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## Multi-Pulse Diode-Isolated-Blumlein Induction-Cell Drivers

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The Dual-Axis Radiographic Hydrodynamic Test (DARHT) facility at Los Alamos National Laboratory (LANL) uses two, linear-induction accelerators (LIAs) for flash, x-ray radiography of hydrodynamic tests. The Axis-I LIA uses a single, beam pulse of 60 ns, 20 MeV, and 2 kA. The Axis-II LIA uses a long beam pulse, and a kicker to generate four radiation pulses.

The National Nuclear Security Agency (NNSA) is planning a new, multi-pulse, single-axis, electron LIA for hydrodynamic experiments. One method for generating multiple, beam pulses on a single axis, without a kicker, is to multi pulse the injector and each accelerator cell. Diode-isolated Blumleins are being considered as the pulsed-power drivers for the accelerator cells.

On DARHT Axis-I, the Blumleins are dc connected to the cells such that when they are charged, the connected cells' magnetic cores are also preset. With diodes in the circuit, this dc path is not available. This paper describes the 300-kV, diode-isolated Blumlein concept, performance requirements, Blumlein charging options, core preset methods, and circuit simulation results.

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