

Program 19th March, 2019

Kalidas Auditorium

Coordinator: Prof. Srabani Taraphder

9.00 – 9.10 am: Welcome Address and Introduction by the HOD

9.10 – 10.30 am: Department Lecture by **Prof. Ben Feringa** and
Q&A

Title: The Art of Building Small

10.30 – 10.45 am: Tea & Discussion

Workshop Talks (Chairperson: Prof. Swagata Dasgupta)

10.45 – 11.30 am: Prof. Chilla Malla Reddy, IISER Kolkata

11.30 – 12.15 am: Prof. N. D. Pradeep Singh, IIT Kharagpur

12.15 - 1.00 pm: Prof. Suhrit Ghosh, IACS, Kolkata

1.00 – 1.10 pm: Concluding remarks by Prof. MSM

1.10 – 2.30 pm: Lunch

Towards Smart Functional Materials: An Interdisciplinary Approach

19th March 2019
Kalidas Auditorium

Department of Chemistry
IIT Kharagpur



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The Event and The Department of Chemistry

THE EVENT

Prof. Bernard L. Feringa (Nobel Prize in Chemistry 2016), as Raman Chair Professor of The Indian Academy of Sciences, Bangalore will be visiting Indian Institute of Technology Kharagpur. On this occasion, the Department of Chemistry has organized a one day symposium on 19th March, 2019 (at Kalidas Auditorium) where Prof. Feringa will deliver the inaugural lecture on "The Art of Building Small". Prof. Feringa received the Nobel Prize in Chemistry for his cutting-age, ground-breaking discovery on the design and synthesis of molecular machines.

In the second session, three tutorial talks were scheduled which will be delivered by the experts in the field, Prof. Chilla Malla Reddy (IISER Kolkata), Prof. N. D. Pradeep Singh (IIT Kharagpur) and Prof. Suhrit Ghosh (IACS, Kolkata).

THE DEPARTMENT

Sir J.C. Ghosh, the first director of the institute inaugurated the chemistry department in 1952. Ever since its inception, the department has established a tradition of excellence in teaching and research in various corridors of chemistry. With the multifaceted research activities and state-of-the-art facilities, the department offers one of the best academic environments in the country.

The prime focus on the research activities is on basic and traditional areas of chemistry, relevant to the societal needs. In 2011, the department was ranked by DST as one of the top six chemistry departments in the country. Today, the department is served by 34 faculty members, 17 non-teaching staff, with a strength of 150 masters' and 170 doctoral students.



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Nobel Prize in Chemistry (2016)

Prof. Bernard L. Feringa

Prof. Bernard L. Feringa obtained his PhD degree from the University of Groningen in the Netherlands under the guidance of Professor Hans Wynberg. After working as a research scientist at Shell in the Netherlands and the United Kingdom, he was appointed as lecturer at the University of Groningen and became a full professor in 1988. He was elected Foreign Honorary member of the American Academy of Arts and Sciences and member and vice-president of the Royal Netherlands Academy of Sciences. Ben Feringa is member of Council of the RSC. In 2008 he was appointed as Academy Professor and was knighted by Her Majesty the Queen of the Netherlands. Feringa's research has been recognized with a number of awards including the Koerber European Science Award (2003), the Spinoza Award (2004), the Prelog gold medal (2005), the Norrish Award of the ACS (2007), the Paracelsus medal (2008), the Chirality medal (2009), the RSC Organic Stereochemistry Award (2011), Humboldt award (2012), the Nagoya gold medal (2013), ACS Cope Scholar Award 2015, Chemistry for the Future Solvay Prize (2015), the August-Wilhelm-von-Hoffman Medal (2016), The 2016 Nobel prize in Chemistry and the Tetrahedron Prize 2017. Feringa's research interest includes stereochemistry, organic synthesis, asymmetric catalysis, molecular switches and motors, self-assembly, molecular nanosystems and photopharmacology.

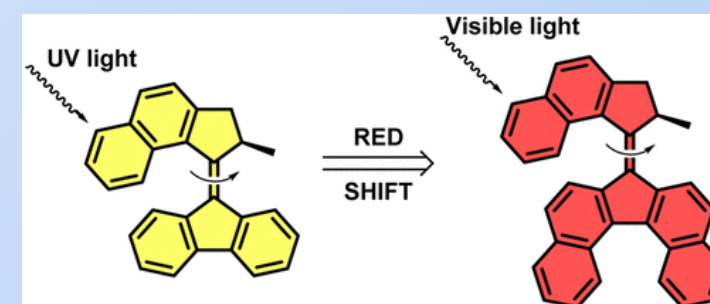


Prof. Bernard L. Feringa
University of Groningen
The Netherlands



*The Nobel Prize in
Chemistry 2016 "for the
design and synthesis of
molecular machines"*

Inaugural Lecture:
The Art of Building Small
19th March 2019
Kalidas Auditorium
9.10 am



Molecular Motor

In 1999 Feringa and collaborators announced that they had created the first "molecular motor"— a molecule that can be made to spin in one direction. Usually, when molecules rotate, they are as equally likely to spin one way as the other. The molecular motor was made of two "blades," in which one blade would spin 180 degrees when exposed to ultraviolet light. This rotation would set up a "tension" in the bond that connects the two blades that would cause the other blade to rotate. Each blade had a methyl group connected to it that acted as a ratchet so rotation could only happen in one direction. The Feringa group built molecular motors that rotated faster and faster, which culminated in 2013 with the development of one that rotated with a frequency of 12 MHz.