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Spin-flip scattering times from weak localization studies of $Cu_{93}Ge_4Au_3$ thin films J.J. LIN, S.M. HUANG, National Chiao Tung University — We have fabricated a series of $Cu_{93}Ge_4Au_3$ thin films by sputtering deposition technique. The Ge atoms were introduced to enhance the impurity scattering while the Au atoms were introduced to enhance spin-orbit scattering. The films were either 150 or 200 angstroms thick. The residual resistivities were tuned by adjusting the deposition rate and varied between 14 and 59 $\mu\Omega$ cm. Resistance measurements revealed $\ln T$ behavior below 10 K or so, which could be ascribed to Kondo effect in addition to 2D electron-electron interaction effects. The electron dephasing times have been measured through the weak-localization-induced magnetoresistances. In particular, the spin-flip scattering times have been extracted from the total dephasing times. We will present the temperature and disorder behavior of the spin-flip scattering times and compare them with the Nagaoka-Suhl and recent theoretical calculations.

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