Title:	Tip-induced superconductivity coexisting with preserved topological properties in line-nodal semimetal ZrSiS
Authors:	Aggarwal, L. (/jspui/browse?type=author&value=Aggarwal%2C+L.) Aslam, M. (/jspui/browse?type=author&value=Aslam%2C+M.) Gayen, Sirshendu (/jspui/browse?type=author&value=Gayen%2C+Sirshendu) Sheet, G. (/jspui/browse?type=author&value=Sheet%2C+G.)
Keywords:	Superconductivity Semimetal ZrSiS Topological properties
Issue Date:	2019
Publisher:	IOP Publishing
Citation:	Journal of Physics Condensed Matter, 31(48).
Abstract:	ZrSiS was recently shown to be a new material with topologically non-trivial band structure that exhibits multiple Dirac nodes and a robust linear band dispersion up to an unusually high energy of 2 eV. Such a robust linear dispersion makes the topological properties of ZrSiS insensitive to perturbations like carrier doping or lattice distortion. Here, we show that a novel superconducting phase with a remarkably high of 7.5 K can be induced in single crystals of ZrSiS by a non-superconducting metallic tip of Ag. From first-principles calculations, we show that the observed superconducting phase might originate from a dramatic enhancement of density of states due to the presence of a metallic tip on ZrSiS. Our calculations also show that the emerging tip-induced superconducting phase co-exists with the well preserved topological properties of ZrSiS.
Description:	Only IISERM authors are available in the record.
URI:	https://iopscience.iop.org/article/10.1088/1361-648X/ab3b61 (https://iopscience.iop.org/article/10.1088/1361-648X/ab3b61) http://hdl.handle.net/123456789/1858 (http://hdl.handle.net/123456789/1858)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need to add pdf.odt (/jspui/bitstream/123456789/1858/1/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text	View/Open (/jspui/bitstream/12345

Show full item record (/jspui/handle/123456789/1858?mode=full)
(/jspui/handle/123456789/1858/statistics)