Abstract Submitted for the GEC15 Meeting of The American Physical Society

Investigation of Self-Oscillation using Particle Balance Model¹ INSHIK BAE, BYUNGKEUN NA, HONGYOUNG CHANG², Korea Adv Inst of Sci & Tech — Self-oscillation, which is obtained by using a DC-only power supply with specific anode voltage conditions, is investigated in a cylindrical system with thermal electrons using tungsten filaments. From analysis of the obtained oscillation profiles, the experimental data is consistent with the model derived from the particle balance model. The self-oscillation period characteristics with respect to the pressure and gas species are also analyzed. As the physics and particle motion of self-oscillation near the electron avalanche is analyzed in different perspective, this study may advance the understanding of this phenomenon.

¹This research was supported by the Ministry of Knowledge Economy (MKE) of Korea (grant no. 10041681).

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Date submitted: 18 Jun 2015 Electronic form version 1.4

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