

Abstract Submitted
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ARPES study of FeTe single crystal and FeTeO_x films¹ YUEFENG NIE, Department of Physics, University of Connecticut, Storrs, CT 06269, MARTIN MANSSON², YASMINE SASSA, CHRISTOF NIEDERMAYER, Laboratory for Neutron Scattering, ETH Zürich and Paul Scherrer Institute, PSI, Switzerland, GENDA GU, Condensed Matter Physics and Materials Science, Brookhaven National Laboratory (BNL), Upton, NY 11973, JOSEPH BUDNICK, BARRETT WELLS, Department of Physics, University of Connecticut, Storrs, CT 06269 — We have performed an ARPES investigation of FeTe single crystals, films, as well as the novel superconducting film FeTeO_x. Our results from the single crystals reflect the previously reported Fermi surface pocket around the X-point $[(\pi,0)]$, possibly connected to a spin-density wave (SDW) order [Y. Xia, PRL 103, 037002 (2009)] . Unlike this previous report, our results also reveal the presence of an energy gap which would be expected from the SDW order. The temperature dependence shows that the gap closes in the rough vicinity of the magnetic transition temperature, supporting its interpretation as reflecting the SDW state. We were able to produce an ARPES quality surface by cleaving films of FeTe and FeTeO_x, with the FeTe films showing similar features as the bulk.

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