

Abstract Submitted  
for the DPP06 Meeting of  
The American Physical Society

**Characterization of Atmospheric RF Plasma by an Optical Emission Spectroscopic Method** JANG-WON UHM, KYU-SUN CHUNG, JUNG-SUN AHN, HYUN-JONG WOO, HYUN-JONG YOU, GEUN-SIK CHOI, YOUNG-JUN SEO, Hanyang University, TAIHYEOP LHO, National Fusion Research Center — Although the atmospheric pressure plasmas are used for modification, sterilization, and cleaning of surfaces, it is hard to make the uniform and glow plasma in atmospheric pressure since the collisional mean-free path is very short. Hence, their applications are limited by these non-uniform characteristics. Recently, the atmospheric pressure RF jet has been issued since they have many characteristics similar to low-pressure glow discharges, such as non-thermal and uniform glow characteristics, etc. Atmospheric RF plasma jet is developed with the frequencies of 13.56 MHz and the powers of up to 1 kW with He and ambient air mixtures. With optical emission spectroscopic (OES) measurement, the exhausted plasmas are characterized with rf power, gas flows, and inlet gas ratio. Data is analyzed via LTE (Local Thermodynamic Equilibrium)/Collisional-Radiative/Corona model for atomic spectra, and via Fulcher alpha-band spectra for the molecular spectra. Controlling the discharge by flow rate and RF power, OES measured plasma parameters of each conditions. Details of atmospheric plasma generators and diagnostic models are going to be addressed.

Kyu-Sun Chung  
electric Probe Applications Lab., Hanyang University

Date submitted: 21 Jul 2006

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