MOHIT RANDERIA

Education

1987 Ph.D., Physics, Cornell University
1982 M.S., Physics, California Institute of Technology
1980 B.Tech., Electrical Engineering, IIT, Delhi, India

Employment

2004 -	Professor, Department of Physics, The Ohio State University
2002-2003	George A. Miller Visiting Professor, Physics and MRL, University of Illinois at Urbana-Champaign
1995-2004	Reader, Associate Professor & Professor, Theoretical Physics, Tata Institute of Fundamental Research, Bombay, India
1991-1995	Assistant Scientist and Scientist, Materials Science Division, Argonne National Laboratory
1989-1991	Assistant Professor of Physics, SUNY at Stony Brook
1987-1989	Post-Doctoral Fellow, Univ. of Illinois at Urbana-Champaign
1987	Post-Doctoral Fellow, Cornell University

Honors

2008 Fellow of the American Physics Society
2007 Distinguished Alumni Award, Indian Institute of Technology, New Delhi
2002 ICTP Prize, International Center for Theoretical Physics, Trieste
2002 S. S. Bhatnagar Award in Physical Sciences, India
1998-2003 Swarnajayanti Fellowship, India

Areas of Active Research: Theoretical Condensed Matter Physics

- Strong Correlations in Solids and Cold Atoms
- High Temperature Superconductivity
- Ultracold atomic gases: BCS-BEC Crossover; Optical Lattices
- Angle-Resolved Photoelectron Spectroscopy
- Magnetism, Disorder and Nanoscale Inhomogeneity in Oxides

Ten Significant Publications

1) *"Competition between Antiferromagnetic and Superconducting States, Electron Hole Doping Asymmetry, and Fermi Surface Topology in High Temperature Superconductors"*, S. Pathak, V. B. Shenoy, M. Randeria, and N. Trivedi, *Phys. Rev. Lett.* **102**, 027002 (2009).
2) *"Strong correlations lead to protected low energy excitations in disordered d wave superconductors"*, A. Garg, M. Randeria, and N. Trivedi, *Nature Phys.* **4**, 762 (2008).
3) *"Quantum Fluctuations in the Superfluid State of the BCS-BEC Crossover"*, R. B. Diener, R. Sensarma, and M. Randeria; *Phys Rev* **A 77**, 023626 (2008).
4) *"Quantum critical behavior in the superfluid density of strongly underdoped ultrathin cuprate films"*, I. Hetel, T. R. Lemberger, and M. Randeria, *Nature Phys.* **3**, 700 (2007).

5) *"From Fermi Arcs to the Nodal Metal: Scaling of the Pseudogap with Doping and Temperature"*, A. Kanigel, M. R. Norman, M. Randeria, *et al.*, *Nature Phys.* **2**, 447 (2006).
6) *"Can Correlations Drive a Band Insulator Metallic?"*, A. Garg, H. R. Krishnamurthy, and M. Randeria, Phys. Rev. Lett. **97**, 046403 (2006).
7) *"Vortices in Superfluid Fermi Gases through the BEC to BCS Crossover"*, R. Sensarma, M. Randeria, and T.-L. Ho, *Phys. Rev. Lett.* **96**, 090403 (2006).
8) *"Particle-Hole Asymmetry in Doped Mott Insulators: Implications for Tunneling and Photoemission Spectroscopies"*, M. Randeria, R. Sensarma, N. Trivedi, and F.C. Zhang, Phys. Rev. Lett. **95**, 137001 (2005).
9) *"The Physics Behind High-Temperature Superconducting Cuprates: The 'Plain Vanilla' Version Of RVB"*, P. W. Anderson, P. A. Lee, M. Randeria, T. M. Rice, N. Trivedi, and F. C. Zhang; J. Phys. Cond. Mat. **16** R755R769 (2004).
10) *"Photoemission in the High Tc Superconductors"*, J. C. Campuzano, M. R. Norman and M. Randeria; in *Physics of Superconductors*, Vol. II, ed. K. H. Bennemann and J. B. Ketterson (Springer, Berlin, 2004), p. 167-273; [cond-mat/0209476].

Synergistic Activities:

• Co-organizer, International Conference on "Recent Progress in Many-Body Theories" (2009); Co-organizer, Aspen Workshop on "Correlated Quantum Matter" (Summer 2005); Member, Theory panel, "Basic Research Needs for Superconductivity", DOE, (2006).
• Member of Program/Advisory Committees for International Conf. on Low Temp. Physics LT 24 (2005), Materials and Mechanisms of Superconductivity M2S, Dresden (2006); Spectroscopies of Novel Superconductors SNS 2007, Sendai, Materials and Mechanisms of Superconductivity M2S, Tokyo (2009).
• Invited talks at International Conferences in 2004 - 2009: KITP, Santa Barbara (2004,2009); Gordon Conference, Oxford (2004); Princeton Materials Institute (2004); ITS, Notre Dame (2005); Max Plank Institute, Dresden (2005); LT 24, Orlando (2005); ICTP, Trieste (2005,2008); MaNEP Conference, Switzerland (2005); Nordita, Copenhagen (2006); IISc. Bangalore (2006); Brasilia Winter School (2006); Rutgers Mathematical Physics Conference (2006); IHP, Paris (2007); Ambegaokar Symposium, Cornell (2007); Landau Institute, Moscow (2007); SNS2007, Sendai (2007); TIFR Goa Winter School (2007); ICAM Conference on "Conductor-Insulator Transitions" (2008); APS March Meeting (2008); TIFR Mahabaleshwar Winter School (2008); Recent Prog. Many-Body Theories (2009).

Ph.D. and Postdoctoral Advisors:

Ph.D. Advisor: James P. Sethna, Cornell (1984-1986)
Post-doc Advisor: Anthony J. Leggett, Urbana-Champaign (1987-1989)

Recent Ph.D. Students and Post-docs: Arun Paramekanti (Asst. Professor, Toronto); Arti Garg (Post-doc, Technion & UC Santa Cruz); Rajdeep Sensarma (Post-doc, Harvard & Maryland); Roberto Diener (Booz Allen Hamilton).

Current Graduate Students: William Schneider, Onur Erten and
Onam Ngamba Meetei (jointly with N. Trivedi)

Current Post-doctoral Fellow: Edward Taylor (jointly with T. L. Ho)