

Lecture program (As of August 8, 2018)

Sept. 4

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| | | Chair: S. Mukai (Hokkaido University) | Lecture Hall |
| 9:00 | PL1 | New Challenges in Fundamental Adsorption-based Science <u>K. Kaneko</u> (Shinshu University, Japan) | |
| 9:40 | | Coffee Break | |
| | | A. Fundamentals of Adsorption | |
| | | Chair: A. Matsumoto (Toyohashi University of Technology) | Lecture Hall |
| 10:00 | LA-1 | Selective O ₂ Sorption of Elastic Layer-structured MOFs R. Koyama, M. Togo, H. Kajiro, and <u>H. Kanoh</u> (Chiba University, Japan) | |
| 10:20 | LA-2 | Thermodynamic and Kinetic Modeling of Capillary Condensation and Evaporation in Open-Ended Nanopores <u>T. Hiratsuka</u> , H. Tanaka, and M. T. Miyahara (Kyoto University, Japan) | |
| 10:40 | LA-3 | Measuring Adsorption Properties of Fragrance Molecules on Fibres: Importance of Substrate Amorphicity on the Adsorption and Retention Behaviour of Small Molecules by Solid State Materials <u>N. Ali</u> , J. Marsh, G. Rondepierre and D. R. Williams (Imperial College London, United Kingdom) | |
| 11:00 | LA-4 | Selective Adsorption and Permeation using Graphene Sheet K. Shimizu, Y. Oya, H. Kitayama, M. Ishida, D. Hoshi, and <u>T. Ohba</u> (Chiba University, Japan) | |
| 11:20 | | Break | |
| | | Chair: I. Moriguchi (Nagasaki University) | Lecture Hall |
| 11:30 | KL1 | Preparation of Hierarchically Nanoporous Carbon-Based Nanocomposites for the Applications in Electro-Chemical Energy Storage <u>Y. Tao</u> , K. P. Annamalai, L. Liu, M. Zhang, N. A. Fathy, J. Gao, X. Zheng and T. Chen (Chinese Academy of Sciences, China) | |
| 12:00 | | Lunch | |
| | | Chair: H. Kanoh (Chiba University) | Lecture Hall |
| 13:20 | KL2 | Compression and High Pressure Effects in Adsorbed Films K. Shi, Y. Long, D. Srivastava, M. Śliwińska-Bartkowiak, E. E. Santiso and <u>K. E. Gubbins</u> (North Carolina State University, U.S.A.) | |
| 13:50 | | Break | |
| | | A. Fundamentals of Adsorption | |
| | | Chair: B. Han (Yonsei University) | Lecture Hall |
| 14:00 | LA-5 | Characterization of Electrostatic Field Strength in Zeolite Cavities by Adsorption Microcalorimetry of Methane as Probe Molecule <u>A. Matsumoto</u> , S. Mizuno and H. Ito (Toyohashi University of Technology, Japan) | |
| 14:20 | LA-6 | Adsorption of Carbon Dioxide on Perfect and Defective Surfaces of Porous Silica Glass: Computer Simulation and Experimental Studies C. Boonfung, N. Ketprasoet, C. Tangsathithkulchai and <u>A. Wongkoblap</u> (Suranaree University of Technology, Thailand) | |
| 14:40 | LA-7 | High-silica Potassium-exchanged LTA Zeolite as a Highly Selective CO ₂ Adsorbent for Post-combustion CO ₂ Capture A. Hanif, <u>J. Shang</u> (City University of Hong Kong, Hong Kong) | |
| | | Chair: T. Horikawa (Tokushima University) | Lecture Hall |
| 15:00 | LA-8 | On the Microscopic Mechanism of Thin-to-Thick Film Transition for Argon Adsorption on Weak Surfaces – Cluster Growth and Coalescence of Clusters <u>L. Prasetyo</u> , S. (Johnathan) Tan, K. Q. Loi, D. D. Do and D. Nicholson (University of Queensland, Australia) | |
| 15:20 | LA-9 | Low Temperature Adsorption of CO ₂ in Graphitic Wedge Shaped Pores with GCMC Simulation <u>X. Liu</u> , C. Fan and D. D. Do (Curtin University, Australia) | |
| 15:40 | LA-10 | Multiscale Nature of Adsorption Deformation of Hierarchical Micro-Mesoporous Materials <u>A. V. Neimark</u> (Rutgers University, USA) | |
| 16:00 | | Group Photo | |
| 16:20 | | Poster (16:20–18:00) Entrance Hall& Seminar room 1 | |

