

S7-2 Machine Learning (ML) in Ceramics and Glass— From Informatics to Autonomous Experiments

SHORT DESCRIPTION:

This symposium will focus on current achievements and challenges in the analyzing data and automating experiments of ceramics and glasses through powerful techniques of Machine Learning (ML) and artificial intelligence in both simulations and experiments. The symposium aims to explore innovative methods to combine automation for laboratories and machine learning to conduct materials research at or beyond the state of the art, and presents perspectives to improve efficiency, precision, and reproducibility in materials synthesis and characterization, accelerating breakthroughs in materials and processes.

SESSION TOPICS:

Ab initio simulations and classical modeling for structure and property prediction of materials
Informatics and machine learning for prediction of materials properties
High-throughput simulations and experiments to generate big data for informatics
Self-driving labs in chemical and material sciences
Machine learning for image analysis and computer-vision based automated experiments
Autonomous research data integration, management, and networking across the lab and countries

ORGANIZERS:

Woosuck Shin, AIST, Japan

Sangsoo Han, KIST, Korea

Jin-Ha Hwang, Hongik Univ., Korea

Kenjiro Fujimoto, Tokyo University of Science, Japan

Yuki Yamaguchi, AIST, Japan

SYMPOSIUM AWARD INFORMATION:

Our symposium offers an “Outstanding Presentation Award”. Students and researchers who are 40 years of age or younger (as of Sep. 6, 2026) are eligible to enter this award competition. The applicants must be the first and presenting authors of the abstracts. Selection will be made by the symposium organizers from abstracts accepted for presentations. Up to three award recipients will be selected and receive a certificate and recognition during the closing ceremony. This award recognizes innovative research that advances the integration of machine learning, data-driven approaches, and autonomous experimentation in the development, processing, and characterization of ceramic and glass materials. The selection will be based on originality, scientific impact, and potential to accelerate discovery and manufacturing in ceramics and glass through AI-driven methodologies.