The Hall coefficient within linear response theory

JR Adams*, H Reinholz, R Redmer

Rostock University, Germany

The transport properties of partially ionised, noble gas plasmas have been investigated in recent years. Measurements of the electrical conductivity and the Hall coefficient were performed. We discuss the possibility of using the Hall coefficient as a diagnostic tool for determining the free electron density in a partially ionized plasma. A recent extension of linear response theory has allowed calculation of the Hall coefficient, as well as influence of a magnetic field on the conductivity. We present theoretical results and compare with experiment. We also discuss the importance of the Ramsauer minimum observed in electron-neutral collisions in noble gases.

*email: john.adams@uni-rostock.de