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Employment:

Carnegie Mellon University:

Professor, Physics (7/98-present)
Professor, Electrical and Computer Engineering (Courtesy Appointment, 10/11 - present)
Professor, Materials Science and Engineering (Courtesy Appointment, 10/13 – present)
Associate Professor, Physics (7/95-6/98)
Assistant Professor, Physics (7/90-6/95)

Cornell University:

Research Associate (6/88-6/90)
Postdoctoral Associate (11/87-6/88)

Education:

The University of Georgia: (Ph. D., 9/87)
Columbia University :(M. A., 10/80)
Princeton University: (A. B., 6/79, cum laude)

Honors:

National Young Investigator Award, National Science Foundation, 1992.
Julius Ashkin Award for Teaching, Mellon College of Science, CMU, 1997.
Eminent Scientist of the Year Award, International Research Promotion Council, 1999.
University Academic Advising Award, Carnegie Mellon University, 2000.
IEEE Magnetics Society Distinguished Lecturer, 2007.
Fellow, American Physical Society, 2007.
Carnegie Award for Emerging Female Scientist, 2010.
Fellow, Institute for Electrical and Electronic Engineers, 2016.

Brief Description of Research:

My research focuses on the fundamental of magnetic nanoparticles that have very uniform sizes, as well as possible applications in information storage and processing, and biomedicine. Monodisperse nanoparticles are synthesized by chemical methods and used as building blocks for self-assembly into arrays. The collective magnetic behavior of the arrays has been studied using electron holography and Lorentz microscopy to image domains, and using polarized small angle neutron scattering to investigate the magnetization length scales within nanoparticles and their assemblies. Magnetic nanoparticles and nanopillars are also made by electron beam lithography and etching. We have demonstrated the ability of conductive atomic force microscopy to detect the state of a magnetic tunnel junction nanopillar, and switch it using a spin-polarized current.