

Nanostructured metal oxides for sensing and environmental applications

Overview

Nanotechnology has become the most highly energized domain of science and technology, which now branch out into several interconnected disciplines. It is nanoscale science and engineering that allows manipulating, assembling, synthesizing, characterizing, and manufacturing functional structures and devices with atomic, molecular and nanometer-scale dimensions. It is the approach which controls the materials and devices at molecular and atomic levels to create various types of functional structures with improved or novel performance. Nanotechnology is one of the most important and significant branch of science where matter is controlled and manipulated at the atomic scale and the new (nano) structures that are generated with the help of nanotechnologies are currently applied in many areas of day to day life in the form of cosmetics, textile fabrics, sports instrument preparations, paints, wrapping, food, imaging, etc. As of today, knowledge and exploitation of nanoscale materials has expanded so fast and to such a great extent that the most challenging and stimulating research topics related to the diverse morphologies, unique properties and high-technological applications allowed by the unprecedented artificial nanostructures that can be programmed and delivered are attracting the attention and interest of an ever increasing number of scientists and engineers. The utilities of nanomaterials play a crucial function in multidisciplinary branches of science entailing different areas of optoelectronics, environmental remediation, and biology, promising to take a central role in upcoming research efforts devoted to biomedicine (diagnosis and therapeutics). The extraordinary and fascinating properties of nanomaterials have prompted encouragement among scientists to explore the imminent prospects of these materials in various scientific and technological applications. In this course we will demonstrate different aspects of nanomaterials, from their growth to various sensing and environmental applications. A comprehensive approach will be adopted to explain about the growth, properties and applications of various classes of nanomaterials.

Modules	Module A: Nanomaterials and Nanotechnology: Fundamentals, synthesis methodologies and characterization techniques. Module B: Exploration of nanomaterials in various fields such as sensors, catalysis, environmental remediation, electronic device applications and so on. August 06 - August 10, 2018 Number of participants for the course will be limited to fifty.
You Should Attend If...	<ul style="list-style-type: none">○ Executives, engineers and researchers from manufacturing, service and government organizations including R&D laboratories and Universities.○ Students at all levels (BTech/MSc/MTech/PhD) and Faculty from reputed academic institutions○ Institutions (Technical, Industrial, Chemical, Research and SMEs)
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$300 Industry/Research Organization: Rs 5000 Academic Institutions: Rs 2500 The above fee includes all instructional materials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty



Prof. Ahmad Umar is an internationally acclaimed academican with proven knowledge and expertise in Nanoscience and Nanotechnology. He has completed his PhD in Semiconductor and Chemical Engineering from Chonbuk National University, South Korea. He worked as a Research Scientist in Brain Korea 21, Centre for Future Energy Materials and Devices, Chonbuk National University, South Korea during 2007-2008. In December, 2008, he joined the Department of Chemistry in Najran University, Najran, Saudi Arabia. He is the deputy director for the Promising Centre for Sensors and Electronic Devices (PCSED), Najran University, Najran, Saudi Arabia. Prof. Umar is specialized in "Semiconductor Nanotechnology" which includes growth, properties and applications of semiconductor nanostructures. He is also specialized in the modern analytical and spectroscopic techniques used for the characterizations and applications of semiconductor nanomaterials. He has authored 28 book chapters, over 450 research articles in peer-reviewed international journals, 21 Editorial articles, 20 review articles and more than 185 proceedings, abstracts and technical reports.



Prof. Sushil Kumar Kansal is an academican and researcher of international recognition at Dr. S.S. Bhatnagar University Institute of Chemical Engg. & Technology, Panjab University, Chandigarh, India. His research areas are environmental science and engineering, biomaterials, advanced oxidation processes, water pollution and material science. He has published more than 90 research papers in international and national journals of repute. One of his research publication which was published in 2007 has more than 660 citations. Dr. Kansal has visited many countries viz. China, Germany, Canada, UK, and Singapore. He has completed 1 MHRD, 1 DST; 2 AICTE; 1 UGC projects. He was also a mentor from India for one training school on Wastewater Treatment at University of Hull, UK sponsored by DST/British Council under Newton Bhabha Fund (2016).



Prof. S.K. Mehta, FRSC is the Director of SAIF/CIL/UCIM and senior most Professor and former Chairman, Department of Chemistry, Panjab University, Chandigarh, India. He has made significant contributions in the field of Surfactant Chemistry and Nanochemistry. He is also holding the position of Coordinator, Chandigarh Region Innovation Knowledge Cluster (CRIKC), Local coordinator MHRD initiative GIAN, Coordinator UGC CAS and Chief Editor Panjab University Research Journal (Science). Dr. Mehta is credited with more than 275 publications in international journals of repute and is an author of about 10 books/chapters. He has been conferred with renowned DAAD and JSPS fellowships several times, Bronze medal from Chemical Research Society of India (CRSI), authors award by Royal Society of Chemistry (UK), Haryana Vigyan Ratna award and Prof. W.U.Malik Memorial Award of Indian Council of Chemists (ICC) for the year 2015 for his outstanding contribution in research. He has been a visiting scientist to several countries including Germany, Japan, USA and France.

Course Co-ordinators

Prof. Sushil Kumar Kansal

Phone: 7889071340

E-mail:

sushilk1@yahoo.co.in,sushilk1@pu.ac.in

Prof. S. K. Mehta

Phone: 9417786061

E-mail: skmehta@pu.ac.in

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<http://www.gian.iitkgp.ac.in/GREGN>