

Majorana or not? A closer look at Fe(Se,Te)

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The search for Majorana fermions in condensed matter systems has resulted in a number of putative claims of their discovery. If true, these exotic particles that are their own anti-particle could be exploited for error-free quantum computing, turning a fundamental curiosity into a billion dollar business. Unambiguous proof, however, is thus far lacking and challenging to provide. A recently proposed method to distinguish Majorana bound states from more conventional Andreev-, and Yu-Shiba-Rusinov states is to measure their shot noise [1]. Using our MHz enabled scanning tunnelling microscope [2], we set out to investigate three possible Majorana sightings in Fe(Se,Te): zero energy bound states at single Fe impurities [3], linear sub-gap density of states at 1D defects [4] and vortex cores. In this talk I will discuss our findings.

REFERENCES

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