



Rongying JIN

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https://sc.edu/study/colleges_schools/artandsciences/physics_and_astronomy/CENPhys
(under construction)

Degree: Education

Ph.D. physics 1/1997, Swiss Federal Institute of Technology (ETH) Zurich

Experience and employment

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| 8/2021-present | SmartState Endowed Chair for Center for Experimental Nanoscale Physics
John M. Palms Bicentennial Chair
Department of Physics and Astronomy, University of South Carolina, USA |
| 1/2009-8/2021 | Tenured Associate/Full Professor
Department of Physics and Astronomy, Louisiana State University, USA |
| 1/2008-12/2008 | Associate Professor (joint appointment with ORNL)
Department of Physics and Astronomy, The University of Tennessee, USA |
| 6/2000-12/2010 | Research Associate/Research Scientist (staff),
Materials Science and Technology Division, Oak Ridge National Laboratory, USA |
| 3/1997-6/2000 | Research and teaching associate (post doc),
Department of Physics, Pennsylvania State University, USA |
| 10/1992-2/1997 | Research and teaching assistant,
Laboratory for Solid State Physics, Swiss Federal Institute of Technology (ETH),
Zurich, Switzerland |
| 9/1991-9/1992 | Visiting Scholar, British Royal Society Fellowship:
Physics Department at University of Sussex, and Material Science Department at
University of Cambridge, UK |
| 2/1987-9/1991 | M.Sc. student and Staff research assistant, Institute of Physics, Chinese Academy
of Science, P. R. China |

Research

Her research lies in the area of materials physics. This is a highly interdisciplinary field requiring perspectives from physics, chemistry, materials science, and engineering. The objective of her research is to apply the experimental tools of materials synthesis (often under extreme conditions), compositional tuning, and crystal growth (a better crystal often a new material) to address cutting-edge issues in advanced functional materials. Her effort has been devoted to (1) the development of new quantum materials with intriguing properties (superconductivity, quantum magnetism, nontrivial topology, thermoelectrics, and multiferroics), (2) the investigation of physical properties: charge, spin and heat transportation, magnetization, specific heat, microscopic (magnetic force microscopy, scanning tunneling microscopy, transmission electron microscopy), and spectroscopic (angle-resolved photoemission, and neutron scattering) measurements, and (3) collaboration with theorists/computational scientists for atomic-level understanding of the observed phenomena. Her research has resulted in more than 255 peer-reviewed journal articles with more than 11,000 citations.

Honors

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| 2012 | Fellow of the American Association for the Advancement of Science (AAAS) |
| 2010 | Fellow of the American Physical Society (APS) |

Materials Physics: from Knowledge to Technology

Rongying Jin

Center for Experimental Nanoscale Physics,
Department of Physics and Astronomy, University of South Carolina

Advanced materials are the foundation for new technologies. The grand challenge is the discovery of materials with desired functionalities. Materials physicists explore interesting and often useful phenomena seen in condensed matter systems that result from the interactions of a large number of atoms and electrons. In my talk, I will share my thoughts on how novel properties can be created/manipulated by tuning knobs available in condensed matter (charge, spin, lattice and orbital). Of particular interest are quantum materials with non-classical properties. The interplay between fundamental science and technological applications will be discussed.