

Abstract Submitted  
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**A Modular, IGBT Driven, Ignitron Switched, Optically Controlled Power Supply**<sup>1</sup> EVAN CARROLL, JENS VON DER LINDEN, SETHIVOINE YOU, University of Washington — An experiment to investigate the dynamics of canonical flux tubes at the University of Washington uses two high energy pulsed power supplies to generate and sustain the plasma discharge [1]. A modular 240  $\mu F$ , 12 kV DC capacitor based power supply, discharged by ignitron, has been developed specifically for this application. Design considerations include minimizing inductance, rapid switching, fast rise times, and electrically isolated control. An optically coupled front panel and fast IGBT ignitron drive circuit [2], sequenced manually or by software, control the charge and discharge of the power supply. A complete, sequenced charge/discharge has been successfully tested with a dummy load, producing a peak current of 100 kA and a rise time of 25  $\mu s$ .

[1] J. von der Linden, E. Carroll, E. Lavine, Y. Kamikawa, K. Vereen, S. You, “Investigating the Dynamics of Canonical Flux Tubes,” this meeting.

[2] V. Chaplin, P. Bellan, “Fast Ignitron Trigger Circuit Using Insulated Gate Bipolar Transistors,” IEEE Trans. Plasma Sci., vol. 41, (2013)

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