

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Magnetic structures in YBCO single crystals under tilted magnetic fields VITALII VLASKO-VLASOV, ULRICH WELP, ALEXEI KOSHELEV, WAI KWOK, Argonne National Laboratory — We study magnetic flux distributions in YBCO single crystals remagnetized by magnetic fields of different orientations using the magneto-optic indicator technique. Application of the perpendicular field to the crystals cooled in the in-plane magnetic field, application of the in-plane field to the crystals cooled in the normal magnetic field, and remagnetization by magnetic field tilted to the sample surface result in unusual quasiperiodic vortex structures. These strongly inhomogeneous vortex patterns can be associated with the flux cutting and strong anisotropy of the vortex kink motion depending on the trapped flux and external field orientations. We discuss the effect of resulting inhomogeneous current distributions on the current carrying ability of the YBCO coated conductors. Work supported by the US DoE-BES funded Energy Frontier Research Center and by Department of Energy, Office of Science, Office of Basic Energy Sciences under Contract No. DE-AC02-06CH11357.

Vitalii Vlasko-Vlasov
Argonne National Laboratory

Date submitted: 19 Nov 2012

Electronic form version 1.4