Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Properties of vortex clusters and intercluster interaction in type-II and type-1.5 two-band superconductors and type-I/type-II superconducting bilayers[1] JOHAN CARLSTROM, KTH Stockholm, JULIEN GARAUD, UMass Amherst, EGOR BABAEV, University of Massachusetts Amherst and KTH Stockholm — We discuss magnetic flux-carrying vortex states in multiband type-II and type-1.5 superconductors and interlaced type-I/type-II superconducting multilayers. Especially we focus on the case where there is a substantial disparity in characteristic variations of superfluid densities in bands or superconducting layers. We discuss the properties of vortex clusters in the type-1.5 regime both in the cases of strong and weak interband Josephson coupling, including interaction between vortex clusters with different numbers of vortices.

[1]Supported by NSF CAREER Award DMR-0955902, Knut and Alice Wallenberg Foundation through the Royal Swedish Academy of Sciences andSwedish Research Council.

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Date submitted: 22 Dec 2010 Electronic form version 1.4