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Current Distribution Characterization and Circuit Analysis of a High Energy Pulsed Plasma Deflagration KEITH LOEBNER, FLAVIO POEHLMANN, MARK CAPPELLI, Stanford University — Measurements and analysis of the transient current density within a coaxial electromagnetic plasma accelerator operating in a pulsed deflagration mode are presented. Current measurements are performed using an axial array of dual-Rogowksi coils in a balanced circuit configuration. An equivalent circuit model of the accelerator is formulated and compared with experimental data. Current distribution measurements were carried out over a wide range of operating conditions and compared with the equivalent circuit model in order to determine the governing physics of the discharge and verify the existence of a deflagration at all tested conditions.

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