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| Title: | Enhanced zero-bias conductance peak and splitting at mesoscopic interfaces between an s-wave superconductor and a 3D Dirac semimetal |
| Authors: | Aggarwal, L. (/jspui/browse?type=author&value=Aggarwal%2C+L.) Gayen, Sirshendu (/jspui/browse?type=author&value=Gayen%2C+Sirshendu) Das, Shekhar (/jspui/browse?type=author&value=Das%2C+Shekhar) Sheet, G. (/jspui/browse?type=author&value=Sheet%2C+G.) |
| Keywords: | Metals Mesoscopic Cd3As2 |
| Issue Date: | 2016 |
| Publisher: | American Institute of Physics |
| Citation: | Applied Physics Letters, 109(25). |
| Abstract: | Mesoscopic point contacts between elemental metals and the topological 3D Dirac semimetal Cd3As2 have been recently shown to be superconducting with unconventional pairing while Cd3As2 itself does not superconduct. Here we show that the same superconducting phase at mesoscopic interfaces on Cd3As2 can be induced with a known conventional superconductor Nb where a pronounced zero-bias conductance peak is observed which undergoes splitting in energy under certain conditions. The observations are consistent with the theory of the emergence of Andreev bound states due to the presence of a pair potential with broken time reversal symmetry. The data also indicate the possibility of Majorana bound states as expected at the interfaces between s-wave superconductors and topologically non-trivial materials with a high degree of spin-orbit coupling. |
| Description: | Only IISERM authors are available in the record. |
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