S4-1 Engineering Ceramics: Processing, Properties, Reliability and Applications

SHORT DESCRIPTION:

Engineering ceramics, including ceramic matrix composites (CMC), have been expected to find a wide range of applications such as aerospace, nuclear, fusion, energy, environment and automotive industries. To apply these ceramics as the structural parts, their reliability becomes a key issue that can be specifically considered in places that need safety and security. Hence, it is necessary to develop ceramics with controlled microstructure and this improves the properties which eventually enhance their durability and reliability. In recent years, there has been also development of engineering ceramics combined with computational methods of modeling and simulation in addition to the outstanding studies on innovative processing routes and synthesis methods, novel sintering technologies. This symposium opens space for the scientists and engineers to present and discuss recent studies on engineering ceramics and CMC including processing, synthesis, sintering, coatings, properties, computational design, modeling, simulation, applications, testing, evaluation methods, etc. This symposium also focuses on discussion about the future researches and development of engineering ceramics.

SESSION TOPICS:

Innovative Processing Routes and Synthesis Methods
Novel Sintering Technologies
Microstructure Control
Mechanical Properties
Thermal Properties
Corrosion and Oxidation Behavior
Reliability and lifetime prediction and modelling
Computational Modeling, Simulation and Design
Testing and Evaluation
Oxides and Non-oxides (Nitrides, Carbides and others)
Ceramic Matrix Composites (CMC)
Coatings
Applications

ORGANIZERS:

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SYMPOSIUM AWARD INFORMATION:

The Engineering Ceramics session will recognize outstanding oral presentations by young researchers who have not yet reached their 36th birthday as of September 6, 2026. Two awards will be presented: the "Engineering Ceramics Best Student Presentation Award", open to current students, and the "Engineering Ceramics Young Researcher Presentation Award", open to early-career researchers. A few awards will be given in each category, based on scientific quality, originality, and clarity of presentation. Winners will be announced at the end of the session, followed immediately by the award ceremony. Participants are encouraged to remain for the ceremony. The age limit can be modified if there is a specific reason, such as maternity leave, parental leave, or nursing care.

We look forward to seeing many excellent presentations and celebrating the next generation of talented researchers in engineering ceramics.