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| 9:00 | PL1 | New Challenges in Fundamental Adsorption-based Science <u>K. Kaneko</u> (Shinshu University, Japan) | |
| 9:40 | | Coffee Break | |
| | | E1. Adsorption for Energy Related Applications | |
| | | Chair: T. Yamamoto (University of Hyogo) | Seminar room 2 |
| 10:00 | LE1-1 | Ethane-selective Carbon Composites CPDA@A-ACs with High Uptake and Its Enhanced Ethane/Ethylene Adsorption Selectivity J. Xiao, W. Liang, Y. Wu, and <u>Z. Li</u> (South China University of Technology, China) | |
| 10:20 | LE1-2 | Carbon Dioxide Breakthrough Separation using Elastic-Layer Structured MOF pellet <u>H. Kajiro</u> , T. Nagai, and H. Dohnomae (Nippon Steel & Sumitomo Metal Co., Japan) | |
| 10:40 | LE1-3 | Performance of Novel Desorbent Swing Adsorption (DSA) Process Using Zeolite for Propane and Propylene Separation J.-J. Kim, S.-H. Hong and C.-H. Lee (Yonsei University, Korea, Republic of) | |
| 11:00 | LE1-4 | Long-Term Effect of Large Alkanes on Adsorbed Natural Gas Systems <u>J. Romanos</u> , S. Abou Dargham, F. Barakat (Lebanese American University, Lebanon) | |
| 11:20 | | Break | |
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| 13:50 | | Break | |
| | | E1. Adsorption for Energy Related Applications | |
| | | Chair: M. Miyaomoto (Gifu University) | Seminar room 2 |
| 14:00 | LE1-5 | Separation of Ternary Gas Mixtures Using Triple Reflux Pressure Swing Adsorption (TR-PSA) <u>G. (Kevin) Li</u> , V. Jusko, G. Xiao, P. A. Webley and E. F. May (The University of Melbourne, Australia) | |
| 14:20 | LE1-6 | Biogas Upgrading by Vacuum Pressure Swing Adsorption Process Using Commercial Adsorbents <u>Y. Shen</u> , W. Shi and D. Zhang (Tianjin university, China) | |
| 14:40 | LE1-7 | Determination of Kinetic Parameters of Porous Adsorbents Using a Pressure Jump/Pressure Drop Technique and a Transient Hot Bridge Method <u>O. Kraft</u> , M. Stripf and and U. Hesse (University of Applied Sciences Karlsruhe, Germany) | |
| | | Chair: D. Zhang (Tianjin University) | Seminar room 2 |
| 15:00 | LE1-8 | Methane Adsorption on Pitch Derived Activated Carbon Monoliths T. E. Rufford, S. Gao, <u>A. Arami-Niya</u> , B. S. Villacorta, L. Ge, and Z. Zhu (The University of Queensland, Australia) | |
| 15:20 | LE1-9 | On-site Pilot Demonstration of a Two-stage Deep Desulfation and Decarbonization Pressure and Temperature Swing Adsorption Unit at Elevated Temperature for 3 Nm ³ /h Hydrogen Production at an Ammonia Plant <u>S. Li</u> , P. Hao, X. Zhu, Y. Shi, N. Cai, S. Li, H. Jiang (Tsinghua University, China) | |
| 15:40 | LE1-10 | Material Selection and Properties for Adsorption Heat Storage <u>F. Mikšík</u> , T. Miyazaki (Kyushu University, Japan) | |
| 16:00 | | Group Photo | |
| 16:20 | | Poster (16:20–18:00) Entrance Hall& Seminar room 1 | |

