Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Vortex-cavity pinning force in a superconducting film GOLIBJON BERDIYOROV, MILORAD MILOSEVIC[1], FRANCOIS PEETERS, Departement Fysica, Universiteit Antwerpen, Groenenborgerlaan 171, B-2020 Antwerpen, Belgium — The interaction of a vortex with a circular perforation in a superconducting film is calculated within the Ginzburg-Landau formalism. Due to the local compression of vortex currents and their adhesion to the edge of the perforation, a local repulsive component is added to the generally attractive pinning force. The dependence of the repulsive part on the size of the cavity is examined. The associated deformation of the vortex core and its dynamics is obtained.

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Date submitted: 28 Nov 2006 Electronic form version 1.4