

Abstract Submitted  
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**Comparing fluid models for streamer discharges** ARAM H. MARKOSYAN, JANNIS TEUNISSEN, Centrum Wiskunde and Informatica, Amsterdam, SASHA DUJKO, Institute of Physics University of Belgrade, UTE EBERT, Centrum Wiskunde and Informatica, Amsterdam — Our recently developed high order fluid model, based on additional moments of the Boltzmann equation, for streamer discharges has shown excellent agreement with PIC/MC (Particle in cell/Monte Carlo) simulations in nitrogen. This motivates us to compare several commonly used fluid models for streamer discharges with the high order model. The fluid models considered in this work are: the first order model (also known as drift-diffusion-reaction, “minimal” or “classical” model), the first order model with an energy equation and the high order fluid model. As a reference we use PIC/MC simulations. We compare the models under STP conditions in argon, neon and nitrogen.

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