Sept. 5

| | | | |
|-------|-------|--|--------------|
| | | Chair: T. Ueda (Osaka University) | Lecture Hall |
| 9:00 | PL2 | Fundamental Mechanism of Transition from Clustering to Molecular Layering in Adsorption of Gases on Carbon Materials <u>D. D. Do</u> (The University of Queensland, Australia) | |
| 9:40 | | Coffee Break | |
| | | A. Fundamentals of Adsorption | |
| | | Chair: K. Urita (Nagasaki University) | Lecture Hall |
| 10:00 | LA-11 | Machine Learning Driven Computational Design of High Functional Adsorbents for Hazardous Chemicals H. Jung, <u>B. Han</u> (Yonsei University, Korea, Republic of) | |
| 10:20 | LA-12 | First-Principles Computational Study of the Adsorption Mechanism of CH ₃ I(g) on Activated Carbon and Transition Metal Surfaces H. Chun, B. Han (Yonsei University, Korea, Republic of) | |
| 10:40 | LA-13 | Consequences of Heterogeneities for Adsorption on Graphene <u>F. Vallejos-Burgos</u> and K. Kaneko (Shinshu University, Japan) | |
| 11:00 | LA-14 | Structures of Ice Confined in Nanocarbons; X-ray (WAXS) and Neutrons Diffraction (ND) Studies M. Śliwińska-Bartkowiak, K. Domin, M. Jazdzewska, A. Beskrownyi, K. E.Gubbins (A.Mickiewicz University, Poznan, Poland) | |
| 11:20 | | Break | |
| | | Chair: S. Tanaka (Kansai University) | Lecture Hall |
| 11:30 | KL3 | Defect Engineering for Manipulating Porosity and Adsorption Behavior of Metal-organic Frameworks Y. Jiao, Y. Liu, G. Zhu, J. T. Hungerford, S. Bhattacharyya, R. P. Lively, D. S. Sholl, and <u>K. S. Walton</u> (Georgia Institute of Technology, U.S.A) | |
| 12:00 | | Lunch | |
| | | Chair: A. Kondo (Tokyo University of Agriculture and Technology) | Lecture Hall |
| 13:20 | KL4 | Intrinsic Thermal Management Capabilities of Flexible Metal-organic Frameworks for CO ₂ Separation H. Tanaka, S. Hiraide and M. T. Miyahara (Kyoto University, Japan) | |
| 13:50 | | Break | |
| | | B. Instrumentation for Adsorption Measurement/C. Chemisorption & Catalysis | |
| | | Chair: F. Y. Yeoh (Universiti Sains Malaysia) | Lecture Hall |
| 14:00 | LB-1 | Suitable Gas Probe (N ₂ or Ar) for Characterization of Pore Size Distribution K. Nakai, T. Funahashi, T. Shigeoka, H. Tanaka and M. T. Miyahara (MicrotracBEL Corp., Japan) | |
| 14:20 | LB-2 | Study of Multi-Component Vapor Phase Adsorption Breakthrough of Volatile Organic Compounds (VOCs) at sub-ppm Levels Through Selected Ions Flow Tube Mass Spectrometry T. Virdis, C. Walgraeve, H. Van Langenhove, J. F. M. Denayer (Vrije Universiteit Brussels, Belgium) | |
| 14:40 | LC-1 | Preparation of Shaped Porous Coordination Polymer Composites by Using Macroporous Solid Materials for Gas Separation M. Matsuoka, S. Mine and Y. Horiuchi (Osaka Prefecture University, Japan) | |
| 15:00 | LC-2 | Ortho–Para Conversion of Hydrogen Molecule Adsorbed in the Nanospace of Porous Metal Complexes <u>A. Hori</u> , K. Kaneshima, A. Mishima, Y. Ma and R. Matsuda (Nagoya University, Japan) | |
| 15:20 | | Coffee Break | |
| | | E2. Adsorption for Bio-applications | |
| | | Chair: M. Matsuoka (Osaka Prefecture University) | Lecture Hall |
| 15:40 | LE2-1 | Small Uremic Toxins Adsorption by Nanoporous Biomaterials F.-Y. Yeoh, C.-H. Ooi, W.-K. Cheah, and Y.-L. Sim (Universiti Sains Malaysia, Malaysia) | |
| 16:00 | LE2-2 | Acetic Acid Recovery from Fermentation Broth in Layered Beds <u>A. P. Mathews</u> and H. Naidu (Kansas State University, U.S.A) | |
| 16:20 | LE2-3 | Adsorption Kinetics of Protein for Improved Understanding of Biopharmaceutical Processes S. Hedberg, L. Brown, J. Heng and D. Williams (Imperial College London, United Kingdom) | |
| 16:40 | LE2-4 | Quantifying Host Cell Protein Interactions with MABs using Interaction Chromatography Tools <u>D. Sethi</u> , S. Hedberg and D. Williams (Imperial College London, United Kingdom) | |
| 17:00 | LE2-5 | Selective Adsorption and Complexation of Oxalic Acid Metabolite on Aluminosilicate Minerals during Bioleaching X. Xue, I. Pedruzzi, P. Li and J. Yu (East China University of Science and Technology, China) | |

