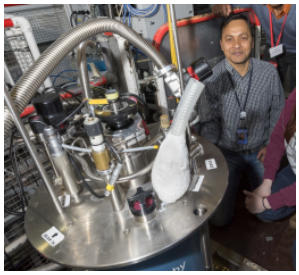

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Muon-spin relaxation studies of time-reversal symmetry breaking in superconductors

Tuesday, 12 September 2023 15:00 (20 minutes)

Time-reversal symmetry breaking (TRSB) in superconductors is manifested by the spontaneous appearance of small magnetic fields in the superconducting state, and can be detected using techniques such as muon-spin relaxation (μSR) or measurements of the Kerr effect. The most notable examples of such superconductors are a handful of strongly correlated magnetic materials, such as Sr2RuO4 and some U-based heavy fermions, where unconventional superconducting pairing states are readily anticipated. However, in recent years TRSB has been found in a number of weakly-correlated superconductors which otherwise appear to have conventional properties, such as a fully open superconducting gap.

Here I will discuss two studies examining TRSB in superconductors using SR. We recently found that CaPtAs

The kagome lattice superconductors (K, Rb, Cs)V3Sb5 have attracted tremendous attention, in part due them

References

[1] Sudeep Kumar Ghosh, Michael Smidman, Tian Shang James F Annett, Adrian D Hillier, Jorge Quintanilla and Huiqiu Yuan, J. Phys.: Condens. Matter 33 033001 (2021).
[2] Wu Xie, PeiRan Zhang, Bin Shen, WenBing Jiang, GuiMing Pang, Tian Shang, Chao Cao, Michael Smidman and HuiQiu Yuan, Science China Physics, Mechanics & Astronomy, 63, 237412 (2020).
[3] T. Shang, M. Smidman, A. Wang, L.-J. Chang, C. Baines, M. K. Lee, Z. Y. Nie, G. M. Pang, W. Xie, W. B. Jiang, M. Shi, M. Medarde, T. Shiroka and H. Q. Yuan, Phys. Rev. Lett. 124, 207001 (2020)
[4] Zhaoyang Shan, Pabitra K. Biswas, Sudeep K. Ghosh, T. Tula, Adrian D. Hillier, Devashibhai Adroja, Stephen Cottrell, Guang-Han Cao, Yi Liu, Xiaofeng Xu, Yu Song, Huiqiu Yuan, and Michael Smidman, Phys. Rev. Research 4, 033145 (2022)

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