Korea-Japan Joint Research Project, 2nd Workshop

AI for Semiconductor Processing

Integrated Virtual-Physical AI for Ultra-Precision Manufacturing of Advanced Semiconductor Devices

November 12-13, 2026

Thu 13:30 to 17:30, Fri 10:00 to 17:25

Room 310-2, UNIST, Ulsan

On site and on Zoom

The second annual workshop of the joint project between Osaka University, the Institute of Statistical Mathematics, and UNIST. Project members and invited researchers present current work, and the teams plan the third project year.

Project leads: Satoshi Hamaguchi (Osaka University), Stephen Wu (Institute of Statistical Mathematics), and Byungjo Kim (UNIST). Each talk is 30 minutes, 20 for the presentation and 10 for discussion.

Thu, Nov 12

AI for Process Development

13:30	**Opening and project progress** Byungjo Kim, UNIST
13:45	**Jisu Jung** Pukyong National University Extending Atomistic Simulation in Time and Chemical Space with Machine Learning
14:15	**Dongheon Oh** UNIST Same Aldehyde, Different Inhibitor: Molecular Size and Tail Architecture in Area-Selective ALD
14:45	**Wonjoong Kim** UNIST From Bulk to Thin Films: AI-Driven Discovery of High-k Dielectric Materials
15:15	Break
15:45	**Stephen Wu** Institute of Statistical Mathematics Recent Trend of AI Applications from Data Collections to Statistical Modeling
16:15	**Youngmin Sunwoo** UNIST Agentic AI-Assisted Multiscale Simulation Framework for Plasma Etching
16:45	**Discussion: knowledge graphs and agentic AI**

Fri, Nov 13

Atomistic Simulation of Growth, Surfaces, and Interfaces

10:00	**Satoshi Hamaguchi** Osaka University
10:30	**Lucas Spiske** Osaka University
11:00	Break
11:20	**Eunhyeok Heo** UNIST Development of a Machine Learning Interatomic Potential for Cryogenic Etching
11:50	**Paul Seo** UNIST Explainable Multimodal Learning with LLM Interpretation Toward Optimization of SiN/SiO_2 Etching
12:20	Lunch
13:50	**Hyeong-U Kim** Korea Institute of Machinery and Materials (online) Intelligent Plasma Processing for Next-Generation 2D Semiconductors: Wafer-Scale Synthesis, Atomic Layer Etching, and Uncertainty-Aware In-Situ Monitoring
14:20	**Sung Kyu Jang** Korea Electronics Technology Institute (online) Prediction of ALD Film Thickness and Uniformity from In-Situ Mass Spectrometry Data
14:50	**Yang Jeong Park** UNIST Toward Accelerated Quantum Mechanical Property Prediction via Deep Learning
15:20	Break
15:40	**Sangmin Eom** UNIST Surface Chemistry Effects on SAM Formation on NiO for Perovskite Solar Cells: An Atomistic Study
16:10	**Hadi Ghaffarian** UNIST Tuning Interfacial Strain in MoS_2/GaN Heterostructures through GaN Facet Engineering
16:40	**Project roadmap discussion**
17:10	**Closing** Byungjo Kim, UNIST

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TDS INNOVATION
Two-Dimensional Semiconductor Innovation