

## SHUBHO BANERJEE

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### EDUCATION

**Ph.D. Physics** AUGUST 2000, Carnegie Mellon University, Pittsburgh, Pennsylvania

Thesis: "A study of morphological and thermodynamic properties of dipolar fluids"

**M. S. Physics** MAY 1995, Carnegie Mellon University, Pittsburgh, Pennsylvania

**5 Year Integrated M. S. Physics** MAY 1993, Indian Institute of Technology, Kanpur, India

### EXPERIENCE

**Assistant Professor**, Rhodes College, Memphis TN, Aug 2004 - present

**Visiting Professor**, Rhodes College, Memphis TN, Aug 2002 - Aug 2004

**Postdoctoral Associate**, University of Maryland, College Park, Sep 2000 - Aug 2002

**Graduate Student**, Carnegie Mellon University, Pittsburgh, PA, Aug 1993 - Aug 2000

### HONORS

**Recipient:** Outstanding Faculty Award, Rhodes Student Government- 2004

**Recipient:** Faculty Member of the Month, Residence Council of students at Rhodes College - 2002

**Recipient:** Mellon College of Science, Graduate Student Teaching Award - 1998

**Honorable Mention:** Carnegie Mellon University, Graduate Student Teaching Award - 1998

### PROFESSIONAL AFFILIATIONS

**Referee** for The Physics Teacher since April 2009

**Referee** for American Chemical Society Journals since January 2007

**Referee** for American Journal of Physics since August 2006

**Member** of Sigma Pi Sigma since April 2003

**Referee** for Physical Review Journals since April 1999

**PUBLICATIONS**

- [1] S. Banerjee, B. Taylor, and A. Banerjee, “On the stability of electrostatic orbits”, *American Journal of Physics* **77**, 396-400 (2009)
- [2] S. Banerjee, K. W. Andring, D. L. Campbell, J. A. Janeski, D. A. Keedy, S. P. Quinn, and B. K. Hoffmeister, “Orbital motion of electrically charged spheres in microgravity”, *The Physics Teacher* **46**, 460-464 (2008)
- [3] B. K. Hoffmeister, A. R. Shores, S. Banerjee, and R. A. Malkin, “Effect of electrically insulating materials on magnetically induced electrical currents in a tissue-like medium”, *American Journal of Physics* **74**, 260 (2006)
- [4] M. E. Fisher, Jean-Noel Aqua, and S. Banerjee, “How multivalency controls ionic criticality”, *Physical Review Letters* **95**, 135701 (2005)
- [5] Jean-Noel Aqua, S. Banerjee, and M. E. Fisher, “Criticality in hard-sphere charge-asymmetric ionic fluids”, *Physical Review E* **72**, 041501 (2005)
- [6] S. Banerjee and M. Widom, “Shapes and textures of ferromagnetic liquid droplets”, *Brazilian Journal of Physics* **31**, 360-365 (2001)
- [7] S. Banerjee, R. B. Griffiths and M. Widom, “Thermodynamic limit of polydisperse fluids”, *Journal of Statistical Physics* **104**, 725-751 (2001)
- [8] S. Banerjee and M. Widom, “Ferromagnetic liquid thin films under applied field”, *Physical Review E* **61**, 4171-4176 (2000)
- [9] S. Banerjee, M. Fasnacht, S. Garoff and M. Widom, “Elongation of confined ferrofluid droplets under applied fields”, *Physical Review E* **60**, 4272-4279 (1999)
- [10] S. Banerjee, R. B. Griffiths and M. Widom, “Thermodynamic limit for dipolar media” *Journal of Statistical Physics*, **93**, 109-141 (1998)

**INVITED TALKS, SEMINARS (including forthcoming)**

- [1] *Creating electrostatic orbits in weightlessness*, Undergraduate Physics Colloquium, Carnegie Mellon University, Fall 2008 (date yet to be decided)
- [2] *What is the shape of a ferromagnetic liquid droplet?*, Physics Seminar, Indiana University Purdue University at Indianapolis, November 2008
- [3] *Phase transitions in ionic systems: effect of charge asymmetry on critical parameters*, Physics Seminar, Rhodes College, November 2006
- [4] *Wonders of weightlessness*, Joint Physics Seminar (with B. K. Hoffmeister and students), Rhodes College, September 2006
- [5] *Apples, Donuts, and Eggs: breakfast food or shapes of liquid magnets?*, Physics Seminar, Rhodes College, January 2004
- [6] *Liquid magnetism*, Flow Research Center, University of Memphis, January 2004

- [7] *Ferrofluids: Liquids that obey magnetic commands!*, Physics Colloquium, University of Memphis, November 2002
- [8] *Phase coexistence and criticality in ionic systems*, Statistical Physics Seminar, University of Maryland, October 2001
- [9] *Liquid ferromagnets*, Statistical Physics Seminar, University of Maryland, November 2000
- [10] *Ferrofluids!*, Physics Undergraduate Colloquium, Carnegie Mellon University, October 1999
- [11] *Shape and magnetization texture of a ferromagnetic liquid droplet*, Senior Graduate Student Seminar Series, Cornell University, July 1999

### CONFERENCE TALKS

- [1] *A shape phase diagram for a ferromagnetic liquid droplet*, American Physical Society Meeting, Pittsburgh, March 2009
- [2] *Understanding criticality and phase coexistence in  $z:1$  electrolytes*, Statistical Mechanics Conference, Rutgers University, December 2001
- [3] *Ferromagnetic liquid thin films in applied field*, American Physical Society Meeting, Minneapolis, March 2000
- [4] *Thermodynamic limit of polydisperse colloids*, Statistical Mechanics Conference, Rutgers University, May 1999
- [5] *Ferrofluid thin films under applied fields*, American Physical Society Meeting, Saint Louis, March 1996
- [6] *Thermodynamic limit for dipolar systems*, Statistical Mechanics Conference, Rutgers University, May 1995

### CONFERENCE PRESENTATIONS BY COAUTHORS

- [1] *Unusual shapes of magnetic liquids*, poster presentation by Travis Rasor at Sigma Pi Sigma Quadrennial Congress, Fermi Lab, October 2008
- [2] *Demonstration of electrostatic orbits in weightlessness*, talk by John Janeski at Joint Meeting of the American Association of Physics Teachers and the American Astronomical Society, Seattle, January 2007
- [3] *Experimental and theoretical challenges of creating electrostatic orbits in weightlessness*, poster presentation by Kevin Andring at Joint Meeting of the American Association of Physics Teachers and the American Astronomical Society, Seattle, January 2007
- [4] *Magnetically induced electric currents in the human body: MRI scans and medical implants*, invited talk by Brent Hoffmeister at 2006 Gordon Research Conference on Physics Research and Education, Mount Holyoke College, June 2006

- [5] *The effect of valence on Coulombic criticality: field theory errs; simulation answers; but how to understand?*, invited talk by Michael Fisher at Statistical Mechanics Conference, Rutgers University, December 2004
- [6] *Solving “tough” integrals using the Monte Carlo technique*, poster presentation by Paul Sinclair at Sigma Pi Sigma Quadrennial Congress, Albuquerque, October 2004
- [7] *An analytical and numerical approach to predicting the effects of plastic implants on magnetically induced currents in the body*, poster presentation by Andrew Shores at Sigma Pi Sigma Quadrennial Congress, Albuquerque, October 2004

## GRANTS

- [1] National Aeronautics and Space Administration. “Orbital Dynamics of Electrically Charged Spheres.” Award: Flight time aboard NASA C-9 aircraft for microgravity experiments in August 2006