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Characterization of a DBD-Based Plasma Jet Using a Variable Pulse Width Nanosecond Pulser. TIMOTHY ZIEMBA, JULIAN PICARD, JAMES PRAGER, KENNETH MILLER, JOHN CARSCADDEN, Eagle Harbor Technologies, Inc. — Most high voltage pulsers used to drive dielectric barrier discharges (DBDs), produce a single pulse shape (width and voltage), thus making it challenging to assess the effect of pulse shape on the production of different chemical species during a discharge. Eagle Harbor Technologies, Inc. (EHT) has developed a high voltage nanosecond pulser that enables independent control of the output voltage, pulse width, and pulse repetition frequency. This pulser has been specifically designed to drive dielectric barrier discharges (DBD). EHT has used this pulser to conduct a parametric investigation of a DBD-based jet utilizing spectroscopic diagnostics. A better understanding of this parameter dependency can allow for more targeted and effective application of plasma in medical, environmental, industrial, and other applications. Results comparing DBD voltage and current waveforms with plasma spectrographic measurements will be presented.

Timothy Ziemba
Eagle Harbor Technologies, Inc.

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