



# LECTURE SERIES



**Nadya Mason, Ph.D.**

Rosalyn Sussman Yalow Professor of Physics  
University of Illinois Urbana-Champaign

# THE EMERGENCE OF SUPERCONDUCTIVITY IN INHOMOGENEOUS SYSTEMS

12:30 p.m. Wednesday, September 7  
118 Nieuwland Science Hall

Reception at 4 p.m. in 202 Nieuwland Science Hall

Superconductors are interesting materials, both from a fundamental physics perspective and because of their potential for practical applications where they may eliminate electrical energy losses. Unconventional superconductors, however, behave differently from conventional ones, and the dissipation of energy has been difficult to control and parametrize. Prof. Mason will show how superconductivity is established in granular normal-superconducting systems via a “rare-region” or extremal-grain process. These results reveal how superconductivity is established in low-dimensional or disordered systems, and in general help determine the role of dissipation in superconducting materials.

Prof. Mason received her bachelor’s degree from Harvard University in 1995 and her doctorate from Stanford in 2001. Her research focuses on the electronic behavior of low-dimensional materials such as carbon nanotubes, graphene, topological insulators, and nanostructured superconductors. She was elected to the National Academy of Sciences in 2021.



UNIVERSITY OF  
NOTRE DAME

PHYSICS AND ASTRONOMY