

Abstract Submitted
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Start-up behavior of argon discharge near a flat dielectric¹ ANA SOBOTA, Eindhoven University of Technology, ALEXANDRE LÉBOUVIER, Ecole polytechnique de l'université d'Orléans, NICOLAAS J. KRAMER, WINFRED W. STOFFELS, EDDIE M. VAN VELDHUIZEN, Eindhoven University of Technology — The topic of surface discharges on a dielectric is well known among electrical engineers, because streamer development on isolation material results in breakdown and short circuits. Discharge ignition in presence of a dielectric is interesting for the lighting industry as well, where the dielectric wall of a lamp plays a potentially important role in the lamp ignition. Fast measurements on the initial appearance and velocity of a discharge in presence of a dielectric were done in argon (100 mbar to 1 bar) using an ICCD camera. We found that the discharge velocity along dielectric surfaces has a tendency to increase as the discharge approaches the grounded electrode. The average discharge velocity decreases with increasing pressure, with increasing rise time of the high voltage ignition pulse and with increasing repetition rate of the high voltage pulses. Measured velocities are in range from 2×10^5 to 2×10^6 m/s.

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