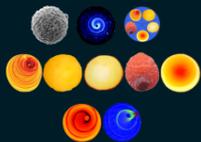


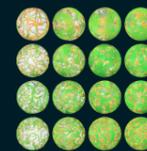


ISMC 2026 Mini School

BITS Pilani - K K Birla Campus, Goa, India | May 22-24, 2026



The ISMC 2026 mini school in soft matter is designed as an intensive and interdisciplinary learning platform built around three tightly connected themes (i) Microscopy & Imaging (ii) Active Matter, and (iii) Computational Soft Matter.



Theme 1: Microscopy & Imaging

Modern soft matter research is driven by high-resolution and high-throughput visualization techniques. This theme introduces experimental tools that probe structure and dynamics across length scales.

- Scattering techniques: SAXS, SANS, Static Light Scattering (SLS)
- Real-space imaging: Abbe theory, Phase Contrast, DIC, Dark Field microscopy
- Fluorescence & super-resolution microscopy
- Atomic Force Microscopy (AFM) for nanoscale imaging and mechanics
- Optical Tweezers for force manipulation
- Differential Dynamic Microscopy (DDM) bridging imaging and scattering



Prof. V A Raghunathan
Raman Research Institute



Prof. Roberto Cerbino
University of Vienna



Prof. Shivprasad Patil
IISER Pune



Prof. Pramod Pullarkat
Raman Research Institute

Theme 2: Active Matter

An integrated introduction to nonequilibrium systems driven by activity, with strong emphasis on experiments and related theoretical developments.

- Artificial microswimmers: Janus colloids and active droplets
- Particle tracking and micro-PIV for active flows
- Motility-Induced Phase Separation (MIPS) as a central organizing principle
- Dry vs. wet active matter
- Hydrodynamic and phoretic interactions
- Rheology of active suspensions and mechanical responses



Prof. Ignacio Pagonabarraga
University of Barcelona



Prof. Rahul Mangal
IIT Kanpur



Prof. Shashi Thutupalli
NCBS, Bengaluru



Prof. Rajesh Singh
IIT Madras

Theme 3: Computational Soft Matter

This theme introduces theoretical, numerical, and data-driven tools for soft matter across scales.

- Neural network-based machine learning: theory + hands-on sessions
- Structure-dynamics relationships and predictive order parameters
- Machine-learning descriptors for soft matter dynamics
- Learning in physical systems: local learning rules and material networks
- Dilute polymer solution rheology: Polymer kinetic theory -> continuum mechanics



Prof. Ravi Prakash Jagadeeshan
Monash University



Prof. Sarika Maitra
Bhattacharyya
CSIR-National Chemical
Laboratory



Prof. Rituparno Mandal
Raman Research Institute



Prof. Douglas J. Durian
University of Pennsylvania

The themes will run parallelly.



ACS Ignite Bootcamp

@ ISMC 2026 (High-impact workshops to translate science into real-world ventures) for all participants

Website: ge.iitm.ac.in/ismc2026/mini-school

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