

OS12: Complex Thermofluid System

November 10, 2025

EX-4A

- OS12-1 **Simulation of an Atmospheric-Pressure Helium Plasma Jet Generated in Air**
13:30-14:10 *(Invited)*
Hao-Ping Yang, Ireneo L. de la Cruz Jr, Kun-Mo Lin (National Chung Cheng University, Taiwan)
- OS12-2 **Applying UV Absorption Spectroscopy to a Laminar Premixed Bunsen Flame under a DC Field**
14:10-14:25 Chiang Fu, Ying-Hao Liao (National Yang Ming Chiao Tung University, Taiwan)
- OS12-3 **A Small Propane-Air Diffusion Flame under the DC Electric Field**
14:25-14:40 Chia-Cheng Lin, Ying-Hao Liao (National Yang Ming Chiao Tung University, Taiwan)
- OS12-4 **Numerical and Experimental Study of Gas Heating in Atmospheric Pressure Plasma Jet**
14:40-14:55 Yamini Seelam, Kun-Mo Lin, Hao Ping Yang, Yi Chi Chen (National Chung Cheng University, Taiwan)
- 15:00-15:15 BREAK
- OS12-5 **Airfoil Optimization by Adjoint Operator**
15:15-15:40 San-Yih Lin, Cheng-Chun Liu (National Cheng Kung University, Taiwan)
- OS12-6 **Physics-Informed Neural Networks (PINNs) for Prediction and Optimization of Conjugate Heat Transfer in Finned Heat Sinks**
15:40-15:55 Edward Oliver Teng, Chung-Gang Li (National Cheng Kung University, Taiwan), Heng-Chuan Kan (National Institute of Applied Research, Taiwan)
- OS12-7 **Simulation and Analysis of Airflow Patterns Induced by an Indoor Ceiling Fan Framework**
15:55-16:10 Hon Wen Bin, Chung-Gung Li (National Cheng Kung University, Taiwan)
- OS12-8 **Velocity-Aware AI Diffusion Model: Generating CFD Fields from Prompts**
16:10-16:25 Wei-Hsiang Lan, Chung-Gang Li, Heng-Chuan Kan (National Cheng Kung University, Taiwan)
- OS12-9 **CFD Analysis of Airflow-induced Particle Transport in A Clean Room Environment**
16:25-16:40 Hung-Liang Kuo, Chung-Gung Li (National Cheng Kung University, Taiwan)
- 16:45-17:00 BREAK
- OS12-10 **Numerical Study of Flow Boiling in Elliptical Microchannels with Fixed Perimeter: Effects of Geometry and Mass Flow Rate**
17:00-17:15 Cheng-Wei Lin, Tang-Rung Shiu, Tzu-Yun Chiu, Hua-Yi Hsu (National Taipei University of Technology, Taiwan)

- OS12-11
17:15-17:30 **Investigation of the Effect of Thermal Via Design on the Heat Transfer Efficiency of PCBs**
Ting-Yu Hsu, Sin-Qi Ding, Chia-Tse Hsu, Hua-Yi Hsu, Hsiao-chi Tang (National Taipei University of Technology, Taiwan), Yu-Min Meng (Delta Electronics, Inc., Taiwan)
- OS12-12
17:30-17:45 **Flow and Heat Transfer Characteristics of Finite Prisms Under Mixed Convection Regimes**
Chih-Yu Su, Chung-Gung Li (National Cheng Kung University, Taiwan)
- OS12-13
17:45-18:00 **Thermal-Fluid Analysis of Heat Sink Arrays with Varied Fin Geometries Using Numerical Methods**
Chao-Sheng Liu, Chung-Gung Li, Zheng-Lin Lin (National Cheng Kung University, Taiwan)
- OS12-14
18:00-18:15 **Design of Daytime High Temperature Cooling Chamber using Passive Radiation Technique**
Sanjay Kumar Samudi, Yi-Fen Lee, Jui-Yung Chang (National Yang Ming Chiao Tung University, Taiwan)
- OS12-15
18:15-18:30 **Deep Learning Applications in Pool Boiling Image Analysis**
Chan-Chi Hsieh, Yu-Chen Lin (National Chung Cheng University, Taiwan)

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EX-4A

- OS12-16
9:00-9:25 **Effects of Phase Separation in a Viscously Stable Hele-Shaw Flow**
Ching-Yao Chen, Priya Verma (National Yang Ming Chiao Tung University, Taiwan)
- OS12-17
9:25-9:40 **Numerical Simulation of the Effect of Fluid Miscibility on Natural Convection in Porous Media Flow Fields**
Yu-An Chen, Liang-Yu Huang, Ching-Yao Chen (National Yang Ming Chiao Tung University, Taiwan)
- OS12-18
9:40-9:55 **Three-Dimensional Effects and Pattern Rupture of Viscous Fingering**
Jia-Jun Mao, Ching-Yao Chen (National Yang Ming Chiao Tung University, Taiwan)
- OS12-19
9:55-10:10 **DSMC Simulation of Rarefied Aerodynamic Effects on Deployable Drag Sails for CubeSat Deorbit**
Wei-Jiun Guo, Ming-Chung Lo (Feng Chia University, Taiwan)
- OS12-20
10:10-10:25 **Effects Of Natural Convection On Magnetohydrodynamic Bubbly Jet**
Lu Ming-Han, Heng-Jia Guo, Ching-Yao Chen (National Yang Ming Chiao Tung University, Taiwan)
- 10:30-10:45 BREAK

