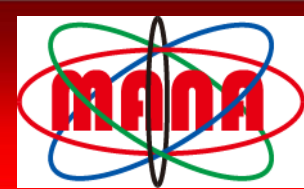


# The 263<sup>rd</sup> MANA Seminar



## New Trend of Functional Nanoporous Materials

Chair: Dr. Yoshio Bando (MANA COO)

### Dr. Yusuke Yamauchi (MANA Independent Scientist, NIMS)

Currently, nano/mesoporous materials have attracted growing interests owing to their special properties, including uniform nanopores and a high specific surface area. We have focused on fine controls of compositions, morphologies, mesochannel orientations which are important factors for design of porous materials with new functionalities. Today's presentation shows our recent progress toward advanced nano/mesoporous materials. Porous materials now include a variety of inorganic-based materials, for example, transition-metal oxides, carbons, inorganic-organic hybrid materials, polymers, and even metals. Our mesoporous metals with metallic frameworks can be produced by using surfactant-based synthesis with electrochemical methods. Owing to their metallic frameworks, mesoporous metals with high electroconductivity and high surface areas hold promise for a wide range of potential applications, such as electronic devices, magnetic recording media, and metal catalysts. Fabrication of mesoporous materials with controllable morphologies is also one of the main subjects in this rapidly developing research field. Mesoporous materials in the form of films, spheres, fibers, and tubes have been obtained by various synthetic processes such as evaporation-mediated direct templating (EDIT), spray-dried techniques, and collaboration with hard-templates such as porous anodic alumina and polymer membranes. Furthermore, we have developed several approaches for orientation controls of 1D mesochannels. The macroscopic-scale controls of mesochannels are important for innovative applications such as molecular-scale devices and electrodes with enhanced diffusions of guest species.

**Venue: Auditorium, 1F, WPI - MANA Bldg.,**

**Date: May 25<sup>th</sup>, Friday Time: 15:30-16:15**

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**Namiki  
site**