Problem set for chapter 9, Due Monday, April 23


3. Using the linearized Boltzmann equation, calculate an expression for \( j_Q \) in a small electric field, and thermal gradient, both in the x-direction for a Fermi liquid of effective mass \( m^* \) and a spherical Fermi surface. You should obtain expression for both \( \mathcal{L}^{21} \) and \( \mathcal{L}^{22} \). Show that \( \mathcal{L}^{21} = \mathcal{L}^{12} \) for this system, this is called the Onsager reciprocity relation.