

T_cSAM Special Seminar

Texas Center for Superconductivity and Advanced Materials



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“The Mixed State of BSCCO Visualized in Real Space with Single Vortex Resolution: Solid-Liquid Phase Transition and Magnetization Reversal”

Friday, May 27, 2005

Room 102, University of Houston Science Center

1:00 p.m. – 2:00 p.m.

Abstract

It will be shown that vortex states in BSCCO can be visualized in real space with single vortex resolution using magnetic force microscopy. This technique is then applied to investigate two phenomena: vortex lattice melting and magnetization reversal. The former can be triggered by increasing either temperature or magnetic field. It turns out that the way how the solid-liquid phase transition occurs, appears to be quite different. In the latter case, a flux-antiflux boundary propagates through the sample. Particularly, it is possible to observe the annihilation of individual vortex-antivortex pairs.

Bio

1994: Diploma Thesis, “Investigation of transition metal oxides by scanning force microscopy and design of a fiberoptic interferometer for a low temperature scanning force microscope,” Hamburg University, Germany.

1998: Ph.D. Thesis, “Design of a UHV low temperature scanning force microscope and investigation of the imaging mechanism on LiF(001) and InAs(100),” Hamburg University, Germany.

Since 1998: Research Scientist and Group Leader, Microstructure Research Center, Hamburg University. Research field: atomic force microscopy and magnetic force microscopy activities. Topics: 3D force field spectroscopy mapping with atomic resolution on NiO(001) and SWNT; MFM on CMR-materials, Vortex imaging on BSCCO. Currently: Detection of the magnetic exchange force.

Persons with disabilities who require special accommodations in attending this lecture should call (713) 743-8210 as soon as possible.

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