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Combination of strong natural and artificial pinning centers in Co-doped $BaFe_2As_2$ films[1] BORIS MAIOROV, Los Alamos National Laboratory, NM 87545, T. KATASE, Tokyo Institute of Technology, Yokohama, Japan, M. WEIGAND, I. USOV, N. HABERKORN, Los Alamos National Laboratory, NM 87545, H. HIRAMATSU, H. HOSONO, Tokyo Institute of Technology, Yokohama, Japan, L. CIVALE, Los Alamos National Laboratory, NM 87545 — 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 from technical and fundamental points of view. The low anisotropy found in the $BaFe_2As_2$(Ba122) family together with strong naturally grown pinning make Ba122 films very attractive. We present results on Ba122 superconducting films with naturally grown correlated defects with the addition of different amounts of random defects produced by consecutive irradiations with 3MeV protons. We analyze the changes of J_c, H_{irr} and H_{c2} as a function of field, angle and temperature. Irradiations produce a small decrease in critical temperature (T_c) of 0.5 K per 1x10^{16} cm^{-2}dose. After the irradiation, the pinning near the c-axis remains almost unchanged (except for the effects from the decrease of T_c). On the other hand, an increase of J_c is observed for other field orientations indicating and stronger random pinning contribution, particularly at high fields.

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