

Abstract Submitted
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On the Potential Role of Species Separation in DT Fuels on Implosion Performance¹ PETER AMENDT, CLAUDIO BELLEI, SCOTT WILKS, Lawrence Livermore National Laboratory, MALCOLM HAINES, Imperial College, UK, DAN CASEY, C.K. LI, RICHARD PETRASSO, MIT — The measurement of strong, self-generated electric fields (1-10 GVolts/m) in imploding capsules [1], their attribution to polarized (plasma) shock fronts [2], and the identification of plasma-enhanced binary species diffusion from barodiffusion and electrodiffusion [3] have led to a growing interest in the potential role of species separation in inertial-confinement-fusion (ICF) thermonuclear fuels. The potential for anomalous heating from transient frictional or resistive drag between D and T across a finite thickness shock front will be assessed and applied towards ignition thresholds and understanding some outstanding anomalies in the Omega implosion database.

[1] J.R. Rygg *et al.*, Science 319, 1223 (2008); C.K. Li *et al.*, Phys. Rev. Lett. 100, 225001 (2008).

[2] P.A. Amendt, J.L. Milovich, S.C. Wilks, C.K. Li, R.D. Petrasso and F.H. Séguin, Plasma Phys. Control. Fusion 51, 124048 (2009).

[3] P. Amendt, C. Bellei and S.C. Wilks, Phys. Rev. Lett. (to appear).

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