

Abstract Submitted
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Expansion of a Dynamic Cathode Fall along the Dielectric Surface A. SHVYDKY, University of Toledo, OH, V.N. KHUDIK, V.P. NAGORNY, Plasma Dynamics Corp., MI, C.E. THEODOSIOU, University of Toledo, OH — The dynamics of the expansion of a cathode fall along the plane cathode covered with dielectric layer is studied via Particle-in-cell/Monte-Carlo kinetic simulations. It is shown that the spreading progresses in a wave-like manner with a quite pronounced wave front where most of ionizations of the background noble gas take place. Different mechanisms of the ionization wave propagation are discussed. The role of the electron and ion diffusion is elucidated. It is found that the wave propagates over very thin dielectrics as well as very thick ones. The dependence of the wave velocity on the dielectric layer parameters and on the potential difference between the plasma and the cathode is determined.

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