Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Development of a Thomson scattering diagnostic for the Caltech jet-target experiment[1] BYONG HOON SEO, AMELIA GREIG, PAUL BELLAN, Caltech — A Thomson scattering diagnostic is being developed for studying the Caltech jet-target impact experiment. This experiment has a high-speed MHD-driven jet impact a dense, high-mass target cloud. The compression of the jet upon impact simulates the compression of an imploding liner. A preliminary bench top system consisting of a low power laser, lenses, a beam rotator, a monochromator, and a PMT is being used for measuring the Rayleigh and eventually Raman scattering signals from atmospheric pressure N2 and O2. The laser is modulated at 500 Hz to 1 kHz and lock-in techniques are used to recover the low-amplitude signal. For the actual pulsed plasma experiment, the low-power laser will be replaced by a high power Nd:YAG laser. The detector will consist of a double monochromator consisting of two single monochromators separated by a mask in the focal plane to block Rayleigh scattered light; detection will be by an intensified, gated camera. The diagnostic will be used to study the compression and heating that occurs when the jet plasma collides with a dense, high mass target cloud.

[1]Supported by USDOE Grant DE-AR0000565

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Date submitted: 08 Jul 2016 Electronic form version 1.4