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Investigation of Improved Magnetron Characteristics with Transparent Cathode SARITA PRASAD, HERMAN BOSMAN, MIKHAIL FUKS, EDL SCHAMILOGLU, Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM 87101, U.S.A. — In [1] we showed: (a) fast start and rate of build-up of oscillations, (b) magnetron operation in the stable 2pi mode over a wide range of magnetic field, and (c) very high output power levels ($\sim$ 1GW), when the transparent cathode was used. This work is an attempt to explain the reasons for improvement of the magnetron characteristics in terms of priming and/or the large amplitude of the azimuthal component of the RF electric field in the electron flow region. Different cathode designs were studied in computer simulations to investigate these two effects.

[1] H. Bosman et al. IEEE Trans. Plasma Sci, 34 (4), 606 (2006).

Sarita Prasad
Department of Electrical and Computer Engineering,
University of New Mexico, Albuquerque, NM 87101, U.S.A.

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