

Nanoporous Materials in Catalysis - Fundamentals and Applications

Overview

Zeolites are a class of nanoporous materials which are the most important heterogeneous catalyst used in the chemicals and petrochemicals industries. Every drop of petrol in your car has been through a zeolite catalyst as part of the transformation from oil to gasoline. The structures are minerals that can be found naturally – some being the rarest minerals on the planet and some the most abundant. However, they can also be synthesized in the laboratory and the vast majority of zeolites used by industry are synthetic. Not only are zeolites used as catalysts but they are also a major component of detergents to soften water, they are used for gas separation such as air into nitrogen and oxygen, gas storage, cleaning contaminated water, clearing up nuclear waste and delivering pharmaceuticals to the body. This course will introduce and discuss all aspects of zeolite structure, synthesis and industrial use. The course aims at an understanding of the fundamentals of zeolite science. The students will learn to understand all the fascinating structures of these beautiful crystals; learn how to synthesize nanoporous materials; learn how to characterize and assess the quality of these materials; learn about zeolite function for industrial processes with particular emphasis on catalysis.

Dates	27 April – 6 May, 2018
Host Institute	Indian Institute of Technology-Madras
Number of Credits	2 (28 lecture hours)
Participants	Limited to 50
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. 5,000 Government Research Organization Participants : Rs. 10,000 Industry Participants : Rs. 20,000 Participants from Abroad : US \$ 300
Mode of Payment	Demand draft in favour of “Registrar, IIT-Madras” Payable at Chennai <i>(The participants are required to send the Demand Draft for the registration fee to the Course Coordinator)</i>
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

Professor Michael Anderson has substantial experience over 35 years in the study of nanoporous materials publishing work in 232 papers. He received the Royal Society of Chemistry Barrer Award in 1993 for



distinguished work on zeolites, was recently Chairman of the British Zeolite Association and Secretary of the International Zeolite Association. He is a member of the International Zeolite Structure Commission that judges and ratifies new framework structures. He is Professor of Materials

Chemistry at The University of Manchester, UK, an Adjunct Professor at Curtin University, Australia, Visiting Professor at STFC Daresbury, UK and a Fellow of the Royal Society of Chemistry. Professor Anderson is currently Director of the Centre for Nanoporous Materials in Manchester. For details see:

<http://www.manchester.ac.uk/research/mike.anderson/>

Dr. Parasuraman Selvam is currently Head, National Centre for Catalysis and Professor, Department of Chemistry, IIT-Madras. Earlier, Professor Selvam was a Faculty at IIT-Bombay, 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, solar hydrogen) and storage (hydrogen, fuel cell, lithium battery) methods. He has published over 300 original research



papers international peer reviewed journals and conference proceedings. Professor Selvam has been bestowed with several national and international awards and honors. For details see:

<http://chem.iitm.ac.in/faculty/selvam/>

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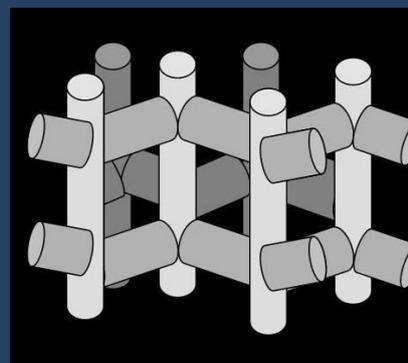
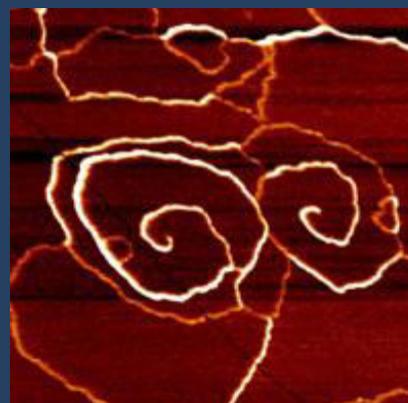
Course Coordinator

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