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(54) **SYSTEMS AND METHODS FOR IGNITING PLASMA WITHIN TUBES**

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(57) **ABSTRACT**

A system is provided for generating plasma within narrow diameter tubes, e.g., tubes with an inner diameter of less than 1 millimeter. The system may comprise the tube, a nozzle connected to at least one end of the tube configured to supply a gas into the interior of the tube at atmospheric pressure, at least one ring-shaped anode electrode and configured to surround an outer surface of the tube, at least one ring-shaped cathode electrode spaced apart from the anode electrode along the longitudinal axis and configured to surround the outer surface of the tube, and a voltage source connected to the at least one anode electrode. When activated, the system is configured to generate an electric field between the electrodes which ignites a plasma within the gas in the interior of the tube.