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Interfacial Spin Filtering at Copper/GaMnAs Contacts¹ KHALID EID, BHIM PAUDEL, GRANT RILEY, Miami University, XINYU LIU, JACEK FURDYNA, University of Notre Dame — We determine the spin injection efficiency using a single ferromagnetic film without the need for a spin-detection layer. This is accomplished by studying the temperature dependence of the specific contact resistance (AR_C) of a copper/GaMnAs contact using a circular transmission line method. AR_C is as low as $5 \times 10^{-8} \Omega \text{cm}^2$, and decreases slowly with decreasing temperature T . However, as T approaches Curie temperature T_C , AR_C abruptly jumps to about double its initial value. We suggest that this behavior arises from the suppression of one of the two spin conduction channels, which results in substantial spin polarization.

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