

ARPES Study of Altermagnetic Band Splittings in CrSb and $\text{Cs}_{1-\delta}\text{V}_2\text{Te}_2\text{O}$

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Altermagnetism attracts considerable interests recently. Here, using synchrotron-based and spin-resolved ARPES measurements combined with model calculations, we uncover a large altermagnetic splitting of ~ 1.0 eV near E_F in bulk CrSb [1]. The large splitting in metallic CrSb, together with its high T_N (up to 705 K) and simple spin configuration, paves the way for exploring emergent phenomena and spintronic applications. We also uncover a compensated form of altermagnetism, named hidden altermagnetism, in layered $\text{Cs}_{1-\delta}\text{V}_2\text{Te}_2\text{O}$ [2], which consists of alternating layers of two-dimensional d-wave altermagnets verified by single-crystal neutron scattering. Despite opposite spin polarizations for adjacent layers, appreciable local spin polarizations can still be observed in spin-resolved ARPES measurements, thanks to its two-dimensional electronic structure. The discovery of hidden altermagnetism broadens the scope of unconventional magnetism.

References:

[1] Guowei Yang et al., Nat. Commun. 16, 1442 (2025)

[2] Guowei Yang et al., arXiv: 2512.00972.