

Sarika Maitra Bhattacharyya



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Research Interests:

Understanding the thermodynamics and dynamics of complex liquids, specially supercooled liquids, approaching glass transition. Development of mode coupling theory to study the properties of these systems. Relate glass transition to the more general jamming transition. Study the aging behavior of these systems. Study the levitation effect (non monotonic size dependence of diffusion of small solutes) using mode coupling theory.

Education: Ph. D (Indian Institute of Science, Bangalore, India. Advisor: Prof. Biman Bagchi)

Experience: October 2007- Scientist E1, Polymer Science and Engineering Division, National Chemical Laboratory , Pune, India.

Feb. 2010- Aug. 2010- Scientist Fellow , Material Science Division, National Aerospace Laboratories, Bangalore , India.

Nov. 2003-2009: Research associate and later DST young Scientist in Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore, India. (Worked in collaboration with Prof. Peter Wolynes from UCSD, California)

2002-2003: Post doctoral research fellow, Laboratory of Molecular Sciences, California Institute of Technology, Pasadena, U.S.A. (Worked with Prof. Ahmed Zewail and Prof. Zeng Gang Wang)

2000-2001: Post doctoral research fellow, Solid State and Structural Chemistry unit, Indian Institute of Science, Bangalore, India.

Selected Publications:

1. Sarika Maitra Bhattacharyya, Biman Bagchi, Peter G. Wolynes **Facilitation, Complexity Growth, Mode Coupling and Activated Dynamics in Supercooled Liquids**. Proc. National Acad. Sciences United States Am. **105**, 16077–16082 (2008).
2. Sneha Elizabeth Abraham, Sarika Maitra Bhattacharyya, Biman Bagchi **Energy Landscape, Antiplasticization, and Polydispersity Induced Crossover of Heterogeneity in Supercooled Polydisperse Liquids**. Phys. Rev. Lett. **100**, 167801 (2008).
3. Sarika Maitra Bhattacharyya **A Mode Coupling Theory Analysis of Microscopic Friction in the Macroscopic Limit** Chem. Phys. Lett, **386**, 83 (2004)
4. Sarika M. Bhattacharyya, Zhen-Gang Wang, Ahmed H. Zewail **Dynamics of Water near a Protein Surface** J. Phys. Chem. B., **106**, 6617 (2003).
5. Sarika Bhattacharyya, Biman Bagchi **Anisotropic Local Stress and Particle Hopping in a Deeply Supercooled Liquid** Phys. Rev. Lett. **89**, 025504-1 (2002).