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Anomalous angular dependence of the c-axis resistivity in $Bi_2Sr_2CaCu_2O_{8+x}$ mesas[1] TAKASHI TACHIKI, MSD, Argonne Nat. Lab. and Dept. of E & E Eng., Nat. Defense Academy, Japan, L. OZYUZER, MSD, Argonne Nat. Lab. and Dept. of Phys., Izmir Inst. of Technol., Turkey, C. KURTER, MSD, Argonne Nat. Lab. and Illinois Inst. of Technol., U. WELP, A. KOSHELEV, D. HINKS, K. GRAY, W. KWOK, MSD, Argonne Nat. Lab., K. KADOWAKI, Institute of Mat. Sci., Univ. of Tsukuba, Japan — We study flux-flow properties of Josephson vortices in highly anisotropic high-T_c superconductors. The flux-flow resistance in pristine and $HgBr_2$-intercalated $Bi_2Sr_2CaCu_2O_{8+x}$ (BSCCO) single crystals was measured as a function of the angle between the ab-plane and an applied magnetic field. These samples have a mesa structure with the in-plane area of 200 μm x 20 μm and consist of 50 – 70 intrinsic junctions. For both pristine and intercalated BSCCO, a sharp resistance peak was observed within a threshold angle of a few degrees. However, while the angle decreases with increasing field for the pristine BSCCO, the intercalated BSCCO shows the opposite field dependence. We interpret this peak and its field dependence as an interplay between two effects: initial penetration of pancake vortices and extra damping of Josephson-vortex lattice induced by pancake vortices.

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