

Abstract Submitted
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Secondary ionization coefficient and electron reflection coefficient of MgO electrode SUSUMU SUZUKI, HARUO ITOH, Chiba Institute of Technology — Secondary ionization coefficient γ of MgO in Ar was determined using the Townsend's criterion[1] and the starting voltage of self-sustaining discharge between MgO electrodes in the plasma display panel (PDP) cell. Electron transport characteristics in the cell were also investigated under the driving condition of the PDP cell by the Monte Carlo Simulation (MCS). In this condition, the nonequilibrium electron energy distributions were recognized in the results. Therefore, the secondary ionization coefficient was about 20% larger than that in the case of energy equilibrium. In addition, γ slightly became small with an increase in initial energy of electron emitted from the cathode[1]. The secondary ionization coefficient was defined as the product of the secondary electron emission coefficient in vacuum and the electron transmission coefficient T in gases. We investigate on the influence of the electron reflection at the cathode and anode on the secondary ionization coefficient and electric power injection in the PDP cell. The result is shown that the secondary ionization coefficient is independent of the electron reflection at the electrode. Furthermore, the increases in electron reflection coefficient at the cathode and the anode give high values of the electric power injection and the delay of the time response of the electron flux at the anode, respectively.

[1] S.Suzuki and H.Itoh: Jpn.J.Appl.Phys., **43**, 10 (2004) 7234-7239.

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