

**M. CRISTINA MARCHETTI**  
William R. Kenan, Jr. Professor of Physics

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**Personal Information:**

Date of birth:	December 11, 1955
Place of birth:	Pavia, Italy
Citizenship:	Italian (permanent resident of the US)

**Education:**

- Ph.D. in Physics from the University of Florida, Gainesville, Florida, August 1982. Dissertation: *Fluctuations in Systems Far from Equilibrium*.
- Laurea in Physics cum laude from the University of Pavia, Italy, July, 1978. Dissertation: *Dynamics of a Heisenberg Spin Chain*.

**Field of Research:** Condensed Matter Theory & Statistical Mechanics.

My research interest have been in the general area of nonequilibrium statistical physics and condensed matter theory. This is one of broadest and most dynamical areas of research in physics today and it offers enormous opportunities for overlap with other disciplines, including chemistry, biology, engineering and medicine. My work in this field has encompassed the study of the dynamical properties of supercooled liquids and the glass transition, collective transport in disordered materials, and the magnetic properties of type-II superconductors. Most recently I have begun working on the physical properties of biological materials, such as active gels of biofilaments and associated molecular motors or biological membranes. The general goal of this work is to elucidate the interplay between physical and biochemical phenomena in controlling self-organization in complex biological structures.

### Positions held:

<u>Dates</u>	<u>Institutions</u>	<u>Position</u>
8/16/2007-present	Syracuse University	Physics Department Chair
1/2005-present	Syracuse University, NY	William R. Kenan, Jr. Professor
1/2007-7/2007	Institut Curie, Paris	Rotschild-Mayent Sabbatical Fellow
9/1997-12/2004	Syracuse University, NY	Professor
9/1992-9/1997	Syracuse University, NY	Associate Professor
9/1987-8/1992	Syracuse University, NY	Assistant Professor
9/1998-6/1999	Harvard University,	Visiting Scholar & Visiting Professor
9/1994-12/1994	Univ. of CA, Santa Barbara	Member of ITP
5/1990-8/1990	Univ. of CA, Santa Barbara	Member of ITP
1/1989-6/1989	Harvard University	Visiting Scholar
1986-1987	Univ. of Illinois-Chicago	Assistant Professor
1985-1986	City College of the CUNY	Research Associate
1984-1985	Rockefeller University, NY	Research Associate
1982-1984	University of Maryland	Research Associate

### Academic and Professional Honors:

- Fulbright-Hays Exchange Award
- Phi Kappa Phi Scholarship Award
- Rotary Foundation Educational Award
- University of Florida Graduate Council Fellowship
- Sigma Xi Graduate Research Award
- Fellow of the American Physical Society
- Departmental 2003 Lower Division Teaching Award
- William R. Kenan, Jr. Professorship
- Chancellor's Citation for Academic Achievement, Syracuse University
- Rotschild-Mayent Sabbatical Fellowship, Institut Curie, Paris

### Highlights of Professional Activities:

- Served on a reverse-site review panel for the 2008 MRSEC awards at the National Science Foundation, May 2008.
- Served on the NSF panel for the site review of I2CAM (International Institute for Complex Adaptive Matter), Santa Fe, Jan. 14-16, 2008.
- Chair of the Committee for the selection of the winner of the 2008 Oliver Buckley Prize of the APS (member of the committee for the 2007 Prize).
- Chair of the Topical Group on Statistical and Nonlinear Physics of the APS, 2007-08 (previously served as Vice-Chair (2004-05), Chair-Elect (2006-07) and Member at Large (2001-04)).
- Editor of the Statistical Physics Section of the Encyclopedia of Complexity and System Science, Springer, 2008 (<http://refworks.springer.com/mrw/index.php?id=259>) .
- Served on the APS committee for the review of Gary Grest, Editor of Physical Review E.
- Co-organizer of the semi-annual New York Complex Matter Workshops (Syracuse, Cornell and Rochester Institute of Technology).
- Divisional Associate Editor of Physical Review Letters, August 2005-September 2008 (resigned in October 2007 to cut down on administrative duties).
- Member of the 2005 Committee of Visitor (COV) to the Division of Materials Research (DMR) of the NSF.
- Invited participant in the workshop *Theoretical Science in the Mathematical and Physical Sciences Directorate* at the National Science Foundation, October 28-29, 2004. This workshop was charged with identifying to the National Science Foundation's Mathematical and Physical Sciences Directorate (NSF/MPS) approaches on how best to support and nurture theoretical research in the 21st Century.

