

Self-assembled Nanoporous and Hybrid Silica Materials : Applications in Catalysis, Nanomedicine and Optics

Overview

Silicon is one of the rare metalloid element to hold a robust covalent (C-Si) bond with carbon. Thanks to this, it is possible to synthesize different sorts of silicon- and silica-based materials which find interests in many application fields (catalysis, optics, biological and biomedical uses). This course will focused on hybrid organosilica-based materials (basics, synthesis of precursors and materials, characterization techniques and studies and will be mainly oriented towards catalysis and nanomedicine applications including heterogeneous silica-based catalysts, e.g., zeolites, silica-sulfuric acid, sulfonic acid functionalized ordered nanoporous silicas as they are promising catalysts. In particular the sulfonic acid functionalized silica catalysts are water tolerant with high acid strengths which allows greater selectivity for the products; in addition, large uniform pores with high surface area of the porous materials permit bulky molecules to enter the catalyst active sites; high thermal and hydrothermal stabilities offers greater flexibility in terms of reusability.

Dates	November 29 – December 8, 2018
Host Institute	Indian Institute of Technology-Madras
No. of Credits	2 (28 lecture hours)
No. of Participants	Limited to 40
Who Should Attend	Undergraduate, Post-graduate or Research Students of both Science and Engineering streams as well as from Industry
Course Registration Fee	Participants from IIT-Madras or other approved Institutes of GIAN Students : Rs. 2,000; Faculty : Rs. 6,000 Government Research Organization Participants : Rs. 10,000 Industry Participants : Rs. 20,000
Mode of Payment	Demand draft in favour of “Registrar, IIT-Madras” Payable at Chennai (The participants are required to send the Demand Draft for the registration fee to the Course Coordinator).
Accommodation	The participants may be provided with hostel accommodation, depending on the availability, on payment basis. Request for hostel accommodation may be submitted through the link: http://hosteldine.iitm.ac.in/iitmhostel

Course Faculty



Dr. Michel WONG CHI MAN did all his studies in Chemistry at the University of Montpellier (France). During his PhD, he worked on organosilicon chemistry and developed transition metal-complexed siloles and also studied the mechanism of hypervalent silicon compounds towards nucleophiles. He got a CNRS grant for a post-doc where he studied hypercoordination at silicon. He was then awarded the Alexander von Humboldt stipend (1988). In 1990, he was an assistant Professor at the University of Montpellier and soon after (as from October 1990) he joined the CNRS (French National Research Council). For details see: <https://www.icgm.fr/Michel-Wong-chi-man>



Dr. Parasuraman SELVAM is currently Head, National Centre for Catalysis Research and Professor, Department of Chemistry, IIT-Madras, Chennai; Adjunct Professor, The University of Manchester, Manchester, U.K. Earlier, Professor Selvam was a Faculty at IIT-Bombay, Mumbai, and Tohoku University, Sendai, Japan. His research interests include nanostructured materials and heterogeneous catalysis for green chemical routes, environmental remediation processes, and energy conversion (biomass, carbon dioxide, solar hydrogen) and storage (hydrogen, fuel cell, lithium battery) methods. For details see: <https://www.iitm.ac.in/info/fac/selvam>

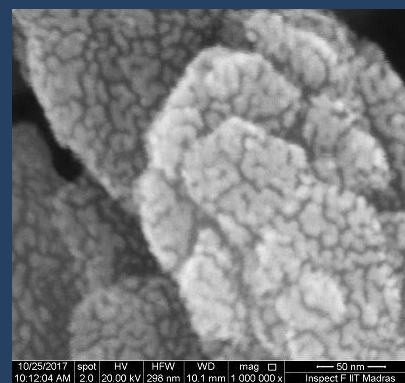
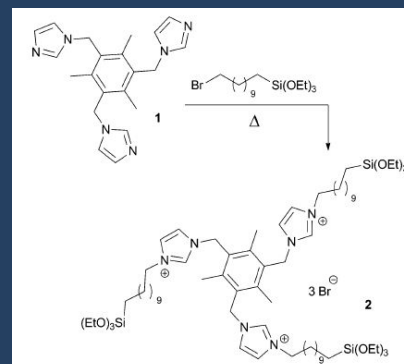
Course Coordinator

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