

Abstract Submitted
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**Investigation of Anisotropic
Magnetic Properties in $(\text{BiPb})_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ Superconducting Crystals**

RODOLFO LOPEZ, JR., American Physical Society, STEVEN LEE, GREGORIO FRANCO, JR., JOSH CASARA, Society of Physics Students, LU ZHANG — High quality single crystals of $(\text{BiPb})_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ were grown by a self flux method. The superconducting transition temperatures are 92-96K with transition widths of 2-4K. Hysteresis loops and rates of magnetic relaxation were measured at different field orientations to study the critical state behavior and thermally activated flux creep. The large magnetic relaxation exhibits a logarithmic time-dependence indicative of substantial flux creep due to thermally-induced flux motion. Critical current densities were analyzed using the extended 2-dimensional Bean's Model at high field remanence. These results demonstrate a relatively strong anisotropy in this material. The extended flux creep model was employed to interpret the field dependent relaxation rates. The thermally activated energy barriers indicate that the flux creep is parallel to the ab plane in both $\text{H}||c$ and $\text{H}\perp c$ configurations.

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