

Fundamental Research

Scientific Committee
Chemical Technologies

Research Work Title

Innovation of functional coordination compounds and coordination polymers



Researcher

Prof. Xiao-Ming CHEN

Country

The People's Republic of China

Field

Chemistry

Scientific Affiliation

Sun Yat-Sen University

Abstract

Prof. Xiao-Ming Chen has done seminal and pioneering work in the design and rational synthesis of functional coordination compounds and porous coordination polymers (or metal-organic frameworks) for applications in gas molecule separation, catalysis, molecular sensing and magnetism. In particular, he invented a series of porous metal-azolate frameworks (MAFs) as a new class of porous coordination polymers, including the most famous one, SOD-type zinc 2-methylimidazolate (or MAF-4, also known as ZIF-8), one of the most famous porous materials widely used in the world. He also discovered several novel metal-induced in-situ organic ligand reactions through hydrothermal/solvothermal technique, which are inaccessible or not easily obtainable under conventional conditions.

Biography

Prof. Xiao-Ming Chen was born in Guangdong, China. He obtained his BSc (1983) and MSc (1986) degrees from Sun Yat-Sen University, Guangzhou, China, and PhD degree (1992) from the Chinese University of Hong Kong. He has joined the chemistry faculty at SYSU since 1992, and has been appointed as a professor since 1995. He is a member of Chinese Academy of Sciences (since 2009), a fellow of The World Academy of Sciences for Advancement of Science in Developing Countries (TWAS) (since 2013), and a fellow of IUPAC (since 2013). His research interests include synthesis, structures and properties of porous coordination polymers (or metal-organic frameworks) and metal complexes, especially the porous and electric/magnetic coordination materials. He published more than 460 papers and was awarded the China National Natural Science Prize in 2007 and the TWAS prize in Chemistry in 2012. He was also recognized as a "Highly Cited Researcher in Chemistry" (2014-2019).

Zinc 2-methylimidazolate (MAF-4, also known as ZIF-8), as one of the most well-known metal-organic frameworks, was invented by Chen's group. This porous material is very stable and useful for many applications

