

Abstract Submitted
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Study on the Flow Z-Pinch Fusion Concept ROBERT LILLY, URI SHUMLAK, Aerospace and Energetics Research Program at the University of Washington — The Flow Z-Pinch fusion concept is simulated with a model that includes fusion and radiation power. The MHD physics model employed includes bremsstrahlung and synchrotron radiation losses, and fusion source and sink terms. The nondimensionalized form of these equations is simulated with the MacCormack algorithm in 1-D. The results show significant fusion output power, on the order of GW/m. Fuel ion particle loss caused by fusion burn results in significant temperature increases to maintain equilibrium. Separate simulations investigate radiative collapse phenomenon. Synchrotron radiation appears to drive the collapse. Simulations are conducted at conditions of the ZaP Flow Z-Pinch Experiment at the University of Washington. Model and simulation results will be presented.

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