Abstract Submitted
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**Magnetized-Target Fusion Based on Ultrahigh Speed Plasma Flows** P.J. TURCHI, Los Alamos National Laboratory, N.F. RODERICK, University of New Mexico, J.H. DEGNAN, Air Force Research Laboratory, M.H. FRESE, D. AMDAHL, NumerEx, Inc. — One approach [1] to preparing the initial plasma for Magnetized Target Fusion (MTF) employs an ultrahigh speed plasma flow from a coaxial-gun arrangement known at the Plasma Flow Switch (PFS). PFS experiments [2] with aluminum demonstrated plasma flows at speeds in excess of 2000 km/s that stagnated to create fully-stripped plasma with electron temperatures of 30 keV. If D-D or D-T gas is substituted in the PFS, kilovolt-level initial temperatures of the target plasma within an imploding liner would result. Experiments to raise the plasma temperature to fusion-levels ($>$ 10 keV) by liner compression may be within range of existing high-energy capacitor banks (e.g., Atlas or Shiva Star). Generation of the initial plasma and the liner implosion with the same bank offers an experimentally convenient approach, but requires careful timing based on initial analytical estimates and detailed numerical simulations.

[1] P.J. Turchi, "Ultrahigh-speed plasma sources and liner compression of high temperature plasma," APS Plasma Physics Meeting, 24-28 Oct 2005, Denver, CO.
[2] P.J. Turchi, et al, J. Appl.Phys. Vol. 69 (4), P. 1999, (Feb. 1991).

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