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**Tailoring electron dynamics through frequency coupling in dual radio-frequency driven atmospheric pressure plasmas** COLM O'NEILL, JOCHEN WASKOENIG, TIMO GANS, Centre for Plasma Physics, Queens University Belfast, Belfast, BT7 1NN, Northern Ireland, UK — Dual frequency operation of radio-frequency driven atmospheric pressure plasmas offers enhanced control over power coupling and ionization mechanisms [1]. Non-linear frequency coupling in the plasma boundary sheath governs the dynamics of plasma ionization and associated mode transitions. Variations of the frequencies, voltages, and relative phase allow us to manipulate the temporal and spatial structures of plasma ionization. This can be exploited for enhanced plasma production improving plasma efficiency and/or controlled variations of the electron energy distribution function for possible tailoring of the plasma chemistry.

[1] J. Waskoenig and T. Gans, *Appl. Phys. Lett.* **96**, 181501 (2010)

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