

# Session Program for Process Engineering(Tentative)

Date : 8, 9<sup>th</sup> March, 2017

Place : Room 408, Ryoshin-kan, Imadegawa Campus, Doshisha University

## 【Schedule Overview】

### Wednesday, 8<sup>th</sup> March

13:30 – 18:00 Oral Session



### Thursday, 9<sup>th</sup> March

13:00 – 16:20 Oral Session

16:20 – 17:00 Exhibition Core Time (Kambai-kan, Entrance of Hardy-hall)

17:00 – 17:50 Poster Session (Kambai-kan, B1F Conference Room A)

## 【Program & Contents】

### Wednesday, 8<sup>th</sup> March

#### **13:30 – 15:30 Oral Session I : High Performance Energy Technology**

Place: Room 408 Ryoshin-Kan, Imadegawa Campus

Chair: Prof. Hiroshi Yamaguchi, Doshisha University

Prof. Petter Nekså, SINTEF / NTNU

13:30 – 13:50 “Energy Intensive Industry in Norway – A Global Center of Innovation”  
Nils K. Nakstad, Enova

13:50 – 14:10 “Investigation of a Hybrid Compression Absorption Heat Pump System for High Temperatures”  
Maria Byrkjedal Wersland, NTNU

14:10 – 14:30 “HighEFF - Centre for an Energy Efficient and Competitive Industry for the Future”  
Petter Nekså<sup>a, b</sup> and Anne Karin T. Hemmingsen<sup>a</sup>, <sup>a</sup>SINTEF Energy Research, <sup>b</sup>NTNU

14:30 – 14:50 “Visualization of Behavior of Dry-ice Particles in Evaporator”  
Haruhiko Yamasaki and Hiroshi Yamaguchi, Doshisha University

14:50 – 15:10 “Integrated Supermarket Refrigeration”  
Armin Hafner, NTNU

- 15:10 – 15:30 “CO<sub>2</sub> Refrigeration System for Ice Production in Snow Making Generators at Ambient Temperatures above 0°C”  
Trygve M. Eikevik, Jon-Brede Dieseth and Ignat Tolstorebrov, NTNU
- 15:30 – 15:50 Break
- 15:50 – 17:30 Oral Session II : Membranes for Sustainable Energy Technology**  
Place: Room 408 Ryoshin-Kan, Imadegawa Campus  
Chair: Dr. Xuezhong He, NTNU  
Prof. Izumi Kumakiri, Yamaguchi University
- 15:50 – 16:10 “Carbon Membranes: Where are the Potential Applications?”  
Xuezhong He, NTNU
- 16:10 – 16:30 “Micro-Porous Inorganic Membranes for the Hydrogen Economy”  
Izumi Kumakiri, Kyosuke Tamura, Yuuta Yamashita, Kazuhiro Tanaka and Hidetoshi Kita, Yamaguchi University
- 16:30 – 16:50 “Investigation of Amine-functionalized Polyhedral Oligomeric SilSesquioxanes Nanoparticles in PVA-based Hybrid Membranes for CO<sub>2</sub>/N<sub>2</sub> Separation in Post-Combustion”  
Gabriel Guerrero<sup>a</sup>, May-Britt Hägg<sup>a</sup>, Christian Simon<sup>b</sup>, Thijs Peters<sup>b</sup>, Nicolas Rival<sup>b</sup>, Christelle Denonville<sup>b</sup> and Partow P. Henriksen<sup>b</sup>  
<sup>a</sup> NTNU, <sup>b</sup> SINTEF
- 16:50 – 17:10 “Results from Pilot Scale Membrane Systems for CO<sub>2</sub> Capture”  
Xuezhong He, Arne Lindbråthen, and May-Britt Hägg, NTNU
- 17:10 – 17:30 “Heat Dissipation and Entropy Production in a Shock Wave”  
Bjørn Hafskjold, NTNU
- 17:30 – 18:00 Break
- 18:00 Limousine to the Banquet Venue (General Participants)  
Student Get Together (Registered Student Participants)

Thursday, 9<sup>th</sup> March

**13:00 – 14:40 Oral Session III : Proposal of Minimized Energy Emission**

Place: Room 408 Ryoshin-Kan, Imadegawa Campus

Chair: Prof. Bjørn Hafskjold, NTNU

Prof. Yuhiro Iwamoto, Nagoya Institute of Technology

13:00 – 13:20 “Development and Analysis of Low Emission Energy System for Oceanic Methane Hydrate”

Lin Chen<sup>a,b</sup>, Yuki Kanda<sup>a</sup>, Hikaru Yamada<sup>a</sup>, Tsutomu Watanabe<sup>a</sup>

Junnosuke Okajima<sup>a</sup>, Atsuki Komiya<sup>a</sup>, and Shigenao Maruyama<sup>a</sup>

<sup>a</sup>Tohoku University, <sup>b</sup>Overseas Research Fellow of JSPS

13:20 – 13:40 “Energy Distribution Concepts for Urban Supermarkets Including Energy Hubs”

Håkon Selvnesa and Armin Hafner, NTNU

13:40 – 14:00 “High Efficient CO<sub>2</sub> Dissociation Technology using Adsorption-Plasma Combined Treatment”

