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**Effect of the relative phase of the driving sources on heating of dual frequency capacitive discharges** DENNIS ZIEGLER, JAN TRIESCHMANN, THOMAS MUSSENBROCK, RALF PETER BRINKMANN, Ruhr University Bochum — The influence of the relative phase of the driving voltages on heating in asymmetric dual frequency capacitive discharges is investigated. Basis of the analysis is a recently published global model [1] extended by the possibility to freely adjust the phase angles between the driving voltages. In recent publications it was reported that nonlinear electron resonance heating (NERH) drastically enhances dissipation at moments of sheath collapse due to plasma series resonance (PSR) excitation [2]. This work shows that depending on the relative phase of the driving voltages, the total number and exact moments of sheath collapse can be influenced. In case of a collapse directly being followed by a second collapse ("double collapse") a substantial increase in dissipated power, well above the reported growth due to a single PSR excitation event per period, can be observed.

- [1] D. Ziegler, T. Mussenbrock, and R. P. Brinkmann, Phys. Plasmas **16**, 023503 (2009)  
[2] T. Mussenbrock, R. P. Brinkmann, M. A. Lieberman, A. J. Lichtenberg, and E. Kawamura, Phys. Rev. Lett. **101**, 085004 (2008)

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