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The very different superconductivity of uranium ditelluride

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Uranium ditelluride hosts an unusual form of spin-triplet superconductivity. Much current research is directed towards understanding the detailed nature of the superconducting state and whether it could eventually be used in fault-tolerant quantum computing. This is an exciting possibility, yet uranium ditelluride is arguably even more fundamentally interesting because applying pressure or magnetic field leads to other forms of superconductivity. The high magnetic field superconductivity, in particular, challenges our theoretical understanding of the stability of superconductors. I will discuss the interesting history of this material and highlight the outstanding questions that remain to be answered.

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