hsieh and C.L. Tai
- 022) **#1043 Telmisartan-loaded PLGA nanofibers enhance endothelial repair and reduce neointimal hyperplasia**
Chen-Hung Lee, Kuo-Sheng Liu, Julien G. Roth, Kuo-Chun Hung, Yen-Wei Liu, Shin-Huei Wang, Chi-Ching Kuo, Shih-Jung Liu
- 023) **#1044 Bioresorbable drug-eluting polycaprolactone mesh scaffold for enhanced muscle injury repair**
Ying-Chao Chou, Yung-Heng Hsu, Demei Lee, Jheng-Wei Yang, Yi-Hsun Yu, Err-Cheng Chan, Shih-Jung Liu
- 024) **#1045 Resorbable nanofibrous membranes for sustained co-delivery of Acyclovir and Ketorolac in herpes treatment**
Shih-Jyun Shen, Pin-Chao Feng, Yi-Hua Kuo, Shih-Jung Liu
- 025) **#1046 Hybrid 3D-printed biodegradable artificial joints with drug- and growth factor-loaded nanofibers for small joint reconstruction**
Yung-Heng Hsu, Ying-Chao Chou, Chao-Lin Chen, Yi-Hsun Yu, Shih-Jung Liu
- 026) **#1047 Innovative CO₂-encapsulated bupivacaine-eluting Pluronic F127 hydrogel for achilles tendon injury treatment**
Yi-Hsun Yu, Yung-Heng Hsu, Ying-Chao Chou, Bo-Kui Hong, Chao-Tsai Huang, Shih-Jung Liu
- 027) **#1048 Electrospun celecoxib–collagen–bupivacaine-loaded PLGA nanofibers for Achilles tendon reconstruction**
Yi-Hsun Yu, Yung-Heng Hsu, Ying-Chao Chou, Ping-Chun Yu, Shih-Jung Liu

028)	#1053 Evaluation of orally delivered hyaluronic acid-modified chitosan/TPP nanoparticles <u>H.C. Wu</u> , S.C. Wang and S.W. Tsai
029)	#1054 Evaluation of orally delivered hyaluronic acid-modified chitosan/pentasodium triphosphate nanoparticles <u>H.C. Wu</u> , S.C. Wang and S.W. Tsai
Category: S03. Optical/Electrical applications	
030)	#1006 Self-doping polyaniline covalently bonded-graphene composite electrodes for high-performance supercapacitors <u>Chien-Hsin Yang</u> , Yu-An Chen
Category: S04. Nanotechnologies and nanomaterials	
031)	#1028 An electrochemical sensor for H₂O₂ based on carbonized ZIF@AU electrode materials <u>Y.C. Tsai</u> , S.H. Yang, F.C. Chen
Category: S06. Food engineering and science	
032)	#1023 Effects of antimicrobial activity and adhesive ability of Lactiplantibacillus plantarum screened from Taiwanese pickled cabbage Y. C. Tang, T. H. Liu, T. Y. Tsai and M. C. Cheng
Category: S07. Other techniques and applications	
033)	#1013 Assessing the potential risk of chronic kidney disease induced by phosphate exposure J.T. Chang and M.P. Ling