

Abstract Submitted  
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**Programmable Power Supply for MST's Toroidal Field**<sup>1</sup> D.J. HOLLY, J.R. ADNEY, A.E. ANDERS, M.T. BORCHARDT, B.E. CHAPMAN, J.C. MORIN, J.S. SARFF, A.A. SQUITIERI, University of Wisconsin - Madison — We have installed a new power supply on MST to provide programmable control of the toroidal magnetic field and poloidal loop voltage. The supply uses 128 high power IGBTs in a modular series-parallel H-bridge configuration to produce a bipolar output of about 25 MW with a bandwidth of several kHz. The Plasma Control System developed by GA will control the supply output waveform. The new supply's programmability will allow us to optimize and extend inductive current profile control using Pulsed Parallel Current Drive, a technique which reduces magnetic tearing fluctuations and the resultant energy transport. We will also use the supply to test alternate plasma startup techniques which can reduce V-s consumption in the poloidal field system; and for Oscillating Field Current Drive experiments, where the supply will give us the new ability to generate non-sinusoidal waveforms. Initial results will be presented.

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