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**Angular dependence of the critical current and vortex phase diagram in Co-doped BaFe<sub>2</sub>As<sub>2</sub> films with strong pinning** B. MAIOROV, Los Alamos National Laboratory, NM 87544, T. KATASE, H. HIRAMATSU, H. HOSONO, Tokyo Institute of Technology, Yokohama, Japan, L. CIVALE, Los Alamos National Laboratory, NM 87544 — Studying the angular dependence of the critical current density ( $J_c$ ) as a function of temperature in superconductors with complex pinning landscapes is very important both from the technical and fundamental points of view. The low anisotropy found in the Ba122 family tightened with strong naturally grown pinning make Ba122 films very attractive. It is also interesting to understand the different factors affecting vortex pinning in different regimes of temperature ( $T$ ) and magnetic field ( $H$ ). We present results on iron-arsenide superconducting films with varied pinning landscapes composed of columnar defects and nanoparticles. We analyze different field and angular regimes. We find that the naturally grown correlated defects found in Co-doped BaFe<sub>2</sub>As<sub>2</sub> films are effective up to very high fields ( $\mu_0 H = 15\text{T}$ ) affecting a very wide region of the angular phase diagram. We also investigate the effects of film's thickness and the addition of defects produced by irradiation

Boris Maiorov  
Los Alamos National Laboratory

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