

Abstract Submitted  
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**Ion Current Collection Diagnostic for the Triggered Plasma Opening Switch Experiment**<sup>1</sup> D.P. JACKSON, M.E. SAVAGE, Sandia National Laboratories, M.A. GILMORE, A.G. LYNN, University of New Mexico — The novel Triggered Plasma Opening Switch (TPOS) is a unique device that exploits the high conductivity and low mass properties of plasma. The TPOS's objective is to take the initial  $\sim 8$  MA ( $\sim 250$  ns rise time) storage inductor current and deliver  $\sim 5$  MA at  $\sim 2.5$  MV ( $\sim 10$  ns rise time) to a load of  $\sim 5$ - $10$   $\Omega$ . Study of the TPOS characteristics is in progress via an Ion Current Collection Diagnostic (ICCD). The ICCD has been designed, fabricated, tested, and is in use on the TPOS in order to explore the main switch opening profile. The ICCD utilizes 12 charge collectors (biased faraday cups) that are positioned perpendicularly to the main switch stage in order to collect radially traveling ions emitted from the plasma surface via the Child-Langmuir law. Magnetostatic simulations with self consistent space charge emitting surfaces of the main switch using the Trak static 2D finite element code have been conducted as well. Finally, ICCD experimental data have been recorded, and hopefully these data will provide evidence that support both theory and simulation.

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