Title:	Spin-polarized supercurrent through the van der Waals Kondo-lattice ferromagnet Fe 3 GeTe 2
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Abstract:	In the new van der Waals Kondo-lattice Fe 3 GeTe 2 , itinerant ferromagnetism and heavy fermionic behavior coexist. Both the key properties of such a system, namely, a spin-polarized Fermi surface and a low Fermi momentum, are expected to significantly alter Andreev-reflection-dominated transport at a contact with a superconducting electrode and display unconventional proximity-induced superconductivity. We observed interplay between Andreev reflection and Kondo resonance at mesoscopic interfaces between superconducting Nb and Fe 3 GeTe 2 . Above the critical temperature (T c) of Nb, the recorded differential conductance (d I / d V) spectra display a robust zero-bias anomaly which is described well by a characteristic Fano line shape arising from Kondo resonance. Below T c , the Fano line mixes with Andreev-reflection-dominated d I / d V , leading to a dramatic, unconventional suppression of conductance at zero bias. As a consequence, an analysis of the Andreev reflection spectra within a spin-polarized model yields an anomalously large spin polarization which is not explained by the density of states of the spin-split bands at the Fermi surface alone. The results open up the possibilities of fascinating interplay between various quantum phenomena that may potentially emerge at the mesoscopic superconducting interfaces involving Kondo-lattice systems hosting spin-polarized conduction electrons.
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