



# Staged Z-Pinch Modeling With Hydra And Chicago Codes

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## Project Summary:

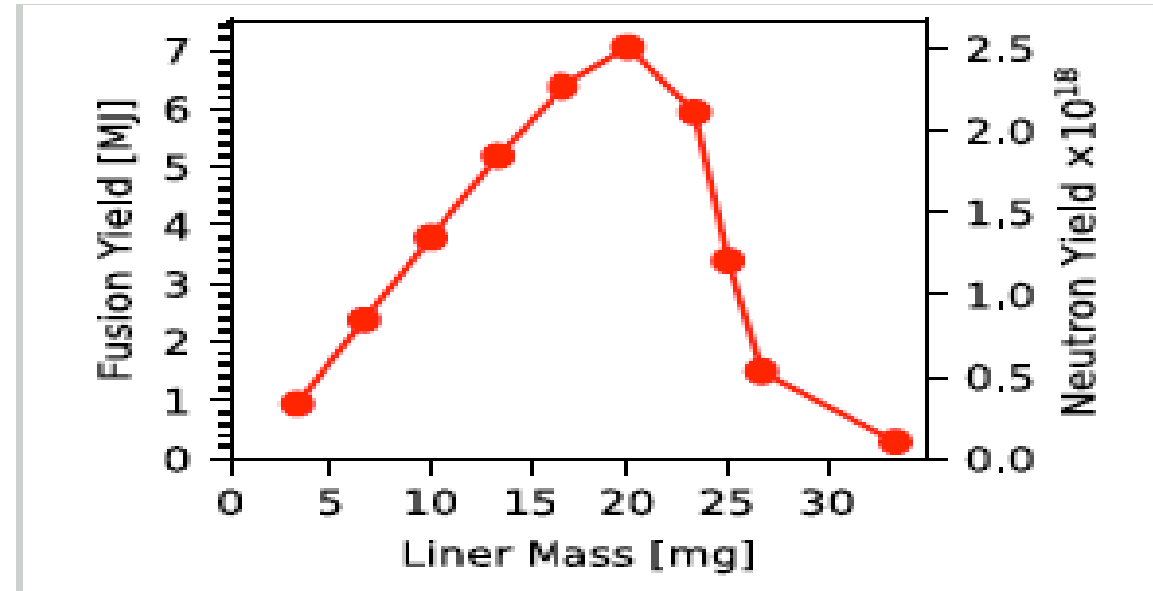
Assess the SZP Simulation Validity Study in HYDRA and Compare with MACH2 results. To study implosion dynamics and plasma conditions at stagnation and maximize the fusion energy yield.

## Fusion Impact:

Multiple code simulations predict high fusion energy yield with breakeven and beyond.

## Business/Market Impact:

Increased confidence in the Staged Z-pinch concept increases the private investment prospects.



Both HYDRA and MACH2 in 1-D calculate yields  $\geq 10^{19}$  when the liner temperature is capped with  $\alpha$ -particle heating at  $\leq 500$  eV.

\*D. P. Higginson, et. al., Phys. Plasmas **31**, 32705(2024).

Period of Performance:	Federal Share:	Cost Share:
09/01/2022 08/31/2023	\$200,000	\$55,218