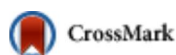




Elastic scattering of low energy electrons in partially ionized dense semiclassical plasma



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Abstract

Elastic scattering of electrons by hydrogen atoms in a dense semiclassical hydrogen plasma for low impact energies has been studied. Differential scattering cross sections were calculated within the effective model of electron-atom interaction taking into account the effect of screening as well as the quantum mechanical effect of diffraction. The calculations were carried out on the basis of the phase-function method. The influence of the diffraction effect on the Ramsauer–Townsend effect was studied on the basis of a comparison with results made within the effective polarization model of the Buckingham type.

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Article outline:

I. INTRODUCTION II. METHOD AND PARAMETERS III. RESULTS IV. SUMMARY

Key Topics

Electron scattering

Atom scattering

Electron molecule
scattering

Plasma density

Polarization

Most read this month

Review of the National Ignition Campaign 2009-2012

John Lindl, Otto Landen, John Edwards, Ed Moses and NIC Team

Preface to Special Topic: Plasmas for Medical Applications

Michael Keidar and Eric Robert

Fusion energy in an inertial electrostatic confinement device using a magnetically shielded grid

John Hedditch, Richard Bowden-Reid and Joe Khachan

Most cited this month

Ignition and high gain with ultrapowerful lasers*

Max Tabak, James Hammer, Michael E. Glinsky, William L. Kruer, Scott C. Wilks, John Woodworth, E. Michael Campbell, Michael D. Perry and Rodney J. Mason

Development of the indirect-drive approach to inertial confinement fusion and the target physics basis for ignition and gain

John Lindl

Effects of $\mathbf{E} \times \mathbf{B}$ velocity shear and magnetic shear on turbulence and transport in magnetic confinement devices

K. H. Burrell

■