

Abstract Submitted
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Complete Fermi Surface and Surface State in WTe₂ Revealed by High-Resolution Laser-Based Angle-Resolved Photoemission Spectroscopy CHENLU WANG, YAN ZHANG, GUODONG LIU, Institute of Physics, Chinese Academy of Sciences, ZHIQIANG MAO, Department of Physics and Engineering Physics, Tulane University, SHAOLONG HE, LIN ZHAO, Institute of Physics, Chinese Academy of Sciences, CHUANGTIAN CHEN, ZUYAN XU, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, XINGJIANG ZHOU, Institute of Physics, Chinese Academy of Sciences — WTe₂, an unique transition metal dichalcogenide, attracts considerable attention recently, which shows an extremely large magnetoresistance (MR) with no saturation under very high field. In this talk, we will present our high resolution laser-ARPES study on WTe₂. Our distinctive ARPES system is equipped with the VUV laser and the time-of-flight (TOF) electron energy analyzer, being featured by super-high energy resolution, simultaneous data acquisition for two-dimensional momentum space and much reduced nonlinearity effect. With this advanced apparatus, the very high quality of electronic structure data are obtained for WTe₂ which gives a full picture of the Fermi surface. Meanwhile, the obtained systematic temperature dependence of its electronic state leads us to a better understanding on the origin of large magnetoresistance in WTe₂.

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