

# Spin Injection Devices of YBCO/Au/Co Tunnel Junction

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We report the strong suppression of  $\text{YBa}_2\text{Cu}_3\text{O}_y$  (YBCO) supercurrent by injection of spin-polarized quasiparticles (QP) using a cobalt ferromagnetic injector. The injection of spin-polarized QP generates a substantially larger nonequilibrium population as compared with that of an unpolarized injection current. The observed current gain depends on the thickness of Au interlayer ( $d_{\text{Au}}$ ) and is directly related to the nonequilibrium magnetization due to spin relaxation effects. For  $d_{\text{Au}} = 15$  nm, the tunnel characteristic a YBCO/Au/Co junction exhibited a zero bias conductance peak, which may be interpreted by spin scattering processes at a ferromagnetic/*d*-wave superconductor junction.

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