Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Spectroscopic Study of a Pulsed High-Energy Plasma Deflagration Accelerator[1] KEITH LOEBNER, THOMAS UNDERWOOD, Stanford University, THEODORE MOURATIDIS, Massachusetts Institute of Technology, MARK CAPPELLI, Stanford University — Observations of broadened Balmer lines emitted by a highly-ionized transient plasma jet are presented. A gated CCD camera coupled to a high-resolution spectrometer is used to obtain chord-averaged broadening data for a complete cross section of the plasma jet, and the data is Abel inverted to derive the radial plasma density distribution. This measurement is performed over narrow gate widths and at multiple axial positions to provide high spatial and temporal resolution. A streak camera coupled to a spectrometer is used to obtain continuous-time broadening data over the entire duration of the discharge event (10-50 microseconds). Analyses of discharge characteristics and comparisons with previous work are discussed.

[1]This work is supported by the U.S. Department of Energy Stewardship Science Academic Program, as well as the National Defense Science Engineering Graduate Fellowship.

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Date submitted: 17 Jul 2015 Electronic form version 1.4