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Rotation-Aided Confinement in Magneto-Inertial Fusion Schemes[1] MARISSA ADAMS, University of Rochester, University of Chicago, EDDIE HANSEN, BENJAMIN KHIAR, KLAUS WEIDE, PETROS TZEFERACOS, University of Chicago, PIERRE-ALEXANDRE GOURDAIN, University of Rochester, UNIVERSITY OF ROCHESTER TEAM, UNIVERSITY OF CHICAGO TEAM — We consider a standard MagLIF target, where instead of a gas-prefill that anticipates being preheated by the Z-beamlet laser, its mass is contained in a cryo-DT fiber on axis. A 1 MA pulsed power device can be used to turn the fiber into a hot plasma, which would then fill up the capsule, just before it is imploded using a 25 MA driver, such as the Z- Machine. In such a scenario, an axial B_z would trigger an azimuthal rotation, v_ϕ. One can analytically illustrate that for a given uniform B_z, and a $B_\phi(r, z)$, the z-dependence introduced by the additional driver, will yield a nontrivial J_r that would spin the plasma via the $\vec{J} \times \vec{B}$-force. Here we investigate how much rotation is to be expected in such a target, and to what extent it may improve confinement performance over laser-driven preheating. We carry out this investigation using the multi-physics MHD AMR code, FLASH.

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Marissa Adams
University of Rochester

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