Masaaki Okubo, Shuhei Kamiya, Satoshi Kamei, Kenji Nakajima, and Tomoyuki Kuroki, Osaka Prefecture University

14:00 – 14:20 “Integrated Energy Concepts for High Performance Hotel Buildings”

Silje Marie Smita and Armin Hafner, NTNU

14:20 – 14:40 “Fundamental Characteristic of Reduction of Energy Consumption in Nonthermal Plasma Water Sterilization Using Electrolysis of Water and Fuel Cells”

Takuya Kuwahara, Nippon Institute of Technology

14:40 – 15:00 Break

**15:00 – 16:20 Oral Session IV : Energy Storage and Transportation**

Place: Room 408 Ryoshin-Kan, Imadegawa Campus

Chair: Prof. Trygve M. Eikevik, NTNU

Prof. Takuya Kuwahara, Nippon Institute of Technology

- 15:00 – 15:20 “Performance Simulation of a Refrigerated Sea Water System for Salmon Chilling with R744 as Refrigerant”  
Ignat Tolstorebrov<sup>a</sup>, Trygve M. Eikevik<sup>a</sup>, Armin Hafner and Michael Bantle<sup>b</sup>, <sup>a</sup>NTNU, <sup>b</sup>SINTEF
- 15:20 – 15:40 “Introduction of Magnetic Functional Fluids and Elastomers and Their Applications”  
Yuhiro Iwamoto and Yasushi Ido, Nagoya Institute of Technology
- 15:40 – 16:00 “Data Mining and Parallel Simulation for Energy Consumption Forecasts in Residential Buildings”  
Frederic Magoules, MICS, CentraleSupélec, Université Paris Saclay
- 16:00 – 16:20 “Performance Analysis of a Multi-Functional CO<sub>2</sub> Heat Pump Water Heating System”  
Ryohei Yokoyama, Osaka Prefecture University
- 16:20 – 17:00 Exhibition Core Time (Kambai-kan, Entrance of Hardy-hall)
- 17:00 – 17:50 Poster Session (Place: Kambai-kan, B1F Conference Room A)

(For Young Researcher Award)

- PE-P1 “Integrated Energy concepts for high performance hotel buildings”  
Silje Marie Smith, NTNU
- PE-P2 “Energy distribution concepts for Urban Supermarkets including energy hubs”  
Håkon Selvnes, NTNU
- PE-P3 “Investigation of a hybrid compression absorption heat pump system for high temperatures”  
Maria Byrkjedal Wersland, NTNU
- PE-P4 “Energy Conversion using Cylindrical Permanent Magnet Elastomer Dispersing Neodymium Fine Particles”  
Keisuke Sato<sup>a</sup>, Junya Takeuchi<sup>a</sup>, Yuhiro Iwamoto<sup>a</sup>, Tomoe Deguchi<sup>b</sup>, Yasushi Ido<sup>a</sup>, Yasuhisa Fujii<sup>b</sup>, Haruhiko Yamasaki<sup>c</sup> and Hiroshi Yamaguchi<sup>c</sup>, <sup>a</sup>Nagoya Institute of Technology, <sup>b</sup>KRI, Inc., <sup>c</sup>Doshisha University

- PE-P5 “Long Distance Heat Transfer by Magnetically-Driven Heat Transport Device using Temperature-Sensitive Magnetic Fluid”  
Hayaki Nakasumi<sup>a</sup>, Yuhiro Iwamoto<sup>a</sup>, Yasushi Ido<sup>a</sup> and Hiroshi Yamaguchi<sup>b</sup>,  
<sup>a</sup>Nagoya Institute of Technology, <sup>b</sup>Doshisha University
- PE-P6 “Influence of Coexisting Molecule on the Transport through ZSM-5 Zeolite Membranes”  
Plloma Ortiz<sup>a,b</sup>, Tomoki Yamamoto<sup>b</sup>, Izumi Kumakiri<sup>b</sup>, Kazuhiro Tanaka<sup>b</sup> and Hidetoshi Kita<sup>b</sup>, <sup>a</sup>University of Cantabria, <sup>b</sup>Yamaguchi University
- PE-P7 “Thermo-Fluid Characteristics due to Phase Ddifference in Solar Heat Recovery System using Carbon Dioxide”  
Hirohumi Ezoe, Pumaneratkul Chayadit, Haruhiko Yamasaki and Hiroshi Yamaguchi, Doshisha University
- PE-P8 “Heat Collection Performance of Evacuated Solar Collectors in Supercritical CO<sub>2</sub> Solar Rankine System”  
Kyosuke Fujita, Pumaneratkul Chayadit, Haruhiko Yamasaki and Hiroshi Yamaguchi, Doshisha University

(For General Presentation)

PE-P9 “HighEFF”

PE-P10 “Ferrocool”

PE-P11 “Hyper”

PE-P12 “Snow for the Future”

- PE-P13 “Acid-stable Hydrophilic Zerolite Membranes Prepared without Applying Organic Structure Directing Agents”  
Izumi Kumakiri, Yoshihiro Kajimura, Mei-Hua Zhu, Kazuhiro Tanaka and Hidetoshi Kita, Yamaguchi University