

Abstract Submitted  
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**Characterization of plasma jets interacting with dielectric and metallic targets: comparison between simulations and experiments**

ANNE BOURDON, PEDRO VIEGAS, LPP, France, ELMAR SLIKBOER, LPICM, France, MARLOUS HOFMANS, OLIVIER VAN ROOIJ, Tu/e, The Netherlands, ADAM OBRUSNIK, Masaryk University, Czech Republic, BART KLARENAAR, Tu/e, The Netherlands, ZDENEK BONAVENTURA, Masaryk University, Czech Republic, ENRIC GARCIA-CAUREL, LPICM, France, OLIVIER GUATIELLA, LPP, France, ANA SOBOTA, Tu/e, The Netherlands — We study through quantitative comparisons between fluid modeling and experiments, the interaction of a kHz  $\mu$ s-pulsed atmospheric pressure plasma jet with different target surfaces: floating dielectric and metallic and grounded metallic. It is shown that when the discharge impacts on a dielectric target, it charges locally in a few ns. Conversely, the electric potential of the floating target is close to grounded in the instants after the impact of the discharge, but rises to a high voltage, potentially more than half of the applied voltage, at the end of the 1  $\mu$ s pulse. As a result, a return stroke takes place after the discharge impact with both grounded and floating metallic targets, as a redistribution between the high voltage electrode and the low voltage target. Electric field, electron temperature and electron density in the plasma plume are higher during the pulse with grounded target than with the floating targets, as gradients of electric potential progressively dissipate in the latter cases. Finally, at the fall of the pulse, another electrical redistribution takes place, with higher intensity with the floating dielectric and metallic targets than with the grounded target.

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