

Superconductivity and Flat Bands at the Fermi Level

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I discuss a few interesting superconductors with either very flat bands at the Fermi level or suspected flat bands at the Fermi level, with measurements from high resolution ARPES. I will focus on the case YFe_2Ge_2 that we showed has very heavy bands ($m_{\text{eff}} \sim 25m_e$) within $\sim 10\text{meV}$ of the Fermi level, which is extremely high for a non-f electron system [1]. I will discuss the origins and implications of such flat bands in these and other materials.

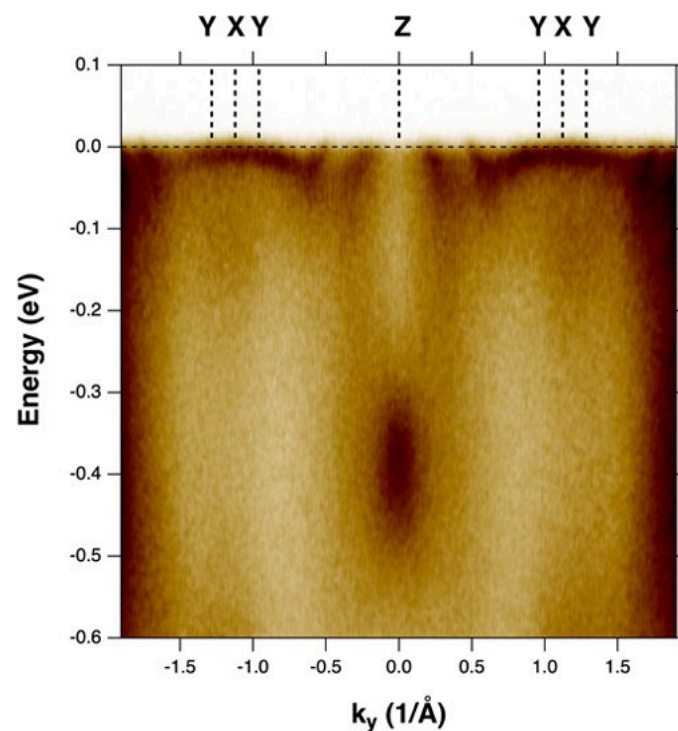


FIGURE 1. Very flat bands at E_F in the anomalous superconductor YFe_2Ge_2 .

REFERENCES

1. R. Kurlito, D.S. Dessau et al., "Flat Bands at the Fermi Level in Unconventional Superconductor YFe_2Ge_2 " arXiv:2311.09492 (2023)