

Abstract Submitted
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The Spin Polarization at the Metal-Insulator Transition R.V.A. SRIVASTAVA, W. TEIZER, Department of Physics, Texas A&M University, College Station, TX 77843, F. HELLMAN, R.C. DYNES, Department of Physics, University of California, Berkeley, CA 94720 — We have extracted the spin-polarized (SP) density of states (DOS) of 3-dimensional amorphous (a-) $\text{Gd}_x\text{Si}_{1-x}$ in the quantum critical regime (QCR) of a magnetic field tunable metal-insulator transition (MIT) by measuring the SP tunneling conductance of an $\text{Al}/\text{Al}_2\text{O}_3/\text{a-Gd}_x\text{Si}_{1-x}$ planar tunnel junction at $T=25\text{mK}$ and $H\leq 3.0\text{T}$. We have applied SP Abrikosov-Gorkov DOS to fit the data, leading to a significant improvement over prior attempts to use a SP Bardeen-Cooper-Schrieffer DOS. We find a large polarization near the MIT of $\text{a-Gd}_x\text{Si}_{1-x}$ ($x=0.14$). We have determined polarization values at different applied magnetic fields allowing for a study of the polarization dependence in the QCR.

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