

## John H. Miller, Jr.

Texas Center for Superconductivity  
3369 Cullen Blvd., Suite 202  
Houston, Texas 77004  
Phone: (713) 743-8200

Department: Physics  
College: Natural Sciences and Mathematics  
Address: 3507 Cullen Blvd., Ste. 617 SR1 Bldg.  
Houston, TX, 77204-5005  
Phone: (713) 743-8257  
Fax: (713) 743-8201  
E-mail: [jhmiller@uh.edu](mailto:jhmiller@uh.edu)

### Education:

B.S.	Northwestern University	Evanston, Illinois	1975-1980
M.S.	University of Illinois	Urbana, Illinois	1980-1983
Ph.D.	University of Illinois	Urbana, Illinois	1983-1985

M.S. & Ph.D. 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:

- Correlated electron transport in quantum materials
- Hybrid quantum device concepts for higher temperature quantum information processing
- Electron and proton transport in biological systems

### Lab Facilities / Expertise:

- Quantum electron transport; Quantum materials; Superconducting devices; Density waves
- EM response, dielectric / impedance spectroscopy; biological systems
- Theory, computational modeling, and experiments in condensed matter and biological systems

### Five Selected Publications/ [https://scholar.google.com/citations?hl=en&user=mMdvMpQAAAAJ&view\\_op=list\\_works](https://scholar.google.com/citations?hl=en&user=mMdvMpQAAAAJ&view_op=list_works)

1. J. H. Miller, Jr., A. I. Wijesinghe, Z. Tang, and A. M. Guloy, **Correlated Quantum Transport of Density Wave Electrons**. *Physical Review Letters*, vol. **108**, 036404 (5 pages + suppl.) (2012).
2. M. Y. Suárez-Villagrán, N. Mitsakos, Tsung-Han Lee, V. Dobrosavljević, J. H. Miller Jr., and E. Miranda, **The two-dimensional disordered Mott metal-insulator transition**, *Physical Review B*, vol. **101** (no. 23), pp. 235112-1-12 (12 pages + suppl.) (2020).
3. John H. Miller, Jr. and M. Y. Suárez-Villagrán, **Quantum fluidic charge density wave transport**. *Applied Physics Letters*, vol. **118** (no. 18), pp. 184002-1-6 (6 pages + suppl.) (2021). (Invited).
4. M. Y. Suárez-Villagrán, N. Mitsakos, Tsung-Han Lee, J. H. Miller, Jr., E. Miranda, and V. Dobrosavljević, **Unusually thick metal-insulator domain walls around the Mott point**. *Physical Review B* **104** (15), 155114 -1-9 (2021).
5. John H. Miller, Jr., Martha Y. Suárez-Villagrán, and Johnathan O. Sanderson, **Quantum transport of charge density wave electrons in layered materials**. *Materials Today Physics*, vol. **41**, 101326 -1-12 (2024).