

Abstract Submitted
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Transport spectroscopy on trapped superconducting nano-islands of Lead ANSHU SIROHI, PREETHA SAHA, SIRSHENDU GAYEN, AVTAR SINGH, GOUTAM SHEET, IISER Mohali, SPIN LAB GROUP TEAM — Mesoscopic point contacts on elemental lead (Pb) show dramatically higher critical magnetic field (up to several Tesla) than bulk Pb ($H_c = 800$ Oe). Due to this, when a magnetic field slightly higher than 800 Oe is applied on a Pb-point contact, the bulk of Pb becomes non-superconducting and a small mesoscopic superconducting region is trapped under the point contact which loses superconductivity at a much higher magnetic field. From detailed magnetic field dependent transport spectroscopy (Andreev reflection) of such nano-scale islands of Pb, we have found signature of an unconventional component in the superconductivity of Pb which might emerge due to high spin-orbit coupling in Pb.

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