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【616】Electronic and spin structure of the nodal-line semimetals ZrSiX (X=Se,Te)

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We report a comprehensive study of the low-energy bandstructure of the nodal-line semimetals ZrSiX (X = Se,Te), combining angle-resolved photoemission spectroscopy (ARPES) and first-principle calculations. We discriminate between the existence of bulk and surface states, whose spin texture is revealed by the means of spin-resolved ARPES and confirmed by our calculations. Interestingly, a strong spin polarization of the metallic bulk states is predicted in the surface-projected electronic structure of the centrosymmetric ZrSiTe. This result is investigated experimentally and discussed in terms of the 'local'inversion asymmetry of the crystal, which enhances the spin-orbit interaction in the layered crystalline structure of this compound.

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