Abstract Submitted
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Striations in electronegative capacitively coupled radio frequency plasmas JULIAN SCHULZE, Institute for Electrical Engineering, Ruhr-University Bochum, Germany, YONG-XIN LIU, School of Physics, Dalian University of Technology, China, EDMUND SCHUENGEL, Department of Physics, West Virginia University, USA, IHOR KOROLOV, Hungarian Academy of Sciences, YOU-NIAN WANG, School of Physics, Dalian University of Technology, China, ZOLTAN DONKO, Hungarian Academy of Sciences — Self-organized spatial structures in the light emission from the ion-ion capacitive radio frequency plasma of an electronegative gas (CF_4) are observed experimentally by Phase Resolved Optical Emission Spectroscopy for the first time. Their formation is analyzed and understood based on particle-based kinetic simulations. These "striations" are found to be generated by a resonance between the external driving radio-frequency and the eigenfrequency of the ion-ion plasma that leads to a modulation of the electric field, the ion densities, as well as the energy gain and loss processes of electrons in the plasma. The growth of the instability is followed by the numerical simulations [1]. The presentation introduces this effect conceptually and explains its physical origin. [1] Y.-X. Liu et al. 2016 Phys. Rev. Lett. accepted for publication

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