

Short Term Course under Global Initiative on Academic Network (GIAN)

Aligarh Muslim University, Aligarh (UP), India

22-29 December, 2016

Light Emitting Nanomaterials and Their Applications in Energy Related Fields

Overview

Over the past few decades, different fields of science and engineering have been seeking to develop new and improved types of energy technologies that will have the capability of improving life all around the world. In order to make the next leap forward from the current generation of technology, scientists and engineers have been working to develop energy applications of nanotechnology. Therefore, many of the old and new companies are focusing to develop and improve old methods for solving energy crisis using nanomaterials. There is also an attempt to reduce cost and energy consumption, and increase the efficiency of the energy production process.

In nanotechnology, design of light emitting materials is attracting researches as well as industry, as these materials offer a large number application for the society. Some of these materials are semiconducting quantum dots, graphene quantum dots, carbon dots etc. These highly photostable luminescent nanomaterials have potential of replacing organic dyes for numerous practical applications. Especially, non-toxic and biocompatible carbon dots have proven their potential in various biological applications. Thus, it is very important to understand these to develop devices for energy related application such as solar cells, LEDs and photocatalytic hydrogen generation from water. It is also essential that industries and organizations across India should promote this area for development of energy efficient devices.

Objectives

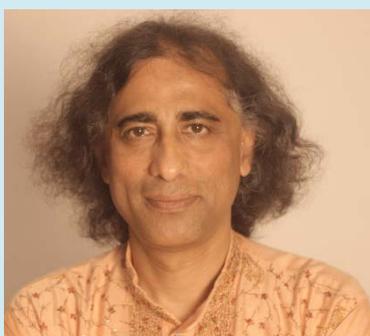
- Exposing participants to the fundamentals of luminescent nanomaterials, chemical and physical significance.
- Demonstration on construction of devices
- Practical problems and their solutions.
- Encouraging and enhancing the confidence and capability of the participant to work in this area.

Modules	Dates : 22-29 December, 2016
You Should Attend If.....	<ul style="list-style-type: none">➤ Executives, engineers and researchers from government and non-government organisations including R & D departments/organisations.➤ Faculty from reputed academic institutions and technical

	institutions. ➤ Students at all levels (Btech/M.Sc/MTech/PhD)
Fees	<p>Registration Fee (without food and lodging)</p> <p>Participants from Abroad US \$ 200</p> <p>Industry/Research Organisations Rs. 5000/</p> <p>Faculty from academic Institutions Rs. 2,000/</p> <p>Students from academic Institutions Rs. 1000/</p> <p>The above fee includes all instructional materials, computer use for tutorials and assignments. No TA/ DA will be paid to the participants.</p>

The Faculty:

Prof. Andrey L. Rogach is one of the renowned researcher as well as academicians in this field. He is ranked 51st worldwide among “100 TOP MATERIALS SCIENTISTS OF THE PAST DECADE” by Thomson Reuters (2011) and also ranked 8th worldwide among “20 TOP AUTHORS PUBLISHING ON NANOCRYSTALS IN THE PAST DECADE” by Thomson Scientific, Essential Science Indicators (2007). Currently he is a Director, Centre for Functional Photonics (CFP) and Chair Professor of Photonic Materials, Department of Physics and Materials Science City University of Hong Kong. Also, he worked as lead scientist at Physics Department & Center for NanoScience, Ludwig-Maximilians University Munich (LMU Germany). He published more than 290 research papers in this field and edited two books.



Dr. Arun Chattopadhyay is a Professor of the Department of Chemistry at the Indian Institute of Technology Guwahati. He has been the founder Head of the Centre for Nanotechnology (2004-2009) and Head of Chemistry from 2009-2014. Prof. Chattopadhyay obtained his M. Sc. in Chemistry from the Indian Institute of Technology Kanpur (1988) and PhD in Chemical Physics from Columbia University (New York) in the year 1992. He then went on to pursue postdoctoral work at Stanford University (1992-1995).

He received Swarnajyanti Fellowship Award (2003-2004) of the Department of Science and Technology, Government of India; Materials Research Society of India Medal (2008) and Young Career Award in Nano Science and Technology (2013), DST (Nano Mission). Prof. Chattopadhyay

is in the Editorial Advisory Board of Nanoscale, a journal of the Royal Society of Chemistry and also in the Editorial Board of the journal Current Science. He has been elected to be the Fellow of the Indian Academy of Sciences (2016), Bangalore and Fellow of the Royal Society of Chemistry (2014).

Dr. Chattopadhyay leads a group of research workers carrying out research in the frontier areas of nanoscale science and technology. His group invented the concept of submicron-scale lithography in color, introduced the concept of one-pot synthesis of nanocomposite, and complexation reactions on the surface of quantum dots and involving atomic clusters. He also pioneered the spectroscopy of individual soap bubbles. He has made original contributions in nanobiotechnology. Recently his group has submitted patents on the thumb imprint based detection of hyperbilirubinemia and a nanotechnology based portable machine for pursuing gene and protein analyses.

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