

James Avery Sauls

May 11, 2020

Northwestern University
Department of Physics & Astronomy
2145 Sheridan Road
Evanston, Illinois 60208, USA

webpage: eolus.phys.northwestern.edu
email: sauls@northwestern.edu

Education:

Colorado School of Mines, Golden, Colorado Physics, B.S. 1975
State University of New York, Stony Brook, New York Physics, Ph.D. 1980
Princeton University, Princeton, New Jersey Physics, Post Doc 1980-82

Appointments:

Professor of Physics, Northwestern University, 1991 — present
Co-Director, Center for Applied Physics and Superconducting Technology - 2017– present
Co-Director, Graduate Program in Applied Physics, Northwestern - 2015– present
Secretary-Treasurer of DCMF of the American Physical Society - 2019-2023
Distinguished Visiting Scientist, Los Alamos National Laboratory - 2015
Distinguished Lecturer, University of St. Andrews & University of Edinburgh - 2014
Executive Committee of DCMF of the American Physical Society - 2011-2014
Erasmus Mundus Lecturer on Nanoscience, Chalmers University (Sweden) - 2009
Visiting Professor, Joseph Fourier University (Grenoble), 2003
Visiting Director of Research, CNRS (Grenoble), 2003
Visiting Professor, NORDITA & University of Copenhagen, 1992 - 1993
Associate Professor of Physics, Northwestern University, 1987 - 1991
Assistant Professor of Physics, Princeton University, 1983 - 1987
Visiting Fellow, NORDITA/Helsinki University of Technology, 1983 – 1984
Instructor of Physics, Princeton University, 1982 - 1983
Post-doctoral Fellow, Princeton University, 1980 - 1982
Visiting Scientist, Nordic Institute for Theoretical Physics (NORDITA, Copenhagen), 1980

Professional Societies and Awards:

Fritz London Memorial Prize in Low Temperature Physics, 2017
John Bardeen Prize for Theoretical Research on Superconductivity, 2012
Max-Planck Research Prize in Theoretical Physics, 1994
Fellow of the American Physical Society, 1998
Member of the Alexander von Humboldt Society
Member of the Aspen Center for Physics

Research Interests:

Theory of Topological Phases of Condensed Matter, Topological Superfluids & Superconductors,
Nonequilibrium Superconductivity, Quantum Processes in Mesoscopic Systems,
Theory of Dense Matter & Neutron Stars

Undergraduate, Graduate & Post-Doctoral Training & Mentoring:

Supervised 12 Undergraduate research projects or Theses
Supervised 13 PhDs in Theoretical Condensed Matter Physics
Supervised 15 Post-Doctoral Fellows in Theoretical Condensed Matter Physics
Graduate Lectures on *Quantum Mechanics, Statistical Mechanics, Field Theory*
Director of Graduate Studies, Department of Physics and Astronomy, 2009-2012

Selected Recent Publications:

1. V. Ngampruetikorn and J. A. Sauls. Impurity-induced Anomalous Thermal Hall Effect in Chiral Superconductors. *Physical Review Letters*, 124:157002, 2020. doi:10.1103/PhysRevLett.124.157002.
2. K. E. Avers, W. J. Gannon, S. J. Kuhn, W. P. Halperin, J. A. Sauls, L. DeBeer-Schmitt, C. D. Dewhurst, J. Gavilano, G. Nagy, U. Gasser, and M. R. Eskildsen. Broken Time-Reversal Symmetry in the Topological Superconductor UPt_3 . *Nature Physics*, 16, 531, 2020. doi:10.1038/s41567-020-0822-z.
3. X. You, J. A. Sauls, and J. Koch. Circuit Quantization in the Presence of Time-Dependent External Flux. *Physical Review B*, 99:174512, 2019. doi:10.1103/PhysRevB.99.174512.
4. H. Uematsu, T. Mizushima, A. Tsuruta, S. Fujimoto, and J. A. Sauls. Chiral Higgs Mode in Nematic Superconductors. *Physical Review Letters*, 123:237001, 2019. doi:10.1103/PhysRevLett.123.237001.
5. V. Ngampruetikorn and J. A. Sauls. The Effect of Inhomogeneous Surface Disorder on the Superheating Field of Superconducting RF Cavities. *Physical Review Research*, 1:012015(R), 2019. doi:10.1103/PhysRevResearch.1.012015.