

Abstract Submitted
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Electric field of atmospheric pressure plasma jet impinging upon a surface and electrical properties of the jet source ANA SOBOTA, OLIVIER GUAITELLA, LPP, Ecole Polytechnique, ENRIC GARCIA CAUREL, LPICM, Ecole Polytechnique, ANTOINE ROUSSEAU, LPP, Ecole Polytechnique — We report on experimentally obtained values of the electric field magnitude of an atmospheric pressure plasma jet impinging upon a dielectric surface. The results were obtained using Pockels technique, on a BSO crystal. The electric field is a function of the gas flow and the area over which the discharge spreads on the dielectric surface. A coaxial configuration of the plasma jet was used, driven by 30 kHz sine voltage, in He flowing at 100-900 SCCM. In this geometry we found 2 modes of operation, a low-power mode stable at one plasma bullet emitted per period and the unstable high-power mode featuring additional micro-discharges. In addition to the electric field measured in the low-power mode, electrical characterization of the jet source will be presented, together with the manner in which properties of the setup can influence the jet and vice versa. The distinction will be made between the plasma jet in room atmosphere and the plasma jet interacting with a dielectric surface.

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