

Topological and ferromagnetic properties of iron-based van der Waals metals

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Topological semimetals, new states of matters whose low energy electronic structure possesses several band contact points or lines, are generally expected to exhibit intriguing topological responses. Up to now, most of the studies on topological semimetals are limited to non-magnetic materials with time-reversal symmetry. However, magnetic materials can also be endowed with topological band structures in which the interplay of magnetism and band topology can generate novel correlated topological phenomena. In this talk, I will introduce iron-based van der Waals (vdW) materials, where combination of magnetism, spin-orbit interaction, and topological band structures gives rise to unusual physical properties and magnetic tunability [1,2]. This demonstrates that topological and ferromagnetic vdW materials have great potential for various spin-dependent electronic functionalities

References

- [1] K. Kim et al. Nat. Mater. 17, 794-799 (2018).
- [2] J. Seo et al. unpublished