- OS12-21
10:45-11:00 **A Rapid Design Method for Low-Specific Speed Centrifugal Pump Impellers Based on Deep Learning**
Jeng-Yuan Chiou, Yao-Hsien Liu (National Yang Ming Chiao Tung University, Taiwan), Lesley M. Wright (Texas A & M University, USA)
- OS12-22
11:00-11:15 **Wind Tunnel Flow Measurement under Ambient and High-Temperature Conditions Using Multi-Hole Probe**
Hung-Wei Hou, Tzu-Wei Chiu, Yao-Hsien Liu (National Yang Ming Chiao Tung University, Taiwan)
- OS12-23
11:15-11:30 **Enhanced Pool Boiling Performance via Variation of Helical Wire Pitch**
Chen-Kuang Wang, Yu-Ting Huang, Ching-Wen Lo (National Chung Hsing University, Taiwan)
- OS12-24
11:30-11:45 **Application of the Maxwell-Garnett Effective Dielectric Model in Inorganic Filler-Polymer Composite Systems: From Theoretical Derivation to Optical Behavior Simulation**
Cheng-Han Wu, Jui-Yung Chang (National Yang Ming Chiao Tung University, Taiwan)
- OS12-25
11:45-12:00 **A Novel Particle Tracking Algorithm for Event Camera Based on Modified Hough Transform**
Chun-Chia Hsu, Wei-Hsin Tien (National Taiwan University of Science and Technology, Taiwan)
- OS12-26
12:00-12:15 **Flow Visualization of The Effect of Acoustic Mesh in A Channel with A Sound Speaker**
Hasan Syafik Maulana, Muhammad Rizky Sudarsana (National Taiwan University of Science and Technology, Taiwan), Yih-Yan Lin, Lei Chen (Google Asia Pacific Pte Ltd, Singapore), Wei-Hsin Tien (National Taiwan University of Science and Technology, Taiwan)
- 12:15-13:30 BREAK
- OS12-27
13:30-13:45 **Physics-Informed Neural Network-Based Optimization Method for Pneumatic Systems**
Yi-Hsin Chan, Hua-Ching Chang, Wei-Hsiang Wang (National Chung Hsing University, Taiwan)
- OS12-28
13:45-14:00 **Optimization Design of Airfoils by Genetic Algorithm and Computational Fluid Dynamics**
Zun-Hong Yu, Po-Chao Chuang, Wei-Hsiang Wang (National Chung Hsing University, Taiwan)
- OS12-29
14:00-14:15 **The Investigation of Wind Turbine Aerodynamics by 6-DOF motion and Immersed Boundary Method**
Yi-Ting Liu, Che-Wei Tsao, Wei-Hsiang Wang (National Chung Hsing University, Taiwan)
- OS12-30
14:15-14:30 **Scalable Multi GPU CFD Simulations of High Rayleigh Number Natural Convection on Large Circular Heated Plates**
Hua-Ching Chang (National Chung Hsing University / National Center for High-Performance Computing, Taiwan), Wei-Hsiang Wang (National Chung Hsing University, Taiwan)

- OS12-31
14:30-14:45 **Turbulent Mixed Convection with Oppositely Heated Plates Using Implicit LES**
Pou-Lun Hou, Chung-Gung Li (National Cheng Kung University, Taiwan)
- OS12-32
14:45-15:00 **A CFD Study on the Effects of 2D Patterned Superbifilic Heated Surfaces on Pool Boiling Heat Transfer**
Shao-Ming Huang, Jun-Ye Zhang, Yu-Chen Lin (National Chung Cheng University, Taiwan)
- 15:00-15:15 BREAK
- OS12-33
15:15-15:30 **Advanced Design of Methanol Preparation System by Biomass High-temperature Steam Gasification**
Peng Wang, Xun Zou, Cheng Gu, Yu Zhang, Ming Zhai (Harbin Institute of Technology, China)
- OS12-34
15:30-15:45 **Theoretical Derivation of Flow and Acoustic Fields in Nozzles with Different Gases under the Linearisation Equation of State**
Dongbin Wang, Jingxuan Li (Beihang University, China)
- OS12-35
15:45-16:00 **Development of an Aerodynamic Stability Module for the Preliminary Design of a Launch Vehicle**
Yu-Feng Cheng, Ching-Yao Chen, Yi-Kai Peng, Yang Lee (National Yang Ming Chiao Tung University, Taiwan)