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Transport Properties of a Fermi gas with attractive interactions in the BEC-BCS crossover CHIH-CHUN CHIEN, YAN HE, QIJIN CHEN, KATHRYN LEVIN, University of Chicago — The transport phenomena of a two-component Fermi gas with attractive interactions are studied at finite temperatures focused on the normal state using a t-matrix formalism in the BEC-BCS crossover. We contrast the behavior of both charged and uncharged systems and address such varied coefficients as DC conductivity and shear viscosity. We show how the behavior above the pairing onset temperature T^* appears to depend rather weakly on the scattering length. At lower temperatures by studying the appropriate Maki-Thompson and Aslamazov-Larkin diagrams, we find more pronounced fluctuation effects the closer the system is to the BCS limit. Interestingly, we observe that these fluctuation effects are more apparent in charged than in uncharged systems.

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