- Member (2001-05) and Chair (2003-04) of the Advisory Board and of the Steering Committee of the Institute for Theoretical Physics of the University of California, Santa Barbara.
- Member of the Board of Directors of the Boulder Summer School in Condensed Matter Physics (<http://www.indiana.edu/uscmpsc/>) since the school's inception in 2000. Co-PI on the NSF grant that supports the school since 2005.
- Co-organizer (with E. Bodenschatz and A. Middleton) of the Boulder 2001 Summer School in Condensed Matter Physics, held in Boulder, CO, July 2001.
- Referee for the E.W.R. Steacie Memorial Fellowships administered by the Natural Sciences and Engineering Research Council of Canada (NSERC).
- Co-organizer (with G. Vidali) of the 8th Conference of the series *Statistical Physics at the 45th Parallel*, October 14-15, 1994, Syracuse University.
- I have served and serve as referee for the NSF, DOE, the Research Corporations, the U.S. Department of State, the City University of New York Research Award Program, Academic Press, as well as numerous research journals.
- I am a member of the Association of Women in Science (AWIS) and have been actively involved with the Syracuse Chapter.

**Ph.D. Students Supervised:**

- Supurna Sinha, Ph.D. 1992.
- Lee-Wen Chen, Ph.D. 1996.
- Panayotis Benetatos, Ph.D. 2000.
- Michael Faleski, Ph.D. 2001.
- Aphrodite Ahmadi, Ph.D. 2008.

- Sitichoke Amnuanpol, Ph.D. expected 2008.
- Davis Quint (jointly with Jennifer Schwarz), Ph.D. expected 2010.
- Shiladitya Banerjee, Ph.D. expected 2012.

**Postdoctoral Research Associate Supervised:**

- Alan Middleton, Ph.D. Princeton 1990.
- Ki Ho Lee, Ph.D. Ohio State
- Mariapia Riva, Ph.D. Milan 1998.
- Chen Zeng, Ph.D. Cornell 1993.
- Thomas Prellberg, Ph.D. Virginia Tech. 1991.
- Karl Saunders, Ph.D. University of Oregon, 2001.
- Jennifer Schwarz, Ph.D. Harvard, 2002.
- Jan Meinke, Ph.D. University of Michigan, 2002.
- William Kung, Ph.D. University of Pennsylvania, 2004.
- Aparna Baskaran, Ph.D. University of Florida Gainesville, 2006.
- Shradha Mishra, Ph.D. Indian Institute of Science, Bangalore, 2008.

## Invited Conference Presentations

- Meeting for the formation of a thrust for *Supercomputing and Simulation of Solid State Devices*, Urbana, IL, December 1986.
- Fifth International Conference on *Hot Carriers in Semiconductors*, July 20-24, 1987, Boston, MA.
- Workshop on *Femtosecond Physics in Semiconductors*, Tempe, AZ, December 9-11, 1987.
- March Meeting of the American Physical Society, New Orleans, LA, March 1988.
- 35th Annual Conference on Magnetism and Magnetic Materials, MMM'90, San Diego, CA, October 1990.
- March Meeting of the American Physical Society, Cincinnati, OH, March 1991.
- XXIV Institut d'Etè de l'Ecole Normale Supérieure, *Statistical Physics and Disordered Systems*, Université de Paris Sud, Paris, France, August 10-21, 1992.
- Workshop on *Superconductors in Magnetic Fields*, Argonne National Laboratory, Argonne, IL, August 24-28, 1992.
- Workshop on *Interacting Electrons in Superconductors and Materials of Reduced Geometry*, Sept.-Oct. 1993, Institute for Scientific Interchange, Torino, Italy.
- AT&T Bell Laboratories Workshop on Vortices in Superconductors, 1/24/94, Murray Hill, NJ.
- Workshop on Fundamental Aspects of Flux Dynamics in High- $T_c$  Superconductors, École Polytechnique Palaiseau, June 30-July 3, 1994 (invited participant).
- ITP Workshop on Vortex Phases, University of California at Santa Barbara, August 15 - December 17, 1994 (invited participant).

