Joint Colloquium Talk
Dept of Mathematics & IMS

High-temperature Versus Low-temperature Superconductors: A Mathematical Description

by

Professor Patricia Bauman
Dept of Mathematics
Purdue University
USA

Date & Time : 5 Aug 2009 (Wed), 2:00 pm
Venue : Colloquium Room A (S14, #03-10)

Abstract

We discuss the Ginzburg-Landau model for homogeneous (low-temperature) superconductors and the Lawrence-Doniach model for anisotropic layered (high-temperature) superconductors. The Larence-Doniach model features nonlinear Josephson coupling among a stack of parallel superconducting layers, which results in less regularity of minimizers and fundamental differences in critical phenomena. We discuss similarities and differences for minimizers of these models and how they relate to the Josephson coupling in the Lawrence-Doniach model.

URL:http://www.math.purdue.edu/people/bio/bauman/Home

Brief Biography

Patricia Bauman is a Professor of Mathematics at Purdue University in the U.S.A. She received her Ph.D. in 1982 with Professor Gene Fabes at the University of Minnesota. She was an NSF Postdoctoral Research Fellow in 1982-83 at the Courant Institute in New York and a Moore Instructor at MIT in 1983-84, after which she came to Purdue. She received an American Math Society Centennial Research Fellowship in 1994-95. Her research area is nonlinear partial differential equations with applications to materials.

- *Light Refreshments will be served after the talk.*