

Validation of streamer discharge simulation with measurements

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Streamer discharge is widely used for low-temperature plasma processes at atmospheric pressure. It is usually generated in a $N_2/O_2/H_2O$ mixture, in which a number of electron-impact and chemical reactions occur, resulting in production of many types of reactive species. Our aim is to develop a simulation of atmospheric-pressure streamer discharge validated with measurements to elucidate the electron and chemical processes and reactive species production in the streamer discharge. The simulation results are compared with measurement results of, for example, streamer propagation observed with an ICCD camera and reactive species densities measured using laser spectroscopy to validate the simulation model.