

マテリアルサイエンス系セミナー(第4回)

テーマ Metal-Organic Frameworks(MOFs): Platforms for Multifunctional Materials

講演者: Dean's Distinguished Professor, Banglin Chen,
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日時: 平成29年7月19日(水) 10:00~11:00

場所: マテリアルサイエンス系研究棟4棟8階 中セミナー室

講演要旨:

Discoveries of novel multifunctional materials have played very important roles to the development of science and technologies and thus to benefit our daily life. Among the diverse materials, metal-organic framework (MOF) materials are rapidly emerging as a unique type of porous and organic/inorganic hybrid materials which can be simply self-assembled from their corresponding inorganic metal ions/clusters with organic linkers, and can be straightforwardly characterized by various analytical methods. They exhibit great potentials for a broad range of applications in gas storage, gas separations, enantioselective separations, heterogeneous catalysis, chemical sensing and drug delivery.

In this seminar, I will brief overview the history of MOF chemistry, and then describe our approaches on pore and function engineering to develop multifunctional MOF materials. We have been able to tune and optimize pore spaces, immobilize specific functional groups, and introduce chiral pore environments to target MOF materials for hydrogen, acetylene and methane storage, light hydrocarbon separations, enantioselective recognitions, carbon dioxide capture and separations. The intrinsic optical and photonic properties of metal ions and organic ligands, and guest molecules and/or ions can be collaboratively assembled and/or encapsulated into their frameworks, so we have realized a series of novel MOF materials as luminescent sensors, ratiometric luminescent thermometers, nonlinear optical materials, two-photon pumped lasing materials, and two-photon responsive materials for 3D patterning and data storage.

Thanks to the interplay of the dual functionalities of metal-organic frameworks (the inherent porosity, and the intrinsic physical and chemical properties of inorganic and organic building blocks and encapsulated guest species), our research efforts have led to the development of multifunctional MOF materials beyond our initial imaginations.

講演者略歴:

Banglin Chen was born in Zhejiang, China. He received his BS (1985) and MS (1988) degrees in Chemistry from Zhejiang University in China, and his PhD (2000) from the National University of Singapore. He worked with Professors Omar M. Yaghi at University of Michigan, Stephen Lee at Cornell University, and Andrew W. Maverick at Louisiana State University as a postdoctoral fellow (2000-2003) before joining UT Pan American in 2003. Dr. Chen moved to UTSA in August 2009 and was promoted to Professor of Chemistry in 2011. He is now the Dean's Distinguished Professor, a member of the UTSA Academy of Distinguished Researchers, and the 1000 talent plan Professor (part time) at Zhejiang University.

Dr. Chen has published over 230 peer-reviewed papers and book chapters in premier journals such as *Science*, *Nature Communications*, *Angewandte Chemie International Edition*, *Journal of the American Chemical Society*, *Advanced Materials*, *Energy & Environmental Sciences*, *Chemical Reviews*, *Chemical Society Reviews*, and *Accounts of Chemical Research* with over 29,000 citations. In addition, he holds 15 patents (one licensed and another optioned). He is an editorial board member of *ChemistrySelect*, *Chinese Chemical Letters*, and *Materials Today Chemistry*. In 2011, Dr. Chen was ranked as one of the top 100 chemists over the past decade based on citation impact factor. In 2014, 2015, and 2016 he was chosen as a highly cited researcher in chemistry by Thomson Reuters and is on the 2016 List of Most Cited Researchers in Materials Science and Engineering by Elsevier Scopus Data.

参加申込・予約は不要です。直接会場にお越しください。

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