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| 9:40 | | Coffee Break | |
| | | D. Synthesis and Characterization of Novel Adsorbent Materials | |
| | | Chair: T. Iiyama (Shinshu University) | Seminar room 2 |
| 10:00 | LD-1 | Photo-induced Post-synthetic Modification of Sulfur Functional Groups in a Microporous Metal Complex <u>S. Kusaka</u> , R. Matsuda, S. Kitagawa (Nagoya University, Japan) | |
| 10:20 | LD-2 | Prediction of Adsorption-Induced Phase Changes in the Zeolitic Imidazolate Framework ZIF-7 <u>A. Arami-Niya</u> , S. Rahman, G. Li and E. May (The University of Western Australia, Australia) | |
| 10:40 | LD-3 | Recovery of Helium from Gas Mixtures Using Temperature-Regulated Trapdoor Zeolites <u>Y. Wang</u> , A. Arami-Niya, G. Li and E. May (The University of Western Australia, Australia) | |
| 11:00 | LD-4 | Dramatic Change in Gate Adsorption Pressure of Soft MOF (ELM-12) with Varied Particle Sizes <u>S. Watanabe</u> , A. Fukuta, S. Hiraide, H. Tanaka, and M. T. Miyahara (Kyoto University, Japan) | |
| 11:20 | | Break | |
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| 13:50 | | Break | |
| | | D. Synthesis and Characterization of Novel Adsorbent Materials | |
| | | Chair: S. Watanabe (Kyoto University) | Seminar room 2 |
| 14:00 | LD-5 | Tools to Characterise Virtual Porous Materials Using a New "Absolute" Accessible Volume <u>L. F. Herrera</u> , L. Prasetyo and D. D. Do (Charles Darwin University, Australia) | |
| 14:20 | LD-6 | Synthesis and Characterization of Highly Nanoporous Nickel Cobaltite/Graphene Nanocomposite <u>K. P. Annamalai</u> , T. Chen, L. Liu and Y. Tao (Chinese Academy of Sciences, China) | |
| 14:40 | LD-7 | Rapid Microwave-assisted Synthesis of Metal-organic Framework Having Improved Performance as CO ₂ adsorbent for CCS <u>S. Gaikwad</u> and S. Han (Changwon National University, Korea, Republic of) | |
| 15:00 | LD-8 | Ultrafast Room Temperature Synthesis of Gly@Cu-BTC with High CO ₂ /CH ₄ /N ₂ Adsorption Selectivity and Improved Stability against Moisture <u>Y. Wu</u> , <u>X. Zhou</u> and <u>Z. Li</u> (South China University of Technology, China) | |
| 15:20 | | Coffee Break | |
| | | E3. Adsorption for Environment Protection | |
| | | Chair: A. Kodama (Kanazawa University) | Seminar room 2 |
| 15:40 | LE3-1 | Development of Porous Carbon Materials from Petroleum Coke via KOH Activation for CO ₂ capture <u>S. W. Choi</u> , E. Jang, S.-M. Hong, <u>K. B. Lee</u> (Korea University, Korea, Republic of) | |
| 16:00 | LE3-2 | Temperature Swing Adsorption Processes for CO ₂ Capture from Moist Flue Gas Employing Commercial Zeolites <u>S. E. Zanco</u> , M. Hefti, and M. Mazzotti (ETH Zurich, Switzerland) | |
| 16:20 | LE3-3 | Characteristics of Activated Carbon in Elevated-temperature Pressure Swing Adsorption Desulfurization <u>P. Hao</u> , Z. Liu, Y. Shi and N. Cai (Tsinghua University, China) | |
| 16:40 | LE3-4 | Nano-fibrous Silica Supported MgO as an Efficient High-Temperature CO ₂ Adsorbent <u>A. Hanif</u> , <u>J. Shang</u> (City University of Hong Kong, Hong Kong) | |
| 17:00 | | | |

