

The 16th Japan(Tokyo Tech) - Korea(INHA Univ.) Seminar
on Chemical & Environmental Engineering



60th Anniversary Hall, INHA University

8 December 2023

Incheon, Korea

Organized by Inha Univ., Korea
Tokyo Institute of Technology, Japan



INHA UNIVERSITY

Chemistry and Chemical Engineering

Program in Energy Process Innovation Convergence

Program in Smart Digital Engineering

Education and Research Center for Smart Energy Materials and Process



Technical manpower training program For secondary battery industry



東京工業大学
Tokyo Institute of Technology

Chemical Engineering

The 16th Japan(Tokyo Tech) - Korea(INHA Univ.) Seminar on Chemical & Environmental Engineering

Location: INHA University 60th anniversary-207

Date: 10:30 ~ 17:00, 2023-12-08(Fri)

Schedule			
Time		Speaker	Title
10:30	10:40	Prof. Sungwon Hwang Prof. Hidetoshi Sekiguchi	Opening Remarks
10:40	10:50	Prof. Sunghyeon Baek	Congratulatory speech (BK21 Four, Education and Research Center for Smart Energy Materials and Process)
10:50	11:00	Prof. Sungwon Hwang	Introduction of INHA University (Graduate School of Energy Process Innovation Convergence)
11:00	11:10	Prof. Hidetoshi Sekiguchi	Introduction of Tokyo Institute of Technology and Sekiguchi's Laboratory
11:10	11:50	Introduction of Student Presentation (1)	
11:50	13:20	Lunch Time	
13:20	13:30	Prof. Mori Shinsuke	Introduction of Mori's Laboratory
13:30	13:40	Prof. Qian Yingjie	Synergistic effects of band-varying oxides and anti-CO-poisoning ligand on formic acid decomposition
13:40	14:25	Introduction of Student Presentation (2)	
14:25	14:40	Break Time	
14:40	15:20	Introduction of Student Presentation (3)	
15:20	15:30	Break Time	
15:30	16:40	Introduction of Student Presentation (4)	
16:40	16:45	Prof. Sungwon Hwang Prof. Hidetoshi Sekiguchi	Closing Remarks

Schedule of Student Presentation (1)			Chairman: Sungwon Hwang
Time		Speaker	Title
11:10	11:15	[Sungwon Lab, M1] Yunjeong Do	The Impact of Impeller type on the Polymer Reactor Performance using Computational Fluid Dynamics
11:15	11:20	[Sungwon Lab, M1] Heejin Kim	Deep Learning-based Model Design and Optimization for Maintenance of Chemical Process Equipment
11:20	11:25	[Naechul Lab, M2] Sumin Ji	Interface-Dependent Excitonic Emission in PbI ₂ /SnS van der Waals Heterostructures through Contact Geometry
11:25	11:30	[Naechul Lab, M1] Yaebin Lee	Unraveling the CVD Growth Mechanism of Two-Dimensional WSe ₂ Using Molten Salt Precursors
11:30	11:35	[Keunhyung Lab, D2] Minsu Kim	Mechanically Tough and Ionically Conductive Solid Polymer Electrolytes for Precise Motion Monitoring Applications
11:35	11:40	[Keunhyung Lab, M2] Donghyeon Park	Organic thin-film synaptic transistor-based pressure sensor for emulating artificial synapse
11:40	11:45	[Kanghee Lab, B4] Jintae Kim	The Future of Hydrogen Energy and Ammonia Synthesis and Separation
11:45	11:50	[Kanghee Lab, B4] Weonjun Jeong	CO adsorption for carbon neutrality

Schedule of Student Presentation (2)			Chairman: Kanghee Cho
Time		Speaker	Title
13:40	13:45	[Hyungchul Lab, M2] Hyunju Lee	Computational Design of Durable and Selective Double Atom Catalysts Toward the Electrochemical NH ₃ Production: Role of Carbon Defects
13:45	13:50	[Hyungchul Lab, Ph.D] S. Kamalakannan	DFT-Based Design of Acid-Base Catalyst for Biodiesel Production
13:50	13:55	[Yongjin Lab, D1] Hyeonsuk Yoo	A Computational Screening Study to Develop Ultra-High-Performance Aramid Copolymers
13:55	14:00	[Yongjin Lab, M1] Joonhyeok Park	Development of high temperature resistant polyimide oligomers: a molecular dynamics approach to amine substitution
14:00	14:05	[Kiyong Lab, D3] Jaewon Lee	Visible photoresponse of TiO ₂ nanotubes in comparison to that of nanoparticles and anodic thin film
14:05	14:10	[Kiyong Lab, D3] Yongseon Choi	Enhancement of photoelectrochemical properties with α -Fe ₂ O ₃ on surface modified FTO substrates
14:10	14:15	[Sangeun Lab, M2] Kyunghoon Min	Innovation in CO ₂ Capture and Conversion: Smoke Management with Silica Aerogel
14:15	14:20	[Sangeun Lab, D3] Jaewon Lee	Enhancing Flame Retardancy of Silicone Rubber with Melem-Coated Fe ₂ O ₃ Nanofillers

