

## **Chandan Kumar**

## **Curriculum Vitae**

Graduate Student  
Jawaharlal Nehru Centre for Advanced Scientific Research  
(JNCASR), Bengaluru [www.jncasr.ac.in/](http://www.jncasr.ac.in/)  
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### **Research Interests**

- Colloidal Self-assembly
- Structural Glass Transition
- Particle Synthesis: Complex Colloids
- Dynamics of Complex Colloids
- Instrumentation

### **Scientific Experience**

- 04/2013 - present Graduate Student (Advisor: Prof. Rajesh Ganapathy)  
Chemistry and Physics of Materials Unit, Jawaharlal Nehru Centre for  
Advanced Scientific Research (JNCASR), Bengaluru, India  
Thesis Title: Exploiting Shape Sensitive Interactions in Colloidal  
Suspensions- From Directed Self-assembly to the Structural Glass Transition
- 01/2012 - 03/2013 M.S. Dissertation (Advisor: Prof. Rajesh Ganapathy)  
Chemistry and Physics of Materials Unit, Jawaharlal Nehru Centre for  
Advanced Scientific Research (JNCASR), Bengaluru, India  
Thesis Title: Reentrant Glass Transition in Suspensions of Colloidal  
Ellipsoids  
**Best M.S. Thesis Award**
- 05/2008 - 06/2008 Summer Student under Prof. S. Annapoorni, Department of Physics and  
Astrophysics, University of Delhi, India.  
Four-probe method for band-gap measurements of semiconducting  
materials/unknown sample synthesized in the lab

### **Publications**

- **Chandan K Mishra**, A K Sood and Rajesh Ganapathy, *Site-Specific Colloidal Crystal Nucleation by Template-enhanced Particle Transport*, [Proc. Natl. Acad. Sci. U.S.A. \*\*113\*\*, 12094 \(2016\)](https://doi.org/10.1073/pnas.1209420113).
- **Chandan K Mishra** and Rajesh Ganapathy, *Shape of Dynamical Heterogeneities and Fractional Stokes-Einstein and Stokes-Einstein-Debye Relations in Quasi-Two-Dimensional Suspensions of Colloidal Ellipsoids*, [Phys. Rev. Lett. \*\*114\*\*, 198302 \(2015\)](https://doi.org/10.1103/PhysRevLett.114.198302).
- **Chandan K Mishra**, Hima K Nagamanasa, Rajesh Ganapathy, A. K. Sood and Shreyas Gokhale, *Dynamical Facilitation Governs Glassy Dynamics in Suspensions of Colloidal Ellipsoids*, [Proc. Natl. Acad. Sci. U.S.A. \*\*111\*\*, 15362 \(2014\)](https://doi.org/10.1073/pnas.1415362111).
- **Chandan K Mishra**, Amritha Rangarajan and Rajesh Ganapathy, *Two-Step Glass Transition Induced by Attractive Interactions in Quasi-two-dimensional Suspensions of Ellipsoidal Particles*, [Phys. Rev. Lett. \*\*110\*\*, 188301 \(2013\)](https://doi.org/10.1103/PhysRevLett.110.188301).

### **Experimental Skills**

- Optical microscopy, Confocal microscopy and Holographic optical tweezers
- Soft Lithography: Fabrication of templates with complex surface topography
- Colloid Synthesis- temperature tuneable colloids (PNIPAM), Complex Colloids- Ellipsoids, colloidal clusters: dimers, trimmers, tetramers etc.
- Intensive Programming in Matlab and image processing using Matlab and ImageJ.

### **Talks and Posters**

- Twelfth JNC Research Conference on Chemistry of Materials, 2016, Trivandrum, India. (Talk)
- 26<sup>th</sup> IUPAP International Conference on Statistical Physics, STATPHYS 26, 2016, Lyon, France. (Talk)
- Discussion Meeting on Emergent Phenomenon in Soft and Active Matter (EPSAM), 2016, JNCASR, Bangalore, India. (Talk)
- International Complex Fluids Conference (CompFlu), 2016, IISER Pune, India. (Poster)
- Conference on Growing Length Scale Phenomena in condensed matter physics, 2015, JNCASR, Bangalore, India. (Poster)
- Eleventh JNC Research Conference on Chemistry of Materials, 2016, Alleppey, India. (Poster)
- New Colloids, Discussion Meeting, 2015, RRI, Bangalore, India. (Poster)
- Discussion Meeting on Glass Formers and Glasses, 2015, JNCASR, Bangalore, India. (Poster)
- Annual Faculty Meet, 2015, JNCASR, Bangalore India. (Talk)
- Tenth JNC Research Conference on Chemistry of Materials, 2014, Trivandrum, India. (Poster)
- Eighth JNC Research Conference on Chemistry of Materials, 2012, Trivandrum, India. (Poster)

### **Conferences Attended**

- Commonwealth Science Conference, 2014, Bangalore, India.
- Winter school on Frontiers of Materials Science, 2012, JNCASR, Bangalore, India.

### **Academic Achievements**

- Bapu Narayanaswamy Prize for best M.S. Thesis, 2013.
- Best Poster award at the Eighth JNC Research Conference on Chemistry of Materials, 2012, Trivandrum, India.
- Qualified Joint Admissions to M.Sc. (JAM), 2010, Organized by IIT, Madras.
- Qualified Joint Entrance Screening Test (JEST), 2010.
- Placed among National top 25 students of National Graduate Physics Examinations, 2010, Organized by Indian Association of Physics Teachers (IAPT).
- Qualified Integrated PhD Entrance Examinations, 2010, of leading Universities like IISc, Bangalore, JNCASR, Bangalore, IIA, Bangalore, IISERs etc.
- Placed in Top 10 Students in Physics (Honors), 2010, in Under Graduation by University of Delhi, India.
- Meritorious Student Grant (Science Stream) in the academic years of 2007-08 and 2008-09 by University of Delhi, India.

## Academic References

1. Prof. Rajesh Ganapathy  
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Seikh Saqr Laboratory, JNCASR  
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2. Prof. A. K. Sood  
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[asood1951@gmail.com](mailto:asood1951@gmail.com)
3. Prof. S. Balasubramanian  
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