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deHaas-vanAlphen study of the ungapped Fermi surface in the spin-density-wave system GdSi D.M. SILEVITCH, University of Chicago, YEJUN FENG, Argonne National Laboratory, NAYOON WOO, University of Chicago, A.V. SUSLOV, National High Magnetic Field Laboratory, J.-Q. YAN, University of Tennessee, T.F. ROSENBAUM, University of Chicago — In the rare earth-intermetallic GdSi, the nested Fermi surface of the itinerant electrons induces strong interactions between local moments at the nesting vector, and the ordered local moments in turn provide the necessary coupling for a spin- density wave to form among the itinerant electrons. We examine the Fermi surface in the magnetically ordered phase through deHaas-vanAlphen magnetization measurements. Ungapped portions of the Fermi surface, consisting of tubular structures and discrete pockets, are found to span less than 5% of the cross-sectional area of the first Brillouin zone projected along the three principal axes. The effective masses of orbiting electrons in the different regions of the Fermi surface are determined through the temperature dependence of the oscillation amplitudes. We interpret the implications of these results for magnetoresistive properties and responsiveness to pressure.

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