

‘Science Academies’ Lecture workshop on "*Functional materials and their applications*"

11-12th January, 2019



Prof. Asutosh Ghosh (C.U.), Convener

Prof. Rupam Dinda (NITR), Coordinator
Prof. Saurav Chatterjee (NITR), Co-coordinator



Organized by
Department of Chemistry
NIT Rourkela



**Indian Academy of
Sciences, Bangalore**



**Indian National Science
Academy, New Delhi**



**The National Academy of
Sciences, India, Allahabad**

- 1. ACTIVITY:** Lecture Workshop
- 2. GEOGRAPHICAL COVERAGE:** National/State/Regional
- 3. BROAD SUBJECT AREAS:** Chemical Sciences
- 4. NAME OF CONFERENCE:** 'Science Academies' Lecture workshop on
"Functional materials and their applications"
- 5. DATES:** From **11/01/2019** to **12/01/2019**
Total no. of days- **Two days**
- 6. VENUE:** New Senate Hall
National Institute of Technology,
Rourkela, Odisha 769008
- 7. NAME AND ADDRESS OF ORGANIZING DEPARTMENT:**
Department of Chemistry
National Institute of Technology,
Rourkela, Odisha 769008
- 8. NAME & DESIGNATION OF CONVENER:**
Prof. Asutosh Ghosh
Professor, Department of Chemistry,
University of Calcutta, Kolkata 700 009
- 9. NAME OF COORDINATOR:** Dr. Rupam Dinda
Professor and Head
Department of Chemistry
National Institute of Technology
Rourkela-769008, Odisha

10. OBJECTIVES OF THE PROPOSED LECTURE-WORKSHOP

Supramolecular self-assembly is a spontaneous association of small molecular components through various intermolecular non-covalent interactions. This particular area of research has been receiving noteworthy emphasis since a long period of time due to its potential application in drug delivery, supramolecular catalysis, and self-assembly of SMMs as tailored building-blocks.

Moreover, self-assembled supramolecular architectures built through the utilization of transition metals have advantages over others like diverse bonding modes and geometrical symmetries, a wide range of sizes, shapes, and electronic and steric properties that can be modified according to the bridging ligands and spectral, magnetic, redox, photophysical and photochemical properties. Furthermore, the electrostatic attraction between the positive charge of transition metals and the negative charge of biological structures (DNA and RNA), phospholipids and some regions on the protein molecules facilitates their binding with intracellular targets and as a result aid in drug delivery. On the other hand, the association of supramolecular chemistry and molecular magnetism has developed the strategy of self-assembly of SMMs as tailored building-blocks. This strategy can possibly be advantageous in application such as molecular spintronics.

This proposed lecture workshop will contribute significantly in widening knowledge in the field of functional materials. The knowledge gathered from this lecture workshop will provide great excitement of research to the budding students of Chemistry in and around NIT Rourkela. The invited speakers are well-known scientists in the proposed field. So the lecture workshop will encourage and motivate students, research scholars and teachers of local colleges, universities and other educational Institutes of higher learning. Considering these facts, the faculty of Department of Chemistry is highly interested to conduct this lecture workshop in our Institute, which has good infrastructural facilities to host such events. After the lecture sessions, there would be interactive session among the invited speaker and participants, to further discuss about the topics of *Functional materials and their applications*.

As we mentioned earlier, no specialized resource persons available in this region, so we have contacted several speakers from nearby places and got kind consents from Prof. Prasanta Kumar Das of IACS, Kolkata, Prof. P.S. Mukherjee of Indian Institute of Science, Bangalore, Prof. V. R. Pedireddi from IIT Bhubaneswar and Prof. Shyamal Kumar Chattopadhyay of IEST Shibpur, Kolkata for both the days. Prof. Asutosh Ghosh of University of Calcutta has kindly agreed to be the Convener of the Proposed Lecture Workshop and to deliver two lectures.

Confirmed List of invited speakers

| Name | Address | Email id: |
|--|--|---------------------------|
| Prof. Asutosh Ghosh | Department of Chemistry University of Calcutta 92 APC Road Kolkata 700 009 | ghosh_59@yahoo.com |
| Prof. Partha Sarathi Mukherjee | Department of Inorganic and Physical Chemistry Indian Institute of Science Bangalore-560012 Karnataka, India. | psm@ipc.iisc.ernet.in |
| Prof. Prasanta Kumar Das | School of Biological Sciences, Indian Association for the Cultivation of Science, Kolkata-700032, W.B. | bcpkd@iacs.res.in |
| Prof. V. R. Pedireddi | School of Basic Sciences, Indian Institute of Technology, Bhubaneswar-752050, Odisha | vr.pedireddi@iitbbs.ac.in |
| Prof. Shyamal Kumar Chattopadhyay | Department of Chemistry, IEST, Shibpur, Howrah - 711 103, W.B | shyamal@chem.iests.ac.in |

TENTATIVE PLAN OF THE PROPOSED LECTURE WORKSHOP

(In this two day program, we have planned to conduct **10** invited lectures from eminent resource persons well-known in the field of Synthetic Inorganic, Organic and Supramolecular Chemistry)

| Date | Time | Name of the function |
|--|--------------------------------------|---|
| Friday, 11 th January, 2019 | 9.00 am – 10.00 am | Registration and Inaugural function |
| | 10.00 am – 11.00 am | Invited Lecture-I |
| | 11.00 am – 12.00 pm | Invited Lecture-II |
| | 12.00 am – 12.15 pm | Tea Break |
| | 12.15 pm – 1.15 pm | Invited Lecture-III |
| | 1.15 pm – 2.15 pm | Invited Lecture-IV |
| | 2.15 pm – 3.00 pm | Lunch Break |
| | 3.00 pm – 4.00 pm | Invited Lecture-V |
| | 4.00 pm – 4.30 pm | Tea Break |
| | 4.30 pm – 5.30 pm | Invited Lecture-VI |
| Saturday, 12 th January, 2019 | 10.00 am – 11.00 am | Invited Lecture-VII |
| | 11.00 am – 12.00 pm | Invited Lecture-VIII |
| | 12.00 pm – 12.15 pm | Tea Break |
| | 12.15 am – 1.15 pm | Invited Lecture-IX |
| | 1.15 pm – 2.15 pm | Lunch Break |
| | 2.15 pm – 3.15 pm | Invited Lecture-X |
| | 3.15 pm – 4.00 pm | Interactive session for the participants with the Resource persons |
| | 4.00 pm – 4.15 pm | Tea Break |
| | 4.15 pm – 5.00 pm | Valedictory function |
| | END OF THE PROPOSED LECTURE WORKSHOP | |

TENTATIVE LIST OF THE TOPICS TO BE COVERED IN THE WORKSHOP:

- Supramolecular materials
- Self-assembled materials
- Coordination Compounds
- Magnetic materials
- Bio materials
- Weak Interactions.
- Solid State Chemistry
- Gas Storage in Porous Framework Materials