Abstract for an Invited Paper
for the DPP07 Meeting of
The American Physical Society

Measurements of electric field strengths in ionization fronts during breakdown[1]

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The electrical field strength during the initial phase of a low pressure, pulsed discharge in Xenon has been measured as a function of spatial position and time using fluorescence-dip Stark spectroscopy. For the first time, the role of the electrical field as the driving force of electrical breakdown has been studied experimentally in detail. A moving ionization front, measured with sub-microsecond resolution, has been detected. In this ionization front, the electrical field is roughly a factor 2 larger than the average in the discharge gap.

[1]In collaboration with E. Wagenaars and M. Bowden, Eindhoven University of Technology.