

## John R. Savage

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**Education**    **Ph.D in Physics** 2007 UNIVERSITY OF MASSACHUSETTS, Amherst, MA  
Thesis: *Dynamical Properties of Phase Transitions in Colloidal Systems*  
Advisor: Professor Anthony D. Dinsmore  
**B.S. in Physics** 2001 UNIVERSITY OF MASSACHUSETTS, Amherst, MA

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**Employment** CORNELL UNIVERSITY, Department of Physics 2007-Present  
Postdoctoral Fellow. Advisor: Professor Itai Cohen

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### Research Experience

2007-Present Postdoctoral Fellow: Itai Cohen Group  
Department of Physics, Cornell University, Ithaca NY

- **Procter & Gamble – Cornell collaboration:** Studying dispersal of concentrated surfactant droplets in which liquid crystalline micro-structure affects macroscopic dynamics. Such phases are central to consumer products, and this research will help to elucidate the scale-up of complex fluid processes and the pathway to sustainable manufacturing.

2003-2007 Department of Physics, University of Massachusetts, Amherst MA

- Developed new method to study dynamics of melting/freezing in colloidal crystals and gels by creating a temperature dependent depletion attraction between colloidal particles.

2000-2001 Nuclear Physics, University of Massachusetts, Amherst MA

- Designed and implemented detector used in E158 experiment at Stanford Linear Accelerator (SLAC) to measure the weak mixing in Møller (electron-electron) scattering.

1999 Astronomy Department, University of Massachusetts, Amherst MA

- Built circuitry used in the Large Millimeter Telescope (LMT) in Mexico.

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### Publications

- (1) **J.R. Savage**, A.D. Dinsmore, "Experiments on melting and freezing in colloidal crystals with short-range attractive interaction," in preparation.
- (2) **J.R. Savage**, Marco Caggioni, Patrick Spicer, Itai Cohen, "Partial universality: pinch-off dynamics in fluids with smectic liquid crystalline order," in review *Physical Review Letters*.
- (3) **J.R. Savage**, A.D. Dinsmore, "Experimental evidence for two-step nucleation in colloidal crystallization," *Physical Review Letters* **102** 198302 (2009).
- (4) **J. R. Savage**, D.W. Blair, A.J. Levine, R.A. Guyer, A.D. Dinsmore, "Imaging the sublimation dynamics of colloidal crystallites," *Science* **314**, 795 (2006).

- See also: Perspectives piece by Daan Frenkel: “Colloidal encounters: a matter of attraction,” *Science* **314**, 768 (2006).
  - (5) R.S. Hicks *et al*, “Flux Profile Scanners for Scattered High-Energy Electrons,” *Nuclear Instruments and Methods in Physics Research Section A* **553**, 470 (2005).
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### Conferences and Presentations

- Procter & Gamble, Cincinnati, Ohio June 2009. “Dynamics of droplet breakup in structured fluids.” (invited talk)
  - Annual KAUST-Cornell University meeting June 2009. “Droplet breakup in complex fluids.” (talk)
  - APS March Meeting 2009, Pittsburgh, Pennsylvania. “Colloidal crystallization: breaking substrate symmetry.” (talk)
  - Summer Program, “Geometrical Singularities and Singular Geometries”, (IMA) University of Minnesota, Minnesota July 2008. “Dynamics of droplet breakup in a complex fluid.” (invited talk)
  - POP Symposium 2008 “Polymer Materials for a Sustainable Future,” Cornell University, Ithaca, New York May 2008: “Dynamics of droplet breakup in a structured fluid.” (poster)
  - New York Complex Matter Workshop Dec. 2007, Syracuse, New York. “Droplet breakup in a multi-phase system.” (talk)
  - LASSP Seminar, April 2007 Cornell University, Ithaca, New York: “Melting and freezing in two-dimensional colloidal crystallites.” (invited talk)
  - APS March Meeting 2007, Denver, Colorado. “Experimental measurement of freezing kinetics in two-dimensional colloidal crystals.” (talk)
  - UMass Amherst Physics Dept. presentation of 2006 APS March Meeting talk. (invited talk)
  - APS March Meeting 2006, Baltimore, Maryland. “Freezing and melting of colloidal crystals with short-range attraction potential.” (talk)
  - UMass Amherst Polymer Science Dept. seminar on Two-dimensional melting of colloidal crystals, July 2005. (invited talk)
  - Gordon Conference on Thin Film and Crystal Growth Mechanisms Mt Holyoke College, South Hadley, Massachusetts June 2005. “2-D melting of colloidal crystals.” (poster)
  - APS March Meeting 2005, Los Angeles, California. “Melting of two-dimensional colloidal crystals.” (talk)
  - APS March Meeting 2004, Montreal, Canada. “Melting of colloidal crystals.” (talk)
  - Summer Program, “Prospect in Theoretical Physics,” Institute for Advanced Study, Princeton New Jersey July 2002.
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### Teaching and Supervising Experience

2009 Department of Physics, Cornell University, Ithaca NY

- Supervisor responsibilities for graduate students Michael Turk, John Mergo and undergraduate student Daniel Porter on Nanoparticle ionic materials (NIMs) project.

2008 Department of Physics, Cornell University, Ithaca NY

- Supervisor of Rivka Polyakov (CCMR REU) summer student.

2003-2007 Department of Physics, University of Massachusetts, Amherst MA

- Helped supervise undergraduate students in the Dinsmore lab; including use of scientific equipment, computer software, and general guidance.

2002-2003 (2 summers) Department of Physics, University of Massachusetts, Amherst MA

- Introductory physics course on electricity and magnetism. Full teaching responsibilities including syllabus preparation, creation/grading of homework and tests, and all teaching.

2001-2003 Department of Physics and Mathematics, University of Massachusetts, Amherst MA

- Teaching and grading of introductory physics laboratories.
  - Worked in both physics and math help centers; helped students with homework and test preparation.
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## References

### **Professor Itai Cohen**

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### **Professor Anthony Dinsmore**

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### **Professor Robert Guyer**

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