John H. Miller, Jr.

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Education:

June 1980	B.S.	Northwestern University
May 1980	M.S.	University of Illinois at Urbana-Champaign
May 1985	Ph.D.	University of Illinois at Urbana-Champaign
Thesis Advisors:	John R. Tucker and John Bardeen	

Employment History:

1985-1986:	IBM Postdoctoral Fellow,	University of Illinois at Urbana-Champaign
1986-1989:	Assistant Professor of Physics,	University of North Carolina at Chapel Hill
1989-1995:	Assistant Professor of Physics,	University of Houston
1995-8/31/2006:	Associate Professor of Physics,	University of Houston
9/1/2006 - present:	Professor of Physics,	University of Houston

Honors and Awards:

- General Electric Foundation Predoctoral Fellowship, Illinois (1982-1983)
- AT&T Bell Laboratories Predoctoral Scholarship, Illinois (1984-1985)
- IBM Postdoctoral Fellowship, Illinois (1985-1986)
- Alfred P. Sloan Research Fellowship (1987-1991)

Recent Research Highlights:

- Electric field driven torque model of ATP synthase and other rotary biological motors
- Electromagnetic probes of live cells, proteins, and biological enzyme complexes
- Discovery of chemomagnetism using SQUIDs; Self-organized criticality in chemical reactions

Lab Facilities / Expertise:

- High-T_c SQUID magnetometers; Superconducting Josephson devices
- Dielectric / impedance spectroscopy; Nonlinear harmonic response of biological systems
- Fluorescence microscopy

Five Selected Publications:

- J. H. Miller, Jr., et al., **Use of Tricrystal Junctions to Probe the Pairing State Symmetry of $YBa_2Cu_3O_{7-\delta}$**, *Physical Review* Letters **74**, pp.2347-2350 (1995).
- J. H. Miller, Jr., C. Ordóñez, and E. Prodan, **Time-Correlated Soliton Tunneling in Charge and Spin Density Waves**, *Physical Review Letters* **84**, pp. 1555-1558 (2000).
- J. R. Claycomb, K. E. Bassler, J. H. Miller, Jr., M. Nersesyan, & D. Luss, **Avalanche Behavior in the Dynamics of Chemical Reactions**, *Physical Review Letters* **87**, 178303-1 — 4 (2001).
- D. Nawarathna, J. H. Miller, Jr., J. R. Claycomb, G. Cardenas, and D. Warmflash, **Harmonic Response of Cellular Membrane Pumps to Low Frequency Electric Fields**, *Physical Review Letters*, vol. **95**, pp. 158103-1—4 (2005).
- Emil Prodan, Camelia Prodan, and John H. Miller, Jr., **The Dielectric Response of Spherical Live Cells in Suspension: An Analytic Solution.** *Biophysical Journal*, vol. **95**, 4174-4182 (2008).