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**Electrical characteristics and energy budget of dielectric barrier discharges in argon at atmospheric pressure<sup>1</sup>** MARKUS M. BECKER, TOMAS HODER, DETLEF LOFFHAGEN, INP Greifswald — Recently, an asymmetric dielectric barrier discharge ignited in atmospheric pressure argon in a single filament configuration has been analysed by experiments and modelling [1,2]. A special feature of the discharge under consideration is the occurrence of two different discharge modes at different amplitudes of the sinusoidal voltage supply. At voltages below the critical voltage of 2 kV ordinary filamentary discharges occur, while at higher voltages discharges with striated filaments emerge. In the present contribution the mode transition is investigated with respect to the electrical characteristics as well as the electron energy budget by means of numerical modelling. It is found that the mode transition caused by an increase of the voltage amplitude is accompanied by a non-linear change of the power density and a marked rise of the electron energy gain in chemo-ionization processes.

[1] T. Hoder et al., *Phys. Rev. E* **84** (2011) 46404.

[2] M. M. Becker et al., *J. Phys. D: Appl. Phys.* **46** (2013) 355203.

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