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Correlation of Vortex Pinning with Topography in a Thin Film YBCO Sample N.C. KOSHNICK, O.M. AUSLAENDER, J.E. HOFFMAN, E. STRAVER, K.A. MOLER, Department of Applied Physics and Gebelle Laboratory for Advanced Materials, Stanford University, R.A. HUGHES, J.S. PRESTON, McMaster University — Understanding the local effects that lead to vortex pinning is an important challenge for the development of high temperature superconductor technologies. We have developed a magnetic force microscope (MFM) that can image an individual vortex and place a bound on its pinning strength. By moving the magnetized cantilever tip closer to the surface, we can enter a regime where atomic forces dominate over the magnetic signal, allowing for the correlation of the pinned vortex locations with a map of the topographic features. We will describe the implementation of this technique on a superconducting YBCO film.

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