

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Introduction to a new computational method of electron-ion quantum plasmas of an arbitrary degeneracy IN-GEE KIM, New Mexico Consortium, MICHAEL MURILLO, Los Alamos National Laboratory — A new computational approach for calculating the physical properties of quantum mechanical electron-ion plasmas of an arbitrary degeneracy in terms of the random-phase approximation is introduced. The numerical computation for the arbitrarily degenerated plasmas is achieved by employing the sinc quadrature rule for the corresponding improper integrals. Although the model system is assumed to be isotropic and homogeneous, the method provides high degrees of freedom for choosing the model interactions. We are able to investigate the possible elementary excitations, as well as instabilities, for the interacting quantum two-component system for the broad range of parameter space.

In-Gee Kim
New Mexico Consortium

Date submitted: 11 Jul 2014

Electronic form version 1.4