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Title:	Spectroscopic evidence of multigap superconductivity in noncentrosymmetric AuBe
Authors:	Datta, Soumya (/jspui/browse?type=author&value=Datta%2C+Soumya) Vasdev, Aastha (/jspui/browse?type=author&value=Vasdev%2C+Aastha)
Keywords:	Spectroscopic ultigap superconductivity
Issue Date:	2022
Publisher:	American Physical Society
Citation:	Physical Review B, 105(10), 104505.
Abstract:	AuBe is a chiral, noncentrosymmetric superconductor with transition temperature $T_C \approx 3.25$ K. The broken inversion symmetry in its crystal structure makes AuBe a possible candidate to host a mixed singlet-triplet pairing symmetry in its superconducting order parameter (Δ). This possibility was investigated by transport, thermodynamic, and muon-spin rotation/relaxation experiments in AuBe. However, this issue was not addressed using direct spectroscopic probes so far. In addition, certain ambiguities exist in the description of superconductivity in AuBe based on μ SR experiments reported earlier. Here we report scanning tunneling spectroscopy (STS) on AuBe down to 300 mK. We found a signature of two superconducting gaps (with $2\Delta_1/k_B T_C = 4.37$ and $2\Delta_2/k_B T_C = 2.46$, respectively) and a clean BCS-like temperature dependence of both the gaps. We have also performed band structure calculations to identify the different bands that might give rise to the observed two-gap superconductivity in AuBe.
Description:	Only IISER Mohali authors are available in the record.
URI:	https://doi.org/10.1103/PhysRevB.105.104505 (https://doi.org/10.1103/PhysRevB.105.104505) http://hdl.handle.net/123456789/4975 (http://hdl.handle.net/123456789/4975)
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