Contribution ID: **258** Type: **Poster**

EFFECTS OF PULSE SHAPES ON AXIAL VIRTUAL CATHODE OSCILLATOR

Monday 19 June 2017 13:30 (1h 30m)

Virtual cathode oscillator is a device that generates high power microwaves using oscillation of virtual cathode formed behind the anode. Virtual cathode oscillator has been studied due to its simple structure and tunability. Most virtual cathode oscillator system consists of prime power, pulsed power, microwave source, and antenna. In virtual cathode oscillator, pulsed power system produces high power pulses and shapes pulse waveforms. To build compact virtual cathode oscillator, it is required to analyze the influence of pulse forming, which possesses significant volume of the pulsed power system, on virtual cathode output. Marx generator and PFN-marx generator is used to analyze the influence of pulse shape on virtual cathode oscillator. Both input voltage is set to 300 kV. The time constant of marx generator is about 80 nsec and the pulse width of PFN-marx generator is about 80 nsec. When marx generator is used, the output power of virtual cathode oscillator is slightly lower than that of virtual cathode oscillator operated with PFN-marx generator. The difference of output power between two cases are not significant. Therefore, to achieve compact system, virtual cathode oscillator can operate without pulse forming.

Author: Mr KIM, Se-Hoon (Hanyang University)

Co-authors: Ms BAEK, Ji-Eun (Hanyang University); Mr CHO, Young-Maan (Hanyang University); Prof. KO, Kwang-Cheol (Hanyang University); Mr LEE, Chang-Jin (Hanyang University)

Presenter: Mr KIM, Se-Hoon (Hanyang University)

Session Classification: Poster session I - High Power Microwaves, RF Sources and Antennas

Track Classification: High Power Microwaves, RF Sources and Antennas