Abstract Submitted
for the GEC09 Meeting of
The American Physical Society

The field effect on elastic electron-ion collisions in a plasma with the presence of the external field SANG-CHUL NA, YOUNG-DAE JUNG, Department of Applied Physics, Hanyang University, Ansan, Kyunggi-Do 426-791, South Korea — The field effects on the elastic electron-ion collision are investigated in a plasma with the presence of the external field. The eikonal method and effective interaction potential including the far-field term caused by the external field is employed to obtain the eikonal phase shift and eikonal cross section as functions of the field strength, external frequency, impact parameter, collision energy, thermal energy, and Debye length. The result shows that the effect of the external field on the eikonal cross section is given by the second-order eikonal phase. In addition, the external field effects suppress the eikonal cross section as well as eikonal phase for the elastic electron-ion collision. The eikonal phase and cross section are found to be increased with an increase of the frequency of the external field. It is also shown that the eikonal cross section increases with an increase of the thermal energy and Debye length.

Young-Dae Jung
Department of Applied Physics, Hanyang University, Ansan, South Korea

Date submitted: 24 May 2009 Electronic form version 1.4