Abstract Submitted
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**Two-dimension numerical simulation of a micro plasma electron source at moderate pressure**[1] C LAN, Princeton Plasma Physics Laboratory and Institute of Fluid Physics, China Academy of Engineering Physics, A KHRABROV, I. D. KAGANOVICH, S GERSHMAN, Y RAITSES, Princeton Plasma Physics Laboratory — A micro plasma electron source, which consists of a flat cathode and a 1 mm apart cylindrical anode [1], is modeled and studied by two-dimension particle-in-cell simulations. The discharge is based on a cold cathode glow discharge (GD) operating in a dc steady-state mode at a moderate pressure around 2 Torr. The simulations mainly focus on the two-dimensional features of the discharge and two anodes of different length are compared. The simulation results confirm the non-equilibrium nature of this micro discharge downstream the anode, and the electron flux with an enhanced high energy tail (>5 eV) is observed downstream. The simulation results also show that compared with short anode, long anode absorbs much more high energy electrons striking on the anode surface, leading to the reduction of the fraction of high energy electrons. A detailed comparison between simulations and experimental results will be presented. [1] S. Gershman and Y. Raitses, J. Phys. D: Appl. Phys. 51, 235202 (2018)

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