

Abstract Submitted
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Maximizing MST's Inductive Capability with Programmable Bt and Bp Power Supplies¹ D.J. HOLLY, J.R. ADNEY, B.E. CHAPMAN, K.J. MCCOLLAM, J.C. MORIN, University of Wisconsin-Madison — There are now strong motivations on MST for increased plasma current, increased pulse length, and flexible waveform control. For example, improved confinement plasmas at near MST's present maximum current, 0.5 MA, exhibit RFP-record Te and Ti that are several-fold larger than temperatures achieved at 0.2 MA. The maximum dc current added by ac oscillating field current drive is not yet known since the added current ramps up on a time scale longer than the duration of present MST discharges. Inductive current profile control has generated substantially improved confinement, but the optimal control waveform and, hence, the maximum confinement are not yet known. These and other considerations motivate the installation of flexible, programmable power supplies. A power supply for Bt is already in operation. Based on IGBT switches, this supply provides waveform control with a bandwidth of several kHz at about 25 MW. The design of a similar but more powerful supply for Bp is underway. Together, these supplies will provide MST with the most advanced inductive control capability of any RFP in the world.

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