

**Department of Chemical Engineering, IIT Hyderabad**  
**CH5036-Industry Lecture Series**  
**Jan-May 2025**



*Date:* 15-01-2025

*Time:* 04:00 PM (IST)

*Speaker:* **Dr. Debarshi Dasgupta**

*Affiliation:* Momentive Performance Materials (India) Pvt. Ltd

*Title:* Analytical Science in Soft Matter Research

*Venue:* LHC-01

### **Abstract**

Soft matter assemblies are presently encompassing a big domain of materials application including, cosmetics, printable electronics, semiconductor packaging, functional coatings, energy devices etc. Characterizing such systems involve different length scale of structural organizations from few angstroms to tens of microns and often the segmental alignments are critical for functional properties. The presentation will elaborate how different analytical technologies are enabling scientific community to gain structural, morphological, molecular and application insights both in academic as well as industrial research with a spatial mention of sustainable technology development

### **Biography**

Debarshi joined Momentive Performance Materials Inc. in January 2012 as R&D scientist and since then developing technologies for beauty care, semiconductor packaging for automotive and telecommunication, adhesives for medical wearables and transdermal drug deliveries, high performance silicone RTVs for aerospace and deep space exploration etc. Debarshi's 13 years of specialty chemical industry experience includes exposure to trend driven innovation, delivering sustainable solutions through fundamental insights, adhering to project management and statistical disciplines, implementing right quality strategies in large scale manufacturing, operating under an inter-dependent safety culture and collaborating seamlessly with industry and academia network. His strong background in Polymers Processing, Rheology and Materials Science helped to correlate the chemistry to applications well through structure-property-performance

rigor and drive innovation to commercial success and societal/environmental benefits.

Debarshi has been equally active and consistently publishing peer reviewed research articles in the field of soft matter and supramolecular systems. Before joining Momentive, Debarshi had completed his 4 years of post-doctoral research at Institute Charles Sadron (CNRS), Strasbourg, France and at Eindhoven University of Technology' (TU/e), The Netherlands. Debarshi worked extensively in different European Synchrotron X-Ray and Neutron Scattering facilities during this time focusing on Supramolecular Functional Polymers and Nano-Hybrids, Supramolecular Liquid Crystalline assemblies, Thermo and Photo responsive materials, Photo actuators etc. Debarshi earned his Ph.D. degree in Polymer Sciences from Indian Association for the Cultivation of Science; Kolkata during 2003-2007 studying the crystallization and gelation of Perfluorinated Polymers.

Debarshi has also delivered invited talks at COMPFLU-2022 (IIT-KGP), PPS-2023 (at Trivandrum) and convened an educational webinar for Anton Paar on the use of X-Ray Scattering and Diffraction technologies in materials science.

## **References**

**Publications:** <https://www.researchgate.net/scientific-contributions/Debarshi-Dasgupta-15552673>

**Patents:** <https://patents.justia.com/inventor/debarshi-dasgupta>

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