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Quantum oscillations in topological superconductor candidate $Cu_xBi_2Se_3$ BENJAMIN LAWSON, GANG LI, Physics Dept., Univ. of Michigan, YEW SAN HOR, Physics Dept., Missouri S&T, LU LI, Physics Dept., Univ. of Michigan — In $Cu_xBi_2Se_3$, a candidate to be a 3-dimensional topological superconductor, it is of high interest to study how its bulk electronic structure differs from Bi_2Se_3, since the nature of the emergent bulk superconducting order puts constraints on the possible surface state. The de Hass-van Alphen effects is observed on a single crystals of $Cu_{0.25}Bi_2Se_3$ using sensitive torque magnetometry. Our results show that the Cu doping in Bi_2Se_3 increases the carrier density and the effective mass, without increasing the scattering rate or decreasing the mean free path. In addition, the Fermi velocity remains the same in copper doped compound as that in Bi_2Se_3. These results imply that the insertion of Cu does not change the overall band structure and that conduction electrons in Cu doped Bi_2Se_3 sit in the linear Dirac-like band.

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