Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Nuclei Separation Issue for p-B^{11} Burning Plasmas* L. MERRIMAN, B. COPPI, MIT — Proton-Boron^{11} fusing plasmas have the appealing characteristics of not producing neutrons but only charged particles and of involving easily available fuel nuclei. This feature has attracted the interest of distinguished scientists. On the other hand, as is well known, p-B^{11} cannot ignite. In addition, there is an unexplored issue related to a transport process [1] due to the relatively large ratio of the masses of the two fuel nuclei. Since for equal temperatures of the two species, the difference between the squares of their thermal velocities is wide, a mode with a phase velocity between the two thermal velocities has been found [2]. This has the effect of transporting the two species in different directions radially and of enhancing the nuclei thermal energy transport. The obtained results, although not as critical as the lack of an ignition condition, should be taken into account in the burn simulations of p-B^{11} plasmas that have to be carried out. *Sponsored in part by the U.S. DOE.

[1] B. Coppi, H. Furth, M. Rosenbluth and R. Sagdeev, *Phys. Rev. Lett.* **17**, (1966) 377.
[2] B. Coppi, MIT (LNS) Report HEP 13/07, recommended publication in Physics of Plasmas, subject to a more complete presentation of its context.

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Date submitted: 11 Jul 2014 Electronic form version 1.4