

Symposium 31:

Porous Ceramics: From Innovative Processing to Advanced Applications and Functionalities

Porous ceramics with various pore scales are utilized in many advanced engineering applications including filters, separations, insulations, membranes, catalytic supports, catalysts, absorbers, sensors and lightweight structural components. This symposium aims to bring together the technical community to share recent advances in innovative processing routes, characterization tools, properties, modeling of porous ceramics (oxide/non-oxide), glass, glass-ceramics, and carbon as well as hybrids, composites for any applications. Porous materials can be based on various morphologies including but not limited to foams, syntactic foams, honeycombs, fibrous, powders, cloths, thin films, bio-inspired, membranes, aero-gels, composites and additive manufacturing. Engineering applications can include thermal management or energy-related technologies (renewable energy, energy saving, energy conversion, heat exchange, gas and electrochemical energy storage), environmental protection (filtration, catalyst, adsorption and sensor). This symposium will be the ideal show case for the research activities of many groups involved in the processing, functionalization and applications of porous materials, bringing expertise in ceramic science, chemistry, mechanics, catalysis, fluid dynamics, modeling and simulation and application engineering.

<PROPOSED SESSION TOPICS>

- Innovative Processing Routes for Porous Ceramics
- Novel Powder Processing Routes for Porous Ceramics
- Precursor-based Routes for Porous Ceramics
- Additive Manufacturing of Porous Ceramics
- Micro- or Meso-porous Ceramics and components with Hierarchical Porosity
- Ceramic Membranes
- Characterization of the Structure, Simulation and Modeling of Porous Ceramics
- Mechanical properties of Porous Ceramics
- Other properties of porous ceramics
- Functionalities including thermal management, catalyst, environmental, energy, biological and lightweight structural applications

<ORGANIZERS>

Manabu Fukushima, National Institute of Advanced Industrial Science and Technology, AIST, Japan,

email: manabu-fukushima@aist.go.jp

Paolo Colombo, Università di Padova, Italy

Takashi Shirai, Nagoya Institute of Technology, Japan

Yu-ping Zeng, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

Samuel Bernard, CNRS-Limoges, Limoges, France

Jian-Feng Yang, Xi'an Jiaotong University, China

Tobias Fey, Universität Erlangen-Nürnberg, Germany,

Miki Inada, Kyusyu University, Japan,

Young-Wook Kim, University of Seoul, Republic of Korea

Go Kawamura, Toyohashi University of Technology, Japan

Alberto Ortona, University of Applied Sciences and Arts of Southern Switzerland, Switzerland,

Yoshikazu Suzuki, University of Tsukuba, Japan

Akihiro Shimamura, National Institute of Advanced Industrial Science and Technology, AIST, Japan

<INVITED LECTURES>

Tentative invited lecture information is posted in the following URL;

http://www.ceramic.or.jp/pacrim13/list_of_invited_speakers.html#31