

Acoustically driven Magnetized Target Fusion at General Fusion

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Requested Type: Consider for Invited

Submitted: 2016-01-04 15:47:00

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Abstract Text:

Magnetized Target Fusion (MTF) involves compressing an initial magnetically confined plasma of about $1 \times 10^{23} \text{ m}^{-3}$, 100 eV, 7 Tesla, 20 cm radius, >100 microseconds life with a 1000 X volume compression in 100 microseconds. If near adiabatic compression is achieved, the final plasma of $\sim 1 \times 10^{26} \text{ m}^{-3}$, 10 keV, 700 Tesla, 2 cm radius, confined for 10 microseconds would produce interesting fusion energy gain. General Fusion is developing an acoustic compression system using pneumatic pistons focusing a shock wave on the plasma in the center of a 3 m diameter sphere filled with liquid lead lithium. Low cost driver, straightforward heat extraction, good tritium breeding ratio and excellent neutron protection could lead to a practical power plant. We will review the plasma formation and compression results achieved so far and our plans moving forwards. Work on the compression system will also be described.

Comments: