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Angle-resolved photoemission study on potential topological insulator $ZrTe_5$ HONGYU XIONG, Stanford University and SLAC National Accelerator Laboratory, JONATHAN SOBOTA, Stanford University, SLAC National Accelerator Laboratory, and Lawrence Berkeley National Laboratory, SHUOLONG YANG, Stanford University and SLAC National Accelerator Laboratory, DOMINIK LEUENBERGER , HADAS SOIFER, SLAC National Accelerator Laboratory, YAN-FENG CHEN, XU HAN, SI-YUAN YU, MING-HUI LU, Nanjing University, MAKOTO HASHIMOTO, DONGHUI LU, PATRICK KIRCHMANN, SLAC National Accelerator Laboratory, ZHI-XUN SHEN, Stanford University and SLAC National Accelerator Laboratory — $ZrTe_5$ is a layered-structure material which is predicted to exhibit the quantum spin hall effect in its monolayer limit. Bulk $ZrTe_5$ material is of scientific interest as well, as it might lie within the transition boundary between weak and strong topological insulator. We are using angle-resolved photoemission spectroscopy (ARPES) to investigate the band structure of bulk $ZrTe_5$. Synchrotron data with varied photon energies shows little k_z dependence, which indicates a quasi-two-dimensional band structure; in addition, we observe circular dichroism, which suggests possible spin polarization. We are also working on time-resolved ARPES measurements, hoping to reveal the band structure above the Fermi level, which might give information about the materials topological properties.

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