The Superconducting State of Pr$_{2-x}$Ce$_x$CuO$_4$: Tunneling study$^1$

YORAM DAGAN, Tel Aviv University, ROY BECK, University of California, Santa-Barbara, RICHARD GREENE, University of Maryland — We report a tunneling study between the electron-doped high T$_c$ cuprate superconductor Pr$_{2-x}$Ce$_x$CuO$_4$ and Lead as a function of doping, temperature and magnetic field. The temperature dependence of the gap follows the BCS prediction. Our data fits a nonmonotonic $d$-wave order parameter for the whole doping range studied. From our data we are able to conclude that the electron-doped cuprate Pr$_{2-x}$Ce$_x$CuO$_4$ is a weak coupling, BCS superconductor in the dirty limit. Phys. Rev. Lett. 99, 147004 (2007)

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