

Abstract Submitted  
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**Estimation of Photon Effects on Townsend Discharges for Secondary Electron Emission Coefficient Measurements<sup>1</sup>** TOMOKAZU YOSHINAGA, HARUAKI AKASHI, National Defense Academy of Japan — A Monte Carlo simulation (MCS) is applied to investigate the secondary electron emission in Argon Townsend discharges. The influxes of ions, photons and metastable species onto the cathode surface are estimated simply from the number of inelastic collisions. The effect of photons becomes significant especially under higher pd conditions since the photon influx increases. This suggests the possibility of the estimation of the secondary electron emission coefficient of photons by examining breakdown voltage characteristics (Paschen curves). The effect of metastable species is much smaller than those of ions and photons and is negligible. The Paschen curves evaluated with MCS agrees well with the results of one-dimensional fluid model simulation when the photon effect is neglected, showing the necessity of further improvement.

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