

*Progress Report*

**STATISTICAL AND DYNAMICAL PROPERTIES IN PLASMAS  
GOVERNED BY H.G.K PSEUDO-POTENTIAL**

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The objective of this work is to introduce the ionic structure effect on the electric micro-fields distribution and on the temporal auto-correlation functions of a plasma perturbed by a positive impurity. This study is carried out in mean-field theory, under one component plasma model (OCP). Firstly, we established the nonlinear integral equation governing the effective potential of the electrons, by considering the Hellmann-Gurskii-Krasko Pseudo-potential (HGK), which introduces the ionic structure into the interaction between the electrons and the positive impurity. At the second stage, we solved this integral equation by the fixed point method to determine this effective potential which allows us to calculate the electric microfield distribution and the trajectories of the electrons around the impurity. Finally we use the Monte Carlo simulation to calculate the temporal auto-correlation function of the electric microfield acting on the impurity.