

# **Physics and Chemistry of Materials: Computation and Experiments**

**February 24-25, 2014**

## **PROGRAM**

*Venue*

**S. N. Bose National Centre for Basic Sciences, Kolkata, India**

**24<sup>th</sup> February 2014**

**08:00 – 09:00** Registration

**09:00 – 09:10** Welcome address by Prof. Arup K. Raychaudhuri (Director, SNBNCBS)

*Session I: Dynamics in Amorphous Systems (Chairperson: S. Sengupta, TIFR, Hyderabad)*

**09:10 – 09:50** *Glassy cluster: Relations between their dynamics and characteristic features of their energy landscape.*

Dilip G. Kanhere (University of Pune, Pune)

**09:50 – 10:20** *Dynamical mechanisms in hydrogen bonded liquids*

Biswaroop Mukherjee (SNBNCBS, Kolkata)

**10:20 – 10:50** *Rheological Properties of Amorphous Solids*

Smarajit Karmakar (TIFR, Hyderabad)

**10:50 – 11:10** Tea/Coffee

**11:10 – 14:00** POSTER + LUNCH

*Session II: Nonequilibrium Statistical Mechanics (Chairperson: T. Saha-Dasgupta, SNBNCBS)*

**14:00 – 14:40** *Scales and scaling in convective turbulence*

Jayanta K Bhattacharjee (HRI, Allahabad)

**14:40 – 15:10** *Stochastic pump of interacting particles in one and two dimensions*

Debasish Chaudhuri (IIT, Hyderabad)

**15:10 – 15:30** Tea/Coffee

*Session III: Diffusion in Porous Media (Chairperson: T. Saha-Dasgupta, SNBNCBS)*

**15:30 – 16:00** *Formation and Diffusion Mechanism of Gas Clathrate Hydrates*

Mukul Kabir (IISER, Pune)

**16:00 – 16:30** *Size Dependent Diffusion in Nanoporous Materials: A Molecular Dynamics Simulation Study*

Pradip Kr. Ghorai (IISER, Kolkata)

**16:30 – 16:50** Tea/Coffee

*Session IV: Energy and Materials (Chairperson: P. Mahadevan, SNBNCBS)*

**16:50 – 17:20** *Focusing on Research in Cross-disciplinary Areas for Clean Water, Green Energy and Affordable Healthcare: A Spectroscopic Survey*

Samir K.Pal (SNBNCBS, Kolkata)

**17:20 – 17:50** *Manipulation of Spin Waves in Nanoscale Antidot Magnonic Crystals*

Anjan Barman (SNBNCBS, Kolkata)

**17:50 – 18:20** *Spin Polarization in Quaternary FeNiMnSn Heusler alloy: Electronic Structure Calculations*

Mayuresh Mukadam (BARC, Mumbai)

**19:00 – 22:00 Dinner at *The Stadel* (Sponsored by CRAY The Supercomputer Co.)**

**25<sup>th</sup> February 2014**

*Session V: Statistical Mechanical Study of complex processes (Chairperson: R. Biswas, SNBNCBS)*

**09:00 – 09:40** *Cooling and Brownian motion in Viscoelastic Granular Gases*

Sanjay Puri (JNU, New Delhi)

**09:40 – 10:10** *Mass fluctuations in conserved-mass transport processes and gamma-like distributions*

Punyabrata Pradhan (SNBNCBS, Kolkata)

**10:10 – 10:40** *Self-assembly of ordered cylindrical nano-structures: A theoretical investigation of experimental results*

Apratim Chatterji (IISER, Pune)

**10:40 – 11:00 Tea/Coffee**

*Session VI: Experimental Study of Soft Matter (Chairperson: R. Biswas, SNBNCBS)*

**11:00 – 11:30** *Super-spreading of charged granular matter*

Shankar Ghosh (TIFR, Mumbai)

**11:30 – 12:00** *Synthetic Venus flytrap*

Suhrit Ghosh (IACS, Kolkata)

**12:00 – 13:30 LUNCH**

*Session VII: Biology Inspired Physics (Chairperson: J. K. Bhattacharjee, HRI)*

**13:30 – 14:00** *Chromosome Positioning from Activity-based Segregation*

Surajit. Sengupta, (TIFR, Hyderabad)

**14:00 – 14:30** *Positioning kinetochore proteins in budding yeast*

Raja Paul (IACS, Kolkata)

**14:30 – 15:00** *Aging in microtubule catastrophe: causes and consequences*

Manoj Gopalakrishnan (IIT Madras)

**15:00 – 15:20 Tea/Coffee**

*Session VII: Defects and Phase Transition (Chairperson: J. Chakrabarti, SNBNCBS)*

**15:20 – 15:50** *Defects in oxides*

Manish Jain (IISc, Bangalore)

**15:50 – 16:20** *Molecular dynamics study of evolution of defects in crystalline materials*

Amitava Moitra (SNBNCBS, Kolkata)

**16:20 – 16:50** *Capturing photo-induced phenomena using time-dependent density-functional theory*

Varadharajan Srinivasan (IISER Bhopal, Bhopal)

**16:50 – 17:20** *Semi-metal to insulation transition in disorder graphene*

Arti Garg (SINP, Kolkata)

**17:20 – 17:50** *Frustration and Anisotropy Induced Phases Transitions in Spin-1/2 Chain*

Manoranjan Kumar (SNBNCBS, Kolkata)

**17:50 – 18:00** *Concluding Remarks by Prof. Tanusri Saha-Dasgupta*