

Abstract Submitted
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Validation of a Magnetized Liner Inertial Fusion (MagLIF) hotspot model to determine primary stagnation parameters. MATTHEW EVANS, University of Rochester, PATRICK KNAPP, MICHAEL GLINSKY, STEPHAINE HANSEN, MATT GOMEZ, CHRIS JENNINGS, TAISUKE NAGAYAMA, PIERRE GOURDAIN, BRENT JONES, Sandia National Laboratories — A simplified 2D model of a MagLIF[1] hotspot at stagnation along with a Bayesian inference network is used to determine experimental stagnation parameters. The hotspot model is described by a series of 1-D isobaric cylindrical slices, each with six parameters: pressure, temperature, mix fraction, mix charge, radius, and linear areal density. The model is then fed into the Bayesian inference network which uses a Levenberg-Marquardt algorithm to perform non-linear least squares fit, then uses a Markov chain Monte Carlo (MCMC) to improve performance. Validation of the model is performed in two parts. First by performing the inversion using synthetic data generated by the model against itself. Next, simulation data generated by GORGON[2] is post processed to create synthetic diagnostics which are used in the inversion and compared to original states. Correlations among model parameters and diagnostics data and their implications for inferring model parameters are discussed.

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