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Low Temperature STM of the Iron Chalcogenide $\text{Fe}_{1+y}\text{Se}_{1-x}\text{Te}_x$

FRANCIS NIESTEMSKI, MIT and Boston College, YOSHINORI OKADA, MIT, XIANGLIN KE, Oak Ridge National Laboratory, VIDYA MADHAVAN, Boston College — The recent years have shown great diversity in high temperature superconductors. Whereas copper was once thought to be essential to the physics it is now seen that high temperature superconductivity can exist with iron based compounds. To gain further insight into this phenomena it is important to study these iron based materials of both high and low superconducting transition temperature. We examine the chalcogenide material $\text{Fe}_{1+y}\text{Se}_{0.64}\text{Te}_{0.36}$ with a low-temperature ultra-high vacuum scanning tunneling microscope (STM) at 4 K. We discuss our results on the topography, spectra and energy mapping of this novel superconductor.

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