Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Characteristics of Cylindrical Microwave Plasma Source at Low Pressure[1] SEUNGIL PARK, S. YOUN, S.B. KIM, S.J. YOO, National Fusion Research Institute — A microwave plasma source with a cylindrical resonance cavity has been proposed to generate the plasma at low pressure. This plasma source consists of magnetron, waveguide, antenna, and cavity. The microwave generating device is a commercial magnetron with 1 kW output power at the frequency of 2.45 GHz. The microwave is transmitted through the rectangular waveguide with the whistle shape, and coupled to the cavity by the slot antenna. The resonant mode of the cylindrical cavity is the TE111 mode. The operating pressure is between 0.1 Torr and 0.3 Torr with the Argon and nitrogen gas. The electron temperature and electron number density of argon plasma were measured with the optical emission spectroscopy measurement. And Ar1s5 metastable density was measured using tunable diode laser absorption spectroscopy (TDLAS). The plasma diagnostic results of a cylindrical microwave plasma source would be described in this study.

[1]This work was supported by RD Program of Plasma Advanced Technology for Agriculture and Food (Plasma Farming) through the National Fusion Research Institute of Korea (NFRI) funded by the Government funds.

Seungil Park
National Fusion Research Institute

Date submitted: 25 Jul 2016 Electronic form version 1.4