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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

<u>General symposia</u>

- 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



The University of Tokyo

Ito K, PhD

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				
	Date Time		Time	Venue	
Registration Service	Sunday, June 29 1		15:00-17:00	Hidamari (next to the Central Library)	
	Monday,	June 30	09:00-16:00	The multi-purpose hall of the	
	Tuesday,	July 1	09:00-16:00	Central Library	
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.				
	Date	June 29			
Welcome Reception	Time	15:00-17:00			
	Location	Hidamari (next to the Central Library)			
Date Tuesday, July 1					
Conference BanquetTime19:00-21:00LocationTomyoden Restaurant (宮前迎 https://www.tomyoden.com/)					
	Location				
Lab Tour	9:00-12:00, Wednesday, July 2 (gathering at 9:00 in front of Central Library, Fukuoka University)				

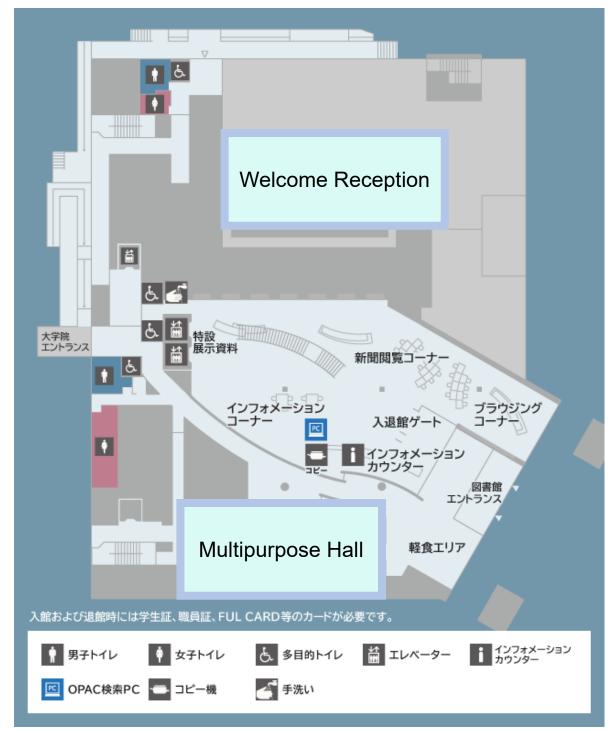
Oral Presentation Schedule

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
	Tuesday, July 1	11:00-12:00	Poster Setup
Poster Session		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	
10:30-11:55	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	
10:20-10:40	Break Time	
Venue	Multipurpose Hall	
10:40-11:55	Invited Talks	
11:55-13:30	Lunch Time	
Venue	Central Library	
13:30-14:30	Poster Session Presentation	
Venue	Multipurpose Hall	
14:00-16:10	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	
	Opening Ceremony	
00.00 00.40	Liu SJ, PhD/Chang Gung University	
09:00-09:10	Yao S, PhD/Fukuoka University	
Venue	Multipurpose Hall	
Chair	Matsumoto Y (Fukuoka University)	
09:10-09:50	#0000 Measuring and predicting structure development during processing flows	
09.10-09.50	Anderson PD	
09:50-10:30	#0000 Polymers for the circular economy	
09.50-10.50	<u>Ito K</u>	
10:30-10:40	Break Time	
Venue	Multipurpose Hall	
Chair	Hu SH (National Tsing Hua University)	
	#1022 Control of structure and properties of recycled plastics	
10:40-11:05	Kou Hashimoto, Shotaro Nishitsuji, Hisao Matsuno, Yasuhiko Otsuki,	
	······································	
	Yutaka Kobayashi, <u>Hiroshi Ito</u>	
	Yutaka Kobayashi, <u>Hiroshi Ito</u>	
	Yutaka Kobayashi, <u>Hiroshi Ito</u> #1039 The incorporation of benzo[c]cinnoline unit in linear conjugated	
	Yutaka Kobayashi, <u>Hiroshi Ito</u> #1039 The incorporation of benzo[c]cinnoline unit in linear conjugated polymers: a promising way of producing C2 products and enhance production	
11:05-11:30	Yutaka Kobayashi, <u>Hiroshi Ito</u> #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	
11:05-11:30	Yutaka Kobayashi, <u>Hiroshi Ito</u> #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>	
11:05-11:30	Yutaka Kobayashi, <u>Hiroshi Ito</u> #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> #0000 High-Pressure Fluids Mixing on the Development of Rubber	

