

## **S8-2 Novel nanocrystal technologies for advanced ceramic materials & devices**

### **SHORT DESCRIPTION:**

A recent progress in nanocrystal technologies for advanced ceramics-based materials and devices has a great impact on a wide range of research fields, and such technologies are of considerable scientific and practical importance. Most of the useful properties of nanocrystals, nanocrystal assemblies and composites are defined by their size, shape, dimension, nanostructure (interface structure), and composition. The size-, morphology-, nanostructure-, and interface-structure-control techniques are strongly demanded to develop the novel ceramic-based materials and devices exhibiting the extraordinary performance for the applications such as electronics, photonics, sensors, catalysts, energy renewable and storage devices, and so on. This session focuses on the synthesis and characterization of nanocrystals, the fabrication of 1D-, 2D-, and 3D-architectures, composites, coating films, bulk ceramics by nanocrystals, and the systems and devices based on nanocrystals. The fundamental and advanced properties of 3D-assemblies of nanocrystals as well as isolated nanocrystals will be discussed to understand mechanisms of the anomalous properties induced by designed nanoarchitectures.

### **SESSION TOPICS:**

Synthesis of nanocrystals

Fabrication of 1D, 2D, and 3D-assemblies, coating films, and bulk ceramics by using nanocrystals

Colloidal science for nanostructured materials

Characterization technique of nanocrystals and nanostructured architectures

Fundamental and advanced properties of isolated and assembled nanocrystals

Systems and devices based on nanocrystals

### **ORGANIZERS:**

**Seiichi Takami, Nagoya University, Japan**

Koji Tomita, Tokai University, Japan

Dewei Chu, University of South Wales, Australia

Feng Dang, Shandong University, China

Teruaki Fuchigami, AIST, Japan

Hiroki Itasaka, AIST, Japan

Ken-ichi Mimura, AIST, Japan

Kouichi Nakashima, Ibaraki University, Japan

Maiko Nishibori, Tohoku University, Japan

Kazuyoshi Sato, Gunma University, Japan

Gimyeong Seong, University of Suwon, Korea

Shintaro Ueno, University of Yamanashi, Japan