Abstract Submitted
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Evolution of the Charge Density Wave state in Cu_xTiSe_2[1] MARIA IAVARONE, ROBERTO DI CAPUA[2], XIN ZHANG, MARYAM GOLALIKHANI, STEVEN MOORE, Physics Department, Temple University, Philadelphia, PA 19122, USA, GORAN KARAPETROV, Physics Department, Drexel University, Philadelphia PA 19104, USA — 1T-$TiSe_2$ is a quasi two-dimensional CDW material showing a 2x2x2 superlattice modulation below 200 K. Upon Cu doping the CDW is suppressed and superconductivity is induced. We present scanning tunneling microscopy and spectroscopy measurements of the charge-density wave state in 1T-$TiSe_2$, $Cu_{0.05}TiSe_2$ and $Cu_{0.06}TiSe_2$ single crystals. Topography images at 4.2 K reveal that the charge density waves are present in all samples studied, although the amplitude of the charge modulation decreases with the Cu-doping. Moreover, the chiral phase of the charge density wave is preserved also in Cu-doped samples. Tunneling spectroscopy shows that there is only a partial gap in the pure compound, with bands crossing the Fermi surface. In the Cu-doped samples the system becomes more metallic due to the increase of the chemical potential.

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