Abstract Submitted
for the GEC08 Meeting of
The American Physical Society

Variation of electron mobility with gas density ARDESHIR BAGHERI, Imam Hossein University — The density (N) dependence of electron mobility (U) in various dense gases (H2, N2, O2, CO2 and rare gases) has been calculated. The multiple scattering of electron shifts its kinetic energy and it also changes the distribution function of electrons. This unified approach predicts both the positive (increasing) and negative (decreasing) effects. We have assessed the data on momentum transfer cross-sections by comparing the mobility at very low densities (NU)o with those of experimental values. The calculated ratio (NU)/(NU)ois compared with the observed values and other theoretical work. The Legler model which assumes constant cross-section is inadequate for predicting the observed density dependence. We obtain good agreement with available experimental work for all the atomic and molecular species studied here.

Ardeshir Bagheri
Imam Hossein University

Date submitted: 09 Jun 2008 Electronic form version 1.4