

Abstract Submitted
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Series of alternating states with unpolarized and spin-polarized bands in dimerized IrTe₂ V. KIRYUKHIN, G.L. PASCUT, T. BIROL, S.-W. CHEONG, K. HAULE, Rutgers U., M.J. GUTMANN, ISIS, J.J. YANG, Pohang U. — A series of states with different densities of stripes of Ir dimers is investigated using x-ray diffraction and density functional theory in layered nonmagnetic metal IrTe₂. With decreasing temperature, structures with and without inversion symmetry alternate. In non-centrosymmetric states, spin-orbit coupling splits the electronic energy bands into spin-polarized pairs. Factors affecting the stability of the observed dimerized states are established, and it is conjectured that an infinite series of alternating states with and without polarized bands is realized in IrTe₂. Switching dimerized states with different symmetries by changing temperature or strain enables control of band polarization, adding a new tool for spintronics and valleytronics research.

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