Schedule of Student Presentation (3)			Chairman: Kiyong Lee
Time		Speaker	Title
14:40	14:45	[Sunghyeon Lab, D2] Kyungseok Min	Bimetallic nickel iron sulfide directly grown on defect-rich Ti ₃ C ₂ MXene as an efficient bifunctional electrocatalyst for water electrolysis
14:45	14:50	[Sunghyeon Lab, M2] Hyejin Kim	Hollow-structured cobalt sulfide electrocatalyst for alkaline oxygen evolution reaction: Rational tuning of electronic structure using iron and fluorine dual-doping strategy
14:50	14:55	[Jinsub Lab, D2] Jinhee Lee	Electrocoagulation for Microplastic Removal from Water and Their Utilization for Lithium-Ion Battery Anodes
14:55	15:00	[Jinsub Lab, M1] Raeyun Kim	Comparison of changes in physical properties of SiO _x 2C based on the type of carbon precursor and deposition temperature
15:00	15:05	[Seunghyun Lab, M1] Taewook Um	Flexible polyurethane composite aerogel for pressure sensor
15:05	15:10	[Seunghyun Lab, M1] Jaewook Kim	Chemical depolymerization of waste PET and high-value application
15:10	15:15	[Jiho Lab, M2] Jinsu Park	Synthesis of Solubility-Enhanced Aramid and Cathode Fabrication as Li-ion battery Binder
15:15	15:20	[Jiho Lab, M2] Jedong Park	Synthesis of various para-aramid copolymers

Schedule of Student Presentation (4)			Chairman: Mori Shinsuke
Time		Speaker	Title
15:30	15:35	[Sekiguchi Lab, M2] Takumi Noguchi	Application of Microwave Plasma in Methane Dry Reforming
15:35	15:40	[Sekiguchi Lab, M2] Kohei Yamashita	Carbon Monoxide Disproportionation in Molten Salt Bubble Column
15:40	15:45	[Sekiguchi Lab, M2] Shouta Suzuki	Developemet of recycling technology for waste lithium-iion batteries
15:45	15:50	[Sekiguchi Lab, M1] Kohei Naito	Change in supercooling degree of water under electric field
15:50	15:55	[Sekiguchi Lab, M1] Naoki Nagatani	Elucidation of heating mechanism of microwave-heated fluidized bed and its application to methane pyrolysis
15:55	16:00	[Sekiguchi Lab, B4] Ryogo Serizawa	The syntheis of gallium nitride using a fused gallium bubble column reactor with electric discharge
16:00	16:05	[Mori Lab, D3] Nasrin Hossein Nedjad	Plasma Enhanced Atomic Layer Deposition for Conformal Coating of Manganese Oxide on Carbon Nanowalls
16:05	16:10	[Mori Lab, D2]	CO ₂ Splitting by Plasma Chemical Reaction in

		Kumpyo Kwak	Microwave Discharge
16:10	16:15	[Mori Lab, M2] Ryo Nishizawa	Synthesis of Ammonia from Steam and Nitrogen by SOEC and Plasma
16:15	16:20	[Mori Lab, M2] Tomotaka Yamada	Design of Supersonic Nozzle for Plasma Chemical Reaction
16:20	16:25	[Mori Lab, M1] Kai Fukunaga	Ammonia Synthesis using Treanor Pumping in Plasma
16:25	16:30	[Mori Lab, M1] Yuki Yokoyama	Synergistic CO ₂ reforming by SOEC and Plasma
16:30	16:35	[Mori Lab, M1] Yodai Morimoto	Ammonia Synthesis using Pressure Swing Reactors and Plasma
16:35	16:40	[Mori Lab, B4] Aoba Mochida	Synthesis of Long Carbon Nanotubes from Carbon Monoxide
16:40	16:45	Closing Remarks	