

Abstract Submitted  
for the MAR13 Meeting of  
The American Physical Society

**Hall effect and ghost critical field in disordered superconducting films** NICHOLAS BREZNAY, AHARON KAPITULNIK, Stanford University — abstract-We observe a peak in the Hall resistance occurring at a magnetic field  $H^*$  in superconducting disordered thin films. Below the zero-field transition temperature  $T_{c0}$ ,  $H^*$  exactly tracks the upper critical field,  $H_{c2}$ , all the way to zero temperature. Near  $T_{c0}$ ,  $H^*$  becomes vanishingly small, while above  $T_{c0}$  the peak again scales to higher fields as the temperature is further increased. Companion measurements of the fluctuation magnetoconductivity at temperatures above  $T_{c0}$  allow precise and independent determination of the 'ghost critical field'  $H_{gc}$ , the field scale for suppression of superconducting fluctuations above  $T_{c0}$ . We find that  $H^*$  and  $H_{gc}$  are distinct quantities but show similar scaling above  $T_{c0}$ , and compare these results to similar findings in studies of the Nernst effect in thin films [A. Pourret et al. Phys. Rev. B 76, 214504, (2007)] and high-temperature superconductors [J. Chang et al. Nature Physics 8, 751 (2012)].

Nicholas Breznay  
Stanford University

Date submitted: 28 Nov 2012

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