

## Theoretical Investigation of Proton-Bore Fusion in Hot Spots

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**Abstract :** As an alternative to D-T fuel, one can consider advanced fuels like D3-He and p-11B fuels, which have potential advantages concerning availability and/or environmental impact. Hot spots are micron-sized magnetically self-contained sources observed in pinched plasma devices. In hot spots, fusion power for  $120 \text{ keV} < T_i < 800 \text{ keV}$  and  $32 \text{ keV} < T_e < 129 \text{ keV}$  exceeds bremsstrahlung loss and fraction of fusion power to bremsstrahlung loss reaches to 1.9. In this case, gain factor for a 150 kJ typical pulsed generator as a hot spot source will be 7.8 which is considerable for a commercial pinched plasma device.

**Keywords :** P-B fuel, hot spot, bremsstrahlung loss, ion temperature

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