

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Scanning Tunneling Spectroscopy Studies of Current-Carrying Superconductors¹ J. NGAI, P. MORALES, J. Y. T. WEI, Department of Physics, University of Toronto — Understanding how a superconducting order parameter evolves in the current-carrying state is of fundamental physical importance. In this talk we present novel applications of scanning tunneling spectroscopy (STS) on current-carrying superconductors, with the current either directly applied [D. Zhang et al., Phys. Rev. B 70, 172508 (2004)] or induced by a magnetic field [G. Deutscher, Rev. Mod. Phys. 77, 109 (2005)]. We will discuss STS measurements on YBa₂Cu₃O₇ thin-film strips under directly-applied current, showing suppression of the d-wave Andreev states [J. Ngai et al. Phys. Rev. B 72, 054513 (2005)]. We will also discuss more recent STS experiments on high-T_c and other superconductors, performed under magnetic field-induced currents.

¹This work was supported by NSERC, CFI/OIT, CIAR, Walter C. Sumner Foundation

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Date submitted: 30 Nov 2005

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