STM Spectroscopy of Electron Doped Pr$_{1-x}$LaCe$_x$CuO$_{4-\delta}$

FRANCIS NIESTEMSKI, SHANKAR KUNWAR, VIDYA MADHAVAN, Department of Physics, Boston College — We present high resolution scanning tunneling spectroscopy (STS) of electron doped Pr$_{1-x}$LaCe$_x$CuO$_{4-\delta}$. We focus on $x=0.12$ doping ($T_c \sim 25$K) at various temperatures at and above 2 K. Our data reveal both small and large gap behavior in the same sample. The magnitude of the smallest measured gap is consistent with superconductive gaps observed by other probes. The larger gaps are of varying magnitudes ranging from 10meV to 100meV or greater. We will discuss our observations in light of experimental data on similar PLCCO samples from ARPES and neutron scattering.

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