

Abstract Submitted
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Observation of Josephson coupling through an interlayer of antiferromagnetically ordered chromium MARTIN WEIDES¹, Physics Department, University of California, Santa Barbara, MARIO DISCH, Institute of Solid State Research, Research Centre Juelich, Germany, HERMANN KOHLSTEDT², Christian-Albrechts-Universitaet zu Kiel, Germany, DANIEL BUERGLER, Institute of Solid State Research, Research Centre Juelich, Germany — The supercurrent transport in metallic Josephson tunnel junctions with an additional interlayer made up by chromium, being an itinerant antiferromagnet, was studied. Uniform Josephson coupling was observed as a function of the magnetic field. The supercurrent shows a weak dependence on the interlayer thickness for thin chromium layers and decays exponentially for thicker films. The diffusion constant and the coherence length in the antiferromagnet were estimated. The antiferromagnetic state of the barrier was indirectly verified using reference samples. Our results are compared to macroscopic and microscopic models. [Weides et al., Phys. Rev. B 80, 064508 (2009)]

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