

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Construction of Control System for Floating High Energy Capacitors ZACHARY TOBIN, PAUL BELLAN, Caltech — The circuitry for the Caltech magnetic reconnection experiment under construction requires two independent floating high energy capacitor power supplies to create linked plasma loops. This project requires the building of systems for controlling plasma generation, including timing circuitry to control the sequences of operation. Unlike with previous designs, timing functions are completely contained on a single printed circuit board. This allows the design to be easily replicated for use with the multiple independent capacitor involved. The timing circuitry first activates a high voltage power supply, then connects the power supply to the capacitor, and then disconnects the power supply so that the charged capacitor is floating. The circuitry then sends out a “ready” signal to a sequencer, which sequentially triggers the gas puff valves, bias magnetic field supply, and ignitron switch for the capacitor. The control circuit sequencing has been tested successfully with the capacitor discharging into a dummy load.

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Date submitted: 26 Jul 2011

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