

Supramolecular Science: Basic Concepts, New Directions and Technology

Overview

'Supramolecule' often described as '*molecule beyond a molecule*', is a large and complex entity formed from simple molecular systems. The molecules within the supramolecular assembly interact with each other via weak interactions such as hydrogen bonding, hydrophobic interactions, and coordination to form new entities with **novel physico-chemical properties and functions** that cannot be deduced by a simple summation of the properties of the individual molecules. Recent developments in nanotechnology and biotechnology derived from the advances of supramolecular science are expected to **dramatically affect our lifestyle, socio-economics and geopolitics**. The current course is targeted to provide an introduction to the modern practice of supramolecular science from its fundamental origin through its development of new technology, targeted for undergraduate, graduate, and junior faculty. The forces behind supramolecule formation, controlling the supramolecular topology, building very large supramolecules, and finally, new technology development using supramolecular systems will be discussed. Emphasis will be given for supramolecular devices and logic gates, sensors and biosensors, and energy harvesting schemes.

Course participants will learn these topics through lectures and hands-on experiments. Also case studies and assignments will be shared to stimulate research motivation of participants.

Modules	Schedule dates: March 12, 2018 – March 18, 2018 Lectures: Morning 10 AM to noon Tutorials: Afternoon 2 PM to 4 PM Number of participants for the course will be limited to fifty.
You Should Attend If...	<ul style="list-style-type: none">• You are Researchers from university, Industry, and R&D laboratories, who work in materials science/chemistry and related fields of science.• Students at all levels (B.Tech. /M.Sc./M.Tech./Ph.D.) or Faculty from reputed academic institutions and technical institutions.
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$500 per participant Industry/ Research Organizations: Rs. 10000 per participant Academic Institutions other than Host Institute: Rs. 2000 per participant Host Institutes: Rs. 1000 per participant The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty



Prof. Francis D'Souza

Prof. Dr. Francis D'Souza is a University Distinguished Research Professor of Chemistry and Materials Science and Engineering. He is part of UNT's Applied Materials and Manufacturing Processing Institute (AMMPI). Prior joining UNT in 2011, he was a Professor of Chemistry at Wichita State University, Wichita, KS. His research covers wide areas of chemistry, nanophotonics and materials science. Principal research interests include supra and nanomolecular chemistry of tetrapyrroles and carbon nanomaterials, light energy harvesting, photoelectrochemistry and photovoltaics, electrochemical and photochemical sensors and catalysts, fluorescent chemosensors and biosensors, conducting nanocomposite hybrid materials for energy storage and conversion.



Prof. Rajneesh Misra

Prof. Rajneesh Misra is an Associate Professor in the Department of Chemistry and adjunct faculty in Discipline of Metallurgy Engineering and Materials Science at IIT Indore. He received his PhD in 2007 from IIT Kanpur India and Postdoctoral studies at Georgia Tech Atlanta US. He was a JSPS fellow in Kyoto University Japan. Dr. Rajneesh Misra's research interest is in organic electronics/Photonics, and Material Chemistry.

Course Co-ordinator

For any information regarding eligibility fee payment, travel information, accommodation, etc., please contact the course coordinator via e-mail or phone

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