

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Vortex Dynamics in Confined Systems Studied by Scanning¹

GORAN KARAPETROV, MSD-ANL, JAN FEDOR, MSD-ANL and IEE, Slovak Academy of Sciences, MARIA IAVARONE, DANIEL ROSENMAN, WAI-KWONG KWOK, MSD-ANL — We report on a study of vortex arrangements in mesoscopic superconductors using scanning tunneling microscopy and spectroscopy. Using NbSe₂ single crystals and conventional ion beam lithography we defined different mesoscopic systems that confine vortex motion. The spatial confinement of vortices introduces novel collective behavior that strongly depends on the size of the superconductor, vortex density, and temperature. We will compare the experimental results with existing theoretical models based on Ginzburg-Landau theory.

¹This work was supported by the U.S. DOE, BES-Material Sciences under contract No. W-31-109-ENG-38

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Date submitted: 30 Nov 2004

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