	Monday, June 30
Venue	Multipurpose Hall
Chair	Yu YH (Fu Jen Catholic University)
	#1019 A self-cascade penetrating brain tumor immunotherapy-mediated by
13:30-13:45	nanoflakes
	S.H. Hu
	#1033 Optimizing vascularization of 3D-printed glycerol-based biodegradable
13:45-14:00	scaffolds through optimized cell culture conditions
	<u>Lee Jie Ling</u> , Jane Wang
	#1015 Control of higher-order structure and toughening of polybutylene
14:00-14:15	succinate by reaction kneading
	Y. Kitada, A. Ishigami, Y. Kobayashi, Y. Suetugu, H. Taguchi, T. Kikuchi, and H. Ito
	#1018 Structural design and synthesis of benzoxazine-functionalized
14:15-14:30	octavinyIsiIsesquioxane for carbon dioxide adsorption applications
	<u>Ching-Wen Hsiao</u> , Mohamed Gamal Mohamed, Shiao-Wei Kuo
	#1025 Fluorescent Eu-BDC MOF/epoxy multifunctional composite with flame
14:30-14:45	retardancy for corrosion site fluorescence sensing in anti-corrosion applications
	<u>Kun-Ling Teng</u> , Yun-Yun Yan, Yuan-Hsiang Yu
	#1001 Immunomodulatory CpG-loaded photosensitizer-conjugated reduced
14:45-15:00	graphene oxide for melanoma immunotherapy
	Banendu Sunder Dash
	#1057 Molasses impression in hyaluronic acid production from streptococcus
15:00-15:15	zooepidemicus with feed batch method
10.00 10.10	Andi Nina Asriana, Suprapto, Tri Paus Hutapea Hasiholan, Anisa Salma Hasna, and
	Fredy Kurniawan
15:15-15:35	Break Time
Chair	Wang J (National Tsing-Hua University)
	#1051 Periodic cooking: a novel technique for optimized thermal processing of
15:35-15:50	eggs
	<u>E. Di Lorenzo</u> , P. Musto, E. Di Maio
	#1052 Foamablity of thermoplastic polyurethanes: influence of processing
	conditions
	L. Miele, E. Di Lorenzo, D. Bellisario, E. Di Maio
	#1056 Synergistic osteogenic and antibacterial effects of grafting bone
16:05-16:20	morphogenetic protein-2 on functionalized stainless-steel surface via
10.00 10.20	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>Ulfi 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
	Cheng-Ying Liu, Shota Mikoshiba, Yutaka Kobayashi, Akira Ishigami, Daisuke Yorifuji,
	Shin-ichiro Tanifuji, Hiroshi Ito

Tuesday, July 1	
Venue	Multipurpose Hall
Chair	Lue SJ (Chang Gung University)
	#1049 Morphology, rheology, and structure property relationships of electrically
09:00-09:40	conductive polymer blends and nanocomposites
	Uttandaraman Sundararaj
09:40-10:20	#1030 Solid state transformation of benzoxazine-linked porous organic polymers
09.40-10.20	<u>Shaio-Wei Kuo</u>
10:20-10:30	Break Time
Venue	Multipurpose Hall
Chair	Di Lorenzo E (University of Naples Federico II)
	#1041 Study on interfacial thermal resistance of layered heterogeneous
10:30-10:55	polymers for novel thermal insulation
	Takushi Saito
	#1009 Development of derivatization methods in ionic liquid solvents to exhibit
10:55-11:20	new properties and functions from structural polysaccharides
	Jun-ichi Kadokawa
	#0000 Optimizing pro-survival effects: Exosomes from human induced
	pluripotent stem cells in 3D culture
	Lee CH
	#0000 Acoustic emission sensing for understanding filler compounding in twin-
11:45-12:10	screw extrusion
	<u>Taki K</u>
12:10-13:30	Lunch Time
Venue	Central Library
13:30-14:30	Poster Session Presentation

Tuesday, July 1	
Venue	Multipurpose Hall
Chair	Wang CY (Ming Chi University of Technology)
	#1034 Verification of the influence of processing history through comparing
14:30-14:55	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
	Shih-Huang Tung
	#1010 Molding and recycling process that contributes to the recycling of plastic
15:20-15:45	resources by utilizing the self-resilience ability of polymers
	Shigeru Yao
15:45-16:10	#1050 Structure- and density-layered mono-material foams
	Ernesto Di Maio
16:10-16:30	Break Time
Venue	Multipurpose Hall
Chair	Miele L (University of Naples Federico II)
	#1011 Transesterification-triggered microphase separation in bio-based
16:30-16:45	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
	#1038 The CO ₂ -derived poly(cyclohexene carbonate) copolymers for tunable intra/intermolecular interactions with strong hydrogen-bonded donor
	Y.L. Kuan, 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
	#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/)
Venue	

Poster Session

Date: Tuesday, July 1		
Time: 13:30-14:30		
Venue: Central Library		
Category: G03. Polymerization and synthesis		
001) #1008 Synthesis of a new unnatural polysaccharide, 2-DEOXY- β (1-3)-glucan, by		
β -1,3-glucan phosphorylase-catalyzed enzymatic polymerization		
<u>Hayato Ishii</u> , Tao Takagaki, Masa-aki Iwamoto, Masayasu Totani and Jun-ichi		
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 Photocurable lung-derived decellularized extracellular matrix hydrogel for		
lung tissue engineering		
C.L. Fan, W.B. Young		
004) #1017 Stiffness degradation at the bending point of bent bamboo fiber composites	;	
<u>C.W. Ko</u> , W.B. Young		
005) #1026 A flexible biosensor based on conjugated polymers for ultra-sensitive		
detection of trace biomolecules		
<u>Yu-Wei Cheng</u> 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 α9-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 scaffold	S	
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		
<u>Yi-Cheng Huang</u> , Yu-Chieh Kuo, Yen-Liang Chen, Tze-Wen Chung		
Thomeny Huding, To Onien Ruo, Ten-Liang Onen, Tze-Wen Onung		

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

- 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, <u>Shang-Peng Yang</u> 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 CO**₂-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

H.C. Wu, 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

Chien-Hsin Yang, 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