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Progress in plasma liner modeling for MIF JOHN LOVERICH, AMMAR HAKIM, SEAN ZHOU, Tech-X — Magnetic confinement fusion and inertial confinement fusion represent the two extremes in terms of density and confinement time in fusion energy research. Both approaches have been studied extensively through the decades pushing technology to the limits. An alternative fusion approach exists between these regimes called magnetized target fusion. In magnetized target fusion longer confinement times are achieved than in ICF through the use of strong magnetic fields, the long confinement time reduces the required plasma density to reach ignition—the approach has advantages over MFE in that it is much more compact and higher density. This work explores computationally a form of magnetized target implosion using a plasma liner. This concept is to be compared with solid liner implosion approach which may not be commercially viable as a reactor due to the “standoff” problem, portions of the device are destroyed with each target implosion. We present simulation results of plasma liner formation, jet merging, and plasma jet magnetized target interaction using a fluid plasma code (TxFluids) developed at Tech-X corporation.

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