OS2: The Ninth International Symposium on Innovative Energy Research II
Combustion Technology and Fundamentals

October 27, 2021
ROOM1

OS2-1 /OS23-7
16:30-16:50
Effects of Combustor Wall Cooling on Liquid Ammonia Spray Combustion in a Micro Gas Turbine Combustor
Ekenechukwu C. Okafor, Osamu Kurata (National Institute of Advanced Industrial Science and Technology (AIST), Japan), Hirofumi Yamashita (Tohoku University, Japan), Takahiro Inoue, Taku Tsujimura, Norihiko Iki (National Institute of Advanced Industrial Science and Technology (AIST), Japan), Akihiro Hayakawa (Tohoku University, Japan), Masahiro Uchida, Shintaro Ito (IHI Corporation, Japan), Hideaki Kobayashi (Tohoku University, Japan)

October 27, 2021
ROOM2

OS2-2
17:10-17:30
Direct Numerical Simulation of Ammonia Evaporating Spray Jet at Different Environmental Pre-heating Condition
Lorenzo Angelilli (King Abdullah University of Science and Technology, Saudi Arabia), Pietro Paolo Ciottoli (Sapienza – University of Rome, Italy), Francisco Hernandez Perez (King Abdullah University of Science and Technology, Saudi Arabia), Mauro Valorani (Sapienza – University of Rome, Italy) Hong Im (King Abdullah University of Science and Technology, Saudi Arabia)

OS2-3
17:30-17:50
Liquid Ammonia Spray Characteristics Using a Hollow Cone Nozzle at Various Ambient Pressures
Kapuruge Don Kunkuma Amila Somarathne, Hirofumi Yamashita, Sophie Colson, Akihiro Hayakawa, Hideaki Kobayashi (Tohoku University Japan)

OS2-4
17:50-18:10
Investigations of Oxidation and Reactivity of Dimethyl Ether/Ammonia Mixtures by a Micro Flow Reactor with a Controlled Temperature Profile
Yuki Murakami, Hisashi Nakamura, Takuya Tezuka (Tohoku University, Japan), Kenji Hiraoka (Yanmar Holdings Co., Ltd., Japan), Kaoru Maruta (Tohoku University, Japan)

OS2-5
18:10-18:30
Effects of H_2O Diluents on Ammonia Oxidation Examined by a Micro Flow Reactor with a Controlled Temperature Profile
Kenta Tamaoki, Yuki Murakami, Keisuke Kanayama, Takuya Tezuka, Hisashi Nakamura (Tohoku University, Japan)

OS2-6
18:40-19:00
Effects of Strain Rates on Minimum Ignition Energy in a Premixed Counterflow
Shumeng Xie, Zheng Chen (Peking University, China)

OS2-7 19:00-19:20 **Numerical Analysis of Flame Behavior Initiated from Flame Ball in Counterflow Field**
Kazutaka Sagawa, Takaki Akiba, Youhi Morii, Hisashi Nakamura, Kaoru Maruta (Tohoku University, Japan)

OS2-8 19:20-19:40 **Effects of Turbulence and Lewis Number on the MIE Transition Phenomena**
Yoshiki Hirano, Taichi Mukoyama, Takuya Tezuka, Youhi Morii, Hisashi Nakamura, Kaoru Maruta (Tohoku University, Japan)

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OS2-9 13:30-13:50 **FREI with a Separated Stable Cool Flame in a Micro Flow Reactor with a Controlled Temperature Profile**
Keisuke Akita, Youhi Morii, Hisashi Nakamura, Takuya Tezuka, Kaoru Maruta (Tohoku University, Japan)

OS2-10 13:50-14:10 **Species Measurement for Studying Oxidation and Pyrolysis of Dimethyl Carbonate and Diethyl Carbonate using a Micro Flow Reactor with a Controlled Temperature Profile**
Keisuke Kanayama, Shintaro Takahashi, Shota Morikura, Hisashi Nakamura, Takuya Tezuka, Kaoru Maruta (Tohoku University, Japan)

OS2-11 14:10-14:30 **Experiments and Kinetics for Oxidation and Pyrolysis of Ethyl Methyl Carbonate examined by a Micro Flow Reactor with a Controlled Temperature Profile**
Shintaro Takahashi, Keisuke Kanayama, Shota Morikura, Hisashi Nakamura, Takuya Tezuka, Kaoru Maruta (Tohoku University, Japan)

OS2-12 14:30-14:50 **Numerical Investigation Of CH_4/H_2/Air Flame Bifurcation In A Microchannel With A Controlled Wall Temperature Profile**
Shixuan Wang, Aiwu Fan (Huazhong University of Science and Technology, China)

OS2-13 15:20-15:40 **Experimental Observation of Acoustic Parametric Instability in a Thermo-diffusively Unstable Mixture**
Ajit Kumar Dubey, Takuya Tezuka, Youhi Morii, Hisashi Nakamura, Kaoru Maruta (Tohoku University, Japan)

OS2-14 15:40-16:10 **Revisiting the Stability of One-Dimensional Gaseous Detonations** *(Invited)*
Hassan Tofaili, Guido Lodato, Luc Vervisch (INSA Rouen Normandie, France), Paul Clavin (Aix Marseille Université, France)

OS2-15 16:10-16:30 **DNS of Reactive Compressible Flow for Detailed Understanding of Knocking Phenomena**
Youhi Morii, Ajit K. Dubey, Keisuke Akita, Hisashi Nakamura, Kaoru Maruta (Tohoku University, Japan)

OS2-16 **Uncertainty Quantification Analysis of RANS of Spray Swirling Jets**

16:30-16:50 Jacopo Liberatori (Sapienza, Università di Roma, Italy), Andrea Petrocchi (University of Glasgow, Scotland, UK), Riccardo Malpica Galassi (Sapienza, Università di Roma, Italy), Hong G. Im (King Abdullah University of Science and Technology, Saudi Arabia), Mauro Valorani, Pietro Paolo Ciottoli (Sapienza, Università di Roma, Italy)

OS2-17 **Computational Study on Flame Balls at Fuel Lean and Rich Conditions**

17:10-17:30 Akira Tsunoda, Takaki Akiba, Hisashi Nakamura, Takuya Tezuka, Kaoru Maruta (Tohoku University, Japan)

OS2-18 **Counterflow Premixed Flame Experiments at ISS Kibo for Comprehensive Combustion Limit Theory**

17:30-17:50 Takaki Akiba, Akira Tsunoda, Hisashi Nakamura, Takuya Tezuka (Tohoku University, Japan), Masao Kikuchi (Japan Aerospace Exploration Agency, Japan), Kaoru Maruta (Tohoku University, Japan)