

**OS1: The Third International Symposium on Integrated Flow Science I & III
Advanced Materials and its Energy Application
&
Multiphase Energy Science and Technology (Combination of Monozukuri-Fluid
Science / Engineering)**

**November 12, 2025
EX-Hall-3A**

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| OS1-1
9:00-9:35 | Numerical Analysis of Multi-loop Pulsating Heat Pipes on Cooled Cylinder for Rotary Applications <i>(Invited)</i>
Marcin Opalski (Wrocław University of Science and Technology, Poland / Université Paris-Saclay, France), Adam Ruziewicz, Andrzej I. Nowak, Cezary Czajkowski (Wrocław University of Science and Technology, Poland), Jun Ishimoto (Tohoku University, Japan), <u>Sławomir Pietrowicz</u> (Wrocław University of Science and Technology, Poland) |
| OS1-2
9:35-10:10 | Experimental and Numerical Analyses of the Flow Pattern in Pulsating Heat Pipes in Micro and Hypergravity <i>(Invited)</i>
<u>Sławomir Pietrowicz</u> (Wrocław University of Science and Technology, Poland), Jun Ishimoto (Tohoku University, Japan) |
| OS1-3
10:10-10:30 | Geometry Effect of PCM Container on the Thermal Management of Lithium-Ion Batteries: Numerical Investigation
<u>Zhong-Xiang Ji</u> , Li Lin, Kuang C. Lin (National Tsing Hua University, Taiwan) |
| 10:30-10:45 | BREAK |
| OS1-4
10:45-11:05 | Evaluating Energy Saving for Active Cooling in PCM-based Lithium-ion Battery Thermal Management
Pei Wei Lee, Kuang Chuan Lin, <u>Junyi Li</u> (National Tsinghua University, Taiwan) |
| OS1-5
11:05-11:25 | Experimental Fluid Dynamic Study on Enhancing Water Harvesting Efficiency of Solar Evaporators via Bioinspired Surface Design
Jun Young Kim, Sung Ho Kim, <u>Jeong Jae Kim</u> (Hanbat National University, Republic of Korea) |
| OS1-6
11:25-11:45 | Green Petroleum Coke as CO₂/CH₄ Separation in Natural Gas Processing Industry
<u>Fayza Yulia</u> , Sylvia Ayu Pradanawati, Muhammad Yusril (Universitas Pertamina, Indonesia), Takuya Mabuchi (Tohoku University, Japan) |
| OS1-7
11:45-12:05 | Investigation of Different Hydrogen-Rich Fuels Co-Injected with Pulverized Coal into the Blast Furnace
<u>Jyun-Hao Huang</u> , Sheng-Yen Hsu (National Sun Yat-sen University, Taiwan), Bo-Jhih Lin, Tsung-Yen Huang (China Steel Corp., Taiwan) |
| 12:15-13:30 | BREAK |

- OS1-8
13:30-13:50 **The Design of Self-Preheated Burner by Using Numerical Analysis**
Yue-Ru Wu, Sheng-Yen Hsu, Chih-Wei Huang (National Sun Yat-sen University, Taiwan), Kai-Cheng Hsu, Jin-Wei Liang (Metal Industries Research & Development Centre, Taiwan)
- OS1-9
13:50-14:10 **CFD-Driven Design of Two-Stage Grouting for Karst Sealing**
Piao Miao, Zha Fusheng, Wang Qiao (Hefei University of Technology, China)
- OS1-10
14:10-14:30 **Investigation of Contact Methods between Water and Nitrogen Plasma for Sustainable Ammonia Production**
Yuya Kuwaki, Ryoya Shiraishi, Taiji Hatayama, Shuntaro Sakamoto (Yamaguchi University, Japan), Chihiro Yamasaki, Yasutaka Hayamizu (National Institute of Technology, Yonago College, Japan)
- OS1-11
14:30-14:50 **Energy Recovery Rate of an Electric ECS under Cruise Conditions of a Narrow Body Aircraft**
Naoki Tomiyama, Kana Akinaga, Takahiro Adachi (Akita University, Japan)
- 15:00-15:15 BREAK
- OS1-12
15:15-15:35 **Investigation of the Aerodynamic Characteristics of a Cylindrical Wing using Wind Tunnel Testing and Free Flight Testing**
Kotaro Oguchi, Koki Hijiri (Doshisha University, Japan), Masami Nakano, Jun Ishimoto (Tohoku University, Japan), Takahiro Adachi (Akita University, Japan), Katsuya Hirata (Doshisha University, Japan)
- OS1-13
15:35-15:55 **Aerodynamics and Flow of Ring Wing by Numerical Simulation**
Koki Hijiri, Kotaro Oguchi (Doshisha University, Japan), Takahiro Adachi (Akita University, Japan), Jun Ishimoto, Masami Nakano (Tohoku University, Japan), Katsuya Hirata (Doshisha University, Japan)
- OS1-14
15:55-16:15 **Forced Synchronization of Thermal Convection in Rotating Annulus**
Ippei Oshima (Tohoku University / Japan Agency for Marine-Earth Science and Technology, Japan), Yoji Kawamura (Japan Agency for Marine-Earth Science and Technology, Japan)
- OS1-15
16:15-16:35 **Synergistic Enhancement of Electrochemical Performance in Straw-Derived Biochar via Molten Salt Pyrolysis and Nano-Silica Doping for Supercapacitor Electrodes**
Ming Zhai, Pengfei Fan, Ruiqi Xie, Xuesong Li, Li Guo (Harbin Institute of Technology, China)