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Observation of Fermi arc spin texture in TaAs TIAN QIAN, BAIQING LV, HONGMING WENG, GENFU CHEN, HONG DING, Institute of Physics, Chinese Academy of Sciences — We have investigated the spin texture of surface Fermi arcs in the recently discovered Weyl semimetal TaAs using spin- and angle-resolved photoemission spectroscopy. The experimental results demonstrate that the Fermi arcs are spin-polarized. The measured spin texture fulfills the requirement of mirror and time reversal symmetries and is well reproduced by our first-principles calculations, which gives strong evidence for the topologically non-trivial Weyl semimetal state in TaAs. The consistency between the experimental and calculated results further confirms the distribution of chirality of the Weyl nodes determined by first-principles calculations.

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