

Title **Solid-State Protonics for Clean Energy**

Speaker **Prof. Hiroshi KITAGAWA**
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Date & Time Friday, Nov. 2, 2012 4:00 p.m.

Place INAMORI Hall, Ito campus, Kyushu University

Abstract

Recent studies on metal–organic frameworks (MOFs) have shown that their designable framework architectures and specific pore surfaces are of potential interest to chemists studying various functionalities of solid-state materials, such as selective gas sorption, heterogeneous catalysis, magnetism, and electrical conductivity. Proton conductivity is now regarded as a new functionality of the porous MOFs, and has attracted great interest, not only for scientific studies, such as biological systems, but also for practical investigation. MOFs can provide well-designed pores for proton-conducting pathways and include various conducting media, such as water molecules in the pores. The various interactions between the pores and the guest molecules, such as hydrophilic or hydrophobic interaction, may contribute to introduction of guests as conducting media into the pores. To date, we have studied the introduction of acid molecules and water molecules into the pores as proton carriers and conducting media, respectively, and have succeeded in synthesizing highly proton-conductive MOFs.

About the Speaker

Prof. Hiroshi Kitagawa received his Ph. D. at Kyoto University in 1992. After Institute for Molecular Science (IMS), Japan Advanced Institute of Science & Technology (JAIST), and University of Tsukuba, he moved to Kyushu University as Professor of Inorganic Chemistry in 2003. In 2009, he returned to the laboratory where he was before at Kyoto University as Professor of Solid-state Chemistry. He is now Science Officer, Research Promotion Bureau, Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan. He is also Organizing Committee, Pacificchem2015 and Vice President, Japan Society of Coordination Chemistry. He developed chemistry of solid-state properties of coordination compounds and nanomaterials. He was awarded The Chemical Society of Japan Award for Creative Work (2010) and Inoue Prize for Science (2011).

Host: Associate Professor Miho YAMAUCHI

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