

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Low Ion Velocity Slowing Down in a Demixing Binary Ionic Mixture CLAUDE DEUTSCH, LPGP UParis XI, DANIEL LEGER, MECAN UValenciennes, BEKBOLAT TASHEV, Dpt Phys KazNu, LOWVELSTOP COLLABORATION — We consider ion projectile slowing down at low velocity $V_p < V_{the}$, target electron velocity, in a strongly coupled and demixing hydrogen-helium ionic mixture of mostly astrophysical concern. It is investigated in terms of quasi-static and critical charge-charge structure factor [1]. Non-polarizable as well as polarizable and partially degenerate electron backgrounds are successively given attention. The focussed low ion velocity slowing down [2] turns negative in the presence of long wavelength and low frequency hydrodynamic modes, thus signaling a first order critical demixtion. Such a process actually documents an energy transfer from target ion plasma to the incoming ion projectile, i.e a superelastic process.

[1] D.Leger and C.Deutsch, PRA 37, 4916, 4930 (1988)

[2] B.Tashev et al, PoP 15, 102701(2008)

Claude Deutsch
LPGP UParis XI

Date submitted: 15 Jul 2010

Electronic form version 1.4