

Abstract Submitted  
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**Investigation of Vortex Pinning Anisotropy in the High Temperature Superconductor  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$** <sup>1</sup> ANDRA PETREAN-TRONCALLI, Austin College, LISA PAULIUS, Western Michigan University, HEATHER QUANTZ, Austin College, VALENTINA TOBOS, Lawrence Technological University, WAI -K KWOK, Argonne National Laboratory — Columnar defects have proven to be highly effective at pinning vortices, but most studies have been performed with the defects oriented either *perpendicular* or at large angles relative to the superconducting Cu-O planes. These studies have shown that the intrinsic pinning anisotropy of the crystal can actually be reversed by sufficiently strong columnar defects oriented *perpendicular* to the Cu-O planes. We have preliminary data that indicate that the pinning anisotropy is actually enhanced for columnar defects introduced *parallel* to the superconducting Cu-O planes. A single crystal of  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  was polished down to a narrow width of 27  $\mu\text{m}$ , allowing heavy ions to penetrate the crystal along the ab-plane. The crystal was irradiated with 1.4 GeV  $^{208}\text{Pb}^{56+}$  ions to a dose matching field of 1T.

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