SYNTHESIS OF ORDERED MESOPOROUS MATERIALS FOR APPLICATIONS

by Prof. Dongyuan Zhao

Date: 21st August 2013, Wednesday
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Abstract

In the lecture, we demonstrate a surfactant-templating approach to synthesize ordered mesoporous materials with high surface area, uniform large pore size and high pore volume for the applications in energy storage and generation, biosensor and drug delivery, catalysis and water treatment. Especially, we will show the facile organic-organic assembly approaches to synthesize ordered mesoporous phenolic resin polymers and a direct transformation to homologous carbon frameworks. A family of ordered mesoporous organic polymers and carbons are simply achieved by using commercial available cheap phenol and formaldehyde as precursors, triblock followed with a carbonization process. It is interesting that by using this hydrothermal method, single crystals, nanospheres, vesicles and monoliths with highly ordered mesostructures can be easily synthesized. We also show here large-scale synthesis approach based on the cooperative assembly. Kilogrammes of ordered mesoporous carbons are easily obtained for applications in catalysis, electrochemical supercapacitors and water-treatment.

Speaker Prof. Dongyuan Zhao

Dongyuan Zhao was born in Northeastern of China, he received B.S. (1984), M.S. (1987) and PhD (1990) from Jilin University. He was a post-doctoral fellow in the Weizmann Institute of Science (1993–94), University of Houston (1995–96), University of California at Santa Barbara (1996–98). Now he is a Professor (Cheung Kong and Hao Qing Professorship) in the Department of Chemistry at Fudan University. He was a member of Chinese Academy of Sciences and The World Academy of Science (TWAS), Council Member of IZA, Vice President of International Mesostructured Materials Association (IMMA). He has received many prizes from China and international awards such as CRN Rao Award from India Chemical Society (2013); Muetterties Memory Award (2012); The Ho Leung Ho Lee Award (2009), TWAS Prize (2008); IMMS Award (2008); DuPond Award (2005). He is now appointed as Editor-in-Chief of Journal of Materials Chemistry, and co-editor of Journal of Colloid and Interface Science. He published more than 500 peer-review papers, 40 patents and is listed as one of highly cited researchers in ISI (Total citation ~ 37000, h index 89). His research interests mainly include designed synthesis, assembly, structure and application of ordered mesoporous materials.

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ALL ARE WELCOME!