Imaging the Vortex Density of States in Bi$_{2}$Sr$_{2}$CaCu$_{2}$O$_{8+x}$\textsuperscript{1} Y\textsc{i} Y\textsc{i}n, M. Z\textsc{e}ch, T. L. W\textsc{illiams}, Harvard University, G\textsc{enda} Gu, Brookhaven National Laboratory, J. E. H\textsc{offman}, Harvard University — We use a low temperature scanning tunneling microscope (STM) to image vortices in the high temperature superconductor Bi$_{2}$Sr$_{2}$CaCu$_{2}$O$_{8+x}$, in magnetic fields up to $9T$. We locate the vortices via their increased local density of states near $\pm 7$ meV. We investigate the dependence of the vortex halo on several parameters, including applied magnetic field and proximity to surface impurities.

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