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35 kV Inductive Adder for Driving 50 Ω with Fast Rise Time

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Eagle Harbor Technologies, Inc. (EHT) has developed a 35 kV pulser for driving 50 Ω loads with nanosecond-scale rise times. This inductive adder uses EHT's nanosecond pulser technology to drive nonlinear transmission lines (NLTL) to construct an all-solid-state RF plasma heating system for fusion science applications. The inductive adder configuration allows for independently adjustable control of the output voltage (20 kV), pulse width (20 –200 ns), and pulse repetition frequency (up to 100 kHz). Previously, EHT has demonstrated 2 GHz RF production with a 20 kV version that can be pulsed 100 kHz. EHT will present results showing high voltage, fast rise time pulses into low impedance loads. In addition to RF generation, this inductive adder has applications to high voltage kickers for accelerations, plasma loads, high power modulators, and other tube-driving applications.

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