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Simulating the inception of pulsed discharges near positive electrodes¹ JANNIS TEUNISSEN, Centrum Wiskunde & Informatica, UTE EBERT, Eindhoven University of Technology — With 3D particle simulations we study the inception of pulsed discharges near positive electrodes. In different geometries, we first determine the breakdown voltage. Then we study the probability of inception for a fast voltage pulse. This probability mostly depends on the availability of seed electrons to generate the initial electron avalanches. These results are compared with experimental observations. Then we investigate how the shape of a starting discharge affects its further development. In particular, we discuss the formation of so-called “inception clouds.”

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