

Abstract Submitted
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Critical current density distribution in YBCO coated conductors measured with a “magnetic knife”¹ JENS HÄNISCH, STEPHEN P. ASHWORTH, FRED M. MUELLER, YATES COULTER, VLADIMIR MATIAS, Superconductivity Technology Center, Los Alamos National Laboratory — We present a simple and straightforward tool for investigating the spatial J_c distribution in YBCO coated conductors. The samples were prepared by co-evaporation and PLD on IBAD and RABiTS templates. The tool we have used is a “magnetic knife” [1] consisting of several $\text{Nd}_2\text{Fe}_{14}\text{B}$ permanent magnets in close proximity to the superconducting tape. A $200\ \mu\text{m}$ wide zone of low magnetic field B is embedded in a background field of around 600 mT. This region is scanned across the sample, in the direction perpendicular to the direction of tape current flow. The critical current for each position is measured with a four-point technique at 75 K (liquid N_2 at ambient pressure). The raw data are deconvoluted with a Fourier inversion method. Several techniques for obtaining the magnetic field distribution in the magnetic knife (simulations and measurements) will be compared and discussed. Finally, differences in the current distributions for different coated conductor samples will be discussed. [1] ten Haken et al., Physica C 334, 163 (2000)

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