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Title:	Enhanced, homogeneously type-II superconductivity in Cu-intercalated PdTe2
Authors:	Vasdev, Aastha (/jspui/browse?type=author&value=Vasdev%2C+Aastha) Sirohi, Anshu (/jspui/browse?type=author&value=Sirohi%2C+Anshu) Sheet, G. (/jspui/browse?type=author&value=Sheet%2C+G.)
Keywords:	Nature Magnetic properties Dirac semimetal
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Abstract:	Though the superconducting phase of the type-II Dirac semimetal PdTe2 was shown to be conventional in nature, the phase continued to be interesting in terms of its magnetic properties. While certain experiments indicated an unexpected type-I superconducting phase, other experiments revealed formation of vortices under the application of magnetic fields. Recently, scanning tunneling spectroscopy (STS) experiments revealed the existence of a mixed phase where type-I and type-II behaviours coexist. Here, based on our temperature and magnetic field dependent STS experiments on Cu-intercalated PdTe2, we show that as the critical temperature of the superconducting phase goes up from 1.7 K to 2.4 K on Cu-intercalation, the mixed phase disappears and the system becomes homogeneously type-II. This may be attributed to an averaging effect caused by quasiparticle exchange between type-I and type-II domains mediated by the Cu atoms and to decreased coherence length due to increased disorder.
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