

OS20: Multiphysics in Fluid Mechanics

November 11, 2026

EX-4A

- OS20-1
13:30-13:45 **Numerical and Experimental Study of In-Flight MgAl_2O_4 Particle Behavior in Atmospheric Plasma Spraying under Varying Arc Current**
Byeong-Il Min (Korea Institute of Materials Science, Republic of Korea), Byeongryun Jeon (Korea Institute of Materials Science / Pusan National University, Republic of Korea), Hansol Kwon, Yeonwoo Yoo, Do Hyun Kim, Youngjin Park, Yong-Jin Kang, Hunkwan Park (Korea Institute of Materials Science, Republic of Korea)
- OS20-2
13:45-14:00 **A Priori Evaluation and Limitations of the Gradient SGS Model in High-Resolution Taylor–Green Turbulence toward Multiphysics Thermal-Plasma LES**
Anthony Richard (Université de Lyon, France / Tohoku University, Japan), Joe Yoshikawa (Industrial Technology Institute, Miyagi Prefectural Government, Japan), Makoto Sugimoto, Hitoshi Muneoka, Masaya Shigeta (Tohoku University, Japan)
- OS20-3
14:00-14:15 **Numerical Investigation of Flow Dynamics and Mass Transfer in Impinging Jets over a Reactive Surface**
Thibaut Juhan (Ecole Centrale de Lyon, France), Mathieu Prévot, Luis Cardenas (Université Claude Bernard Lyon 1, France), Ivana Vinkovic, Serge Simoëns (Ecole Centrale de Lyon, France)
- OS20-4
14:15-14:30 **Computational Modeling of Gas-Component Diffusion in Thermal Plasma Jet Flows**
Byeongryun Jeon (Korea Institute of Materials Science / Pusan National University, Republic of Korea), Byeong-Il Min, Hunkwan Park (Korea Institute of Materials Science, Republic of Korea), June Kee Min (Pusan National University, Republic of Korea)
- OS20-5
14:30-15:00 **Multiphysics Flow Dynamics of Direct Current and Microwave Plasmas for Scalable Energy and Materials Processing (*Invited*)**
Juan Pablo Trelles (University of Massachusetts Lowell, USA)
- 15:00-15:15 **BREAK**
- OS20-6
15:30-16:00 **Development of a Wetting Boundary Scheme for Three-Dimensional Curved Surfaces in a Phase-Field Lattice Boltzmann Method (*Invited*)**
Makoto Sugimoto (Tohoku University, Japan)
- OS20-7
16:00-16:30 **Electrical Breakdown and Discharge Plasmas in Supercritical CO_2 : Insights from Optical Diagnostics (*Invited*)**
Tomohiro Furusato (Nagasaki University, Japan)
- 16:45-17:00 **BREAK**

- OS20-8
17:00-17:15 **Simulation of Crustal Deformation in Lava Flows Using a Particle Method**
Shingo Tomita (Tohoku University, Japan), Joe Yoshikawa (Industrial Technology Institute, Miyagi Prefectural Government, Japan), Makoto Sugimoto, Hitoshi Muneoka (Tohoku University, Japan), Hisaya Komen (The University of Osaka, Japan), Masaya Shigeta (Tohoku University, Japan)
- OS20-9
17:15-17:30 **Numerical Study of Piezoelectrically Driven Droplet Generation in a Liquid Environment**
Ravi Prakash (National Institute of Technology Agartala, India)
- OS20-10
17:30-17:45 **Effects of Trailing-Edge Thickness on Tonal Noise and Near-Wake Flow of Low-Reynolds-Number Airfoils with Truncated Trailing Edges**
Kosei Harada, Hiroaki Sumikawa, Takanori Shibata (Iwate University, Japan), Ritsuki Mise, Masaki Okawa, Tsubasa Ikami, Hiroki Nagai (Tohoku University, Japan)
- OS20-11
17:45-18:00 **A Transducer for Skin Friction and Heat Flux Measurement in Hypersonic Flows**
Shamim Pathan (Indian Institute of Technology Bombay / Fr. C. Rodrigues Institute of Technology, India), Viren Menezes (Indian Institute of Technology Bombay, India)