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Weak-coupling analysis of quasiparticle excitations in strontium ruthenate JOHN DEISZ, TIM KIDD, Department of Physics, University of Northern Iowa — We report FLEX calculations for the quasiparticle properties of pure and electron-doped strontium ruthenate. Through self-consistent calculations of energy- and band-dependent linewidths and effective masses, the specific heat coefficient and superconducting T_c, we assess the effectiveness of this weak coupling approach for consistently describing the electron-electron correlations in this material. We also analyze the impact of the momentum dependence of the electron self-energy in describing the significant correlation effects observed in strontium ruthenate.

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