- Gordon Research Conference on Nonequilibrium Aspects of Type-II Superconductors and Related Systems, July 10-14, 1995.
- International Workshop on Vortex Dynamics in High-Temperature Superconductors, June 23-27, 1996, Shoresh, Israel.
- Workshop on *Flux, Quantum and Mesoscopic Effects in Superconducting Materials and Devices*, Santa Fe, NM, August 4-8, 1997.
- Twenty-Fifth Midwest Solid State Theory Symposium, Argonne National Laboratory, October 18-19, 1997, Argonne, IL.
- 1998 Aspen Winter Conference on Condensed Matter Physics, Aspen, CO, January 18-25, 1998.
- Centennial Meeting of the American Physical Society, Atlanta, GA, March 1999.
- 6th International Conference on Materials and Mechanisms for Superconductivity and High Temperature Superconductors (M2S-HTSC-VI), Houston, TX, February 20-25, 2000.
- International Workshop on Vortex Matter, Leiden, The Netherlands, August 19-25, 2000.
- ITP Workshop on Statistical Physics of Biological Information, University of California at Santa Barbara, April 2001 (invited participant).
- *Understanding Complex Systems* Symposium, May 15, 2001, University of Illinois at Urbana-Champaign.
- 8th Workshop on Vortex Physics, San Carlo de Bariloche, Argentina, Nov. 26 - Dec. 1, 2001.
- ESF Workshop on *Vortices in Josephson systems and nanostructures*, Acquafredda di Maratea, Italy, September 20-25, 2002.
- 9th International Workshop on Vortex Matter, Oleron Island, France, July 2003.

- International workshop on Quantum Phase Transitions, Max-Planck Institute, Dresden, Germany, July 2003.
- BA Festival of Science, Salford University, UK, September 2003. This is the annual meeting of the British Association for the Advancement of Science (BA).
- International Workshop on *Depinning transitions in disordered media: theory and applications*, April 22-24, 2004, Nordita, Copenhagen (DK).
- 91st Statistical Mechanics Meeting, May 16-18, 2004, Rutgers University.
- XIX Sitges Conference on *Statistical Mechanics: Jamming, Yielding, and Irreversible Deformation in Condensed Matter*, Sitges, Spain, June 2004.
- 22nd IUPAP International Conference in Statistical Physics, Bangalore, India, July 2004.
- The Future of Physics Conference, Kavli Institute for Theoretical Physics, University of California at Santa Barbara, October 7-9, 2004.
- 10th International Workshop on Vortex Matter, Mumbai, India, January 9-14, 2005.
- *DuftyFest*, University of Florida, Gainesville, September 22-24, 2005, keynote speaker.
- Workshop on *Driven States in Soft and Biological Matter*, 18-28 April, 2006, ICTP, Trieste, Italy.
- Second New York Complex Matter Workshop, July 21, 2006, Cornell University.
- GRANFL07 *Granular fluids - a proving ground for nonequilibrium statistical mechanics*, September 26-29, 2007, Sevilla, Spain.
- 2008 March meeting of the APS, New Orleans, March 10-14, 2008.
- Workshop on *Soft Condensed Matter and Physics of Biological Systems* Stellenbosch, South Africa, February 2008.