

Abstract Submitted
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Sub-Nanosecond Pulsed Power Source for an Atmospheric Pressure Plasma Jet BRIAN HENNING¹, DZAFER CAMDZIC², SHALESE LOVELL³, ADAM LIGHT⁴, Colorado College — We present the design for a circuit that supplies pulsed power to an Atmospheric Pressure Plasma Jet. Sub-nanosecond pulsed power sources are becoming more accessible to smaller groups but have not been extensively applied to Atmospheric Pressure Plasma Jets. The short duration of the nanosecond pulse allows for a strongly non-equilibrium plasma, which in turn yields a higher efficiency energy transfer to electrons. In an effort to create a low-cost high repetition rate pulse generator we plan to combine Linear Transformer Driver (LTD) design with Drift Step Recovery Diodes (DSRDs), enabling picosecond rise times, 6 kV peak voltage, and khz repetition rates. LTD setups allow for a modular design, making current and voltage easily customizable, while the DSRDs compress the signal to give desired rise times and pulse duration.

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