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Porous Metal-Azolate Frameworks for Olefin Separation

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Abstract

Porous coordination polymers or metal-organic frameworks (MOFs) have many useful characteristics, such as high crystallinity, porosity, structural diversity, designable and flexible frameworks, as well as unique and modifiable surfaces on the organic pores. They exhibit promising potential applications in adsorption/separation, catalysis, sensors, etc. Compared to other metal-ligand systems, inexpensive transition metal ions and simple azolates, such as imidazoles and triazoles can be used to produce stable porous metal-azolate frameworks (MAFs), showing interesting properties. In this presentation, a series of MAFs for hydrocarbon separation, especially gaseous olefin separation, will be presented, demonstrating the importance of supramolecular interactions, particularly weak hydrogen-bonding interactions, in selective adsorption/separation.

Biography

Dr Chen Xiaoming obtained his BSc (1983) and MSc (1986) degrees from Sun Yat-Sen University (SYSU), Guangzhou, China. He earned his PhD (1992) from The Chinese University of Hong Kong. He then joined the chemistry department at SYSU in 1992 and became a Professor in 1995. He has been a member of the Chinese Academy of Sciences since 2009, Fellow of The World Academy of Sciences for Advancement of Science in Developing Countries (TWAS), and Fellow of IUPAC since 2013.

His research interests include synthesis, structures and properties of functional coordination polymers (or MOFs) and metal complexes, especially porous and electric/magnetic coordination materials. He has published more than 440 papers in international journals, including *Science*, *JACS*, *Angew. Chem.*, *Nat. Comm.*, *Adv. Mat.*, *Acc. Chem. Res.*, *Chem. Rev.*, and *Chem. Soc. Rev.* He has more than 34,000 citations and an H-index of 96 in Web of Science. He is a member of the advisory boards of *Chem. Comm.* (RSC), *CrystEngComm* (RSC), *ACS Central Science*, *Crystal Growth & Design* (ACS), *Chemistry – An Asian Journal*, etc. He was awarded the China National Natural Science Prize in 2007, TWAS Prize in Chemistry in 2012 and was a Highly Cited Researcher in Chemistry (Thomson Reuters, 2014 – 2017).