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**Using a magnetized plasma jet colliding with a heavy gas cloud to investigate MIF adiabatic heating and compression mechanisms** PAUL BELLAN, PAKORN WONGWAITAYAKORNKUL, KIL-BYOUNG CHAI, AMELIA GREIG[1], Caltech, HUI LI, Los Alamos National Lab — Magnetized inertial fusion (MIF) is based on having an imploding liner adiabatically compress a magnetized plasma to the density and temperature required for thermonuclear fusion. The goal of the Caltech research program is to determine the scaling of the temperature and density increase when an actual experimental plasma is adiabatically compressed. The plasma parameters will be more modest than a fusion-grade configuration, but in compensation, the shot repetition rate will be much higher and the experiments will be non-destructive. The non-destructive feature results from having a high-speed magnetized plasma jet impact a localized heavy gas. From the point of view of an observer in the frame of the magnetized plasma jet, it will look as if the heavy gas is impacting and compressing the magnetized plasma and so, except for some geometrical differences, the configuration is equivalent to a liner impacting and compressing a stationary magnetized plasma. The experiment will be modeled by 3D numerical MHD and PIC codes.

[1](as of approximately September 15)

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