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Estimates of Fusion Gain of Plasma Jet Driven Magneto-Inertial Fusion[1] PETER STOLTZ, KRISTIAN BECKWITH, Tech-X Corp., SCOTT HSU, SAMUEL LANGENDORF, Los Alamos National Laboratory — A main goal of the PLX-α project is to identify parameters for example, jet velocities and densities that could result in gain¿1 in plasma-jet-driven magneto-inertial fusion [S. C. Hsu et al., IEEE Trans. Plasma Sci. 40, 1287, 2012]. We are employing 2D MHD simulations of a spherically imploding plasma liner compressing a magnetized target using the USim code [K. Beckwith, et al., IEEE Trans. Plasma Sci. 43, 4, 2015] to identify those parameters. The simulations include realistic EOS and alpha-deposition models. We look at how different levels of density and velocity perturbations change the gain results, specifically using perturbation levels informed by 3D hydrodynamic simulations. Some of these simulation results come from many-core runs on the Los Alamos high-performance computing resources, and we discuss the performance and scaling of our simulations.

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Peter Stoltz
Tech-X Corp.

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