

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Dynamics of Vortices in Heavy-ion Irradiated Co-doped BaFe_2As_2 ¹ TSUYOSHI TAMEGAI, TOSHIHIRO TAEN, HIDENORI YAGYUDA, TOMOTAKA TANIGUCHI, SHYAM MOHAN, YASUYUKI NAKAJIMA, Dep. of Appl. Phys., The Univ. of Tokyo, SATORU OKAYASU, Advanced Science Research Center, Japan Atomic Energy Agency, MASATO SASASE, The Wakasa-wan Energy Research Center, Research & Development Group, HISASHI KITAMURA, TAKESHI MURAKAMI, National Institute of Radiological Sciences, TADASHI KAMBARA, Nishina Center for Accelerator Based Science, RIKEN, YASUYUKI KANAI, IThe Institute of Physical and Chemical Research, RIKEN — Effects of heavy-ion irradiation on the critical current density, J_c , and vortex dynamics are investigated in $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ irradiated by heavy- ions of various kinds. Irradiations induce a large enhancement of J_c in the case of 200 MeV Au creating nearly continuous columnar tracks. On the other hand, in the case of 800 MeV Xe irradiation, despite the enhancement of J_c , clear columnar defects are not observed. In the case of 2.6 GeV U irradiation, new types of structure appears in the M - H loop at high matching field. We also discuss the behavior of vortex dynamics in the irradiated $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$.

¹This work is partly supported by JST, Transformative Research-Proiect on Iron Pnictides (TRIP)

Tsuyoshi Tamegai
Dep. of Appl. Phys., The Univ. of Tokyo

Date submitted: 24 Nov 2010

Electronic form version 1.4