Transport properties in the vicinity of a Lifshitz transition caused by uniaxial pressure in Sr$_2$RuO$_4$

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We explore the modification of transport properties such as resistivity, thermal conductivity and thermopower of the unconventional superconductor Sr$_2$RuO$_4$ in the normal state under the applied uniaxial pressure. First we restrict to a single band model where uniaxial stress induces a Lifshitz transition from a closed to an open Fermi surface. Using a numerical scheme to solve the Boltzmann transport equations based on a batch approximation of the states near the Fermi surface we are able to take scattering anisotropies properly into account as well as Umklapp scattering effects. Including effects of impurity and electron-electron scattering we analyze and compare our calculations with the anomalous temperature dependence recently be seen in measurements of resistivity and examine the validity of the Mott-formula for the Seebeck coefficient when the band is near the Lifshitz transition.