

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Low Velocity Ion Slowing Down in a Strongly Magnetized Plasma
Target CLAUDE DEUTSCH, ROMAIN POPOFF, LPGP UParis XI, MEGA-GAUSS COLLABORATION — An ion projectile slowed down at a velocity V_p smaller than target electron thermal velocity V_{the} , in the presence of an arbitrary strong, constant and homogeneous magnetic field B , in a dense electron-ion target plasma is investigated within a novel diffusion formulation, based on Green-Kubo integrands evaluated within magnetized one-component plasmas(OCP) models, respectively framed on target ions and electrons [1]. Analytic expressions are reported for slowing down orthogonal and parallel to B , which are free from the usual uncertainties plaguing standard perturbative derivations either based on linear response (LR) or the binary collision approach (BCA). B and target temperature dependences of the given low velocity slowing down are further detailed for dense target of fast ignition concern and ultracold plasmas envisioned for ion beam cooling as well.

[1] C. Deutsch and R. Popoff, PRE 78, 056405 (2008) and NIMA606, 212(2009)

Claude Deutsch
LPGP UParis XI

Date submitted: 02 Aug 2011

Electronic form version 1.4