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Investigations of pulsed dielectric barrier discharge energy efficiency NICOLAS MERICAM-BOURDET, EDF - Les Renardieres, MICHEAL J. KIRKPATRICK, EMMANUEL ODIC, SUPELEC - E3S Department of Power and Energy Systems, DIDIER FROCHOT, FREDERIC TUVACHE, EDF - Les Renardieres — The use of dielectric barrier discharges (DBD) to generate atmospheric pressure non-thermal plasmas has received a lot of attention recently. The main applications of these discharges are ozone generation and gas effluent cleanup. In all these fields, the energy efficiency of the process is a major concern to attain economically viability. In order to clarify the influence of the power supply, investigations on dielectric barrier discharge were carried out with two types of power supply (pulse, resonance) and two reactor geometries (cylinder-cylinder and pin to pin). A solid-state pulsed high voltage generator with pulse rate rise up to 1 kV/ns and a resonance high voltage power supply with rate rise of 1 kV/ms, were used to compare their ozone generation efficiency when coupled to two different DBD reactors. The first reactor had a cylinder-cylinder geometry and the second had a pin to pin geometry. Ozone generation efficiency will be compared and discussed for the four configurations.

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