Sept. 6

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| | Chair: A. Endo (AIST) | Lecture Hall |
| 9:00 | PL3 Contribution of Adsorption Technology to High Techno-Economic Performance and Carbon Assessment in Integrated Coal-Syngas Process: H ₂ PSA and Pre-combustion CO ₂ Capture <u>C.-H. Lee</u> (Yonsei University, Korea) | |
| 9:40 | Coffee Break | |
| | A. Fundamentals of Adsorption | |
| | Chair: S. Inagaki (Yokohama National University) | Lecture Hall |
| 10:00 | LA-15 Cluster-mediated Diffusion of Light and Heavy Water in Hydrophobic Carbon Pore <u>H. Ito</u> , Y. Ono, F. Vallejos-Burgos, M. Yoshimoto, R. Futamura, K. Kaneko, T. Iiyama and A. Matsumoto (Toyohashi University of Technology, Japan) | |
| 10:20 | LA-16 Methanol Film on Oxygenated Graphite at Low Temperatures: Transition from a Ring to String Configurations <u>W. Dilokekunakul</u> , N. Klomkliang, S. Supasitmongkol and D. D. Do (Mahidol University, Thailand) | |
| 10:40 | LA-17 Co-ion Association Structure of Ionic Liquids in Monolayer Sized Carbon Nanopores <u>R. Futamura</u> , T. Iiyama, Y. Gogotsi, M. J. Biggs, M. Salanne, P. Simon, and K. Kaneko (Shinshu University, Japan) | |
| 11:00 | Break | |
| | Chair: T. Ohba (Chiba University) | Lecture Hall |
| 11:10 | KL5 Structure and Gas Transport at the Polymer-Zeolite Interface: Insights from Molecular Dynamics Simulations <u>R. C. Dutta</u> and <u>S. K. Bhatia</u> (The University of Queensland, Australia) | |
| 11:40 | Lunch | |
| 13:10 | Excursion | |



Sept. 6

| | | |
|-------|---|----------------|
| | Chair: A. Endo (AIST) | Lecture Hall |
| 9:00 | PL3 Contribution of Adsorption Technology to High Techno-Economic Performance and Carbon Assessment in Integrated Coal-Syngas Process: H ₂ PSA and Pre-combustion CO ₂ Capture <u>C.-H. Lee</u> (Yonsei University, Korea) | |
| 9:40 | Coffee Break | |
| | E3. Adsorption for Environment Protection | |
| | Chair: K. B. Lee (Korea University) | Seminar room 2 |
| 10:00 | LE3-5 Separation of Guaifenesin Enantiomers by Simulated Moving Bed Process with Four Operation Modes R. Gong, Y. Yang, J. Wang, <u>P. Li</u> and J. Yu (East China University of Science and Technology, China) | |
| 10:20 | LE3-6 Adsorption Capacity of TEDA-Impregnated Activated Carbons for Removal of Radioactive Methyl Iodide <u>K. Ho</u> , H. C. Lee, Y. K. Hwang, C.-H. Lee (Yonsei University, Korea, Republic of) | |
| 10:40 | LE3-7 Adsorption Interactions between Volatile Organic Compounds and Natural and Synthetic Fibres: Impact of Relative Humidity M. Guo, L. Cao, <u>E. Hunter-Sellars</u> , N. Ali, D. Williams (Imperial College London, United Kingdom) | |
| 11:00 | Break for Changing the Lecture Room | |
| | Chair: T. Ohba (Chiba University) | Lecture Hall |
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