PT-P013

ELECTRON TEMPERATURE ESTIMATION OF NON-THERMAL ATMOSPHERIC-PRESSURE NEON AND OXYGEN ADMIXTURE PLASMA JET BY CONVECTIVE WAVE PACKET MODEL

Jirapong SORNSAKDANUPHAP[1], Pradoong SUANPOOT[1,2], Young June Hong[1], Bhagirath Ghimire[1], Guangsup CHO[1] and EunHa CHOI[1]

[1]Changed Particle Beam and Plasma Laboratory,Department of Electro Biological Physics,Kwangwoon University, 26 Kwangwoon-Gill, WallgyeNowom, Seoul 139-701, Korea, [2]Maejo University Phrae Campus, 17 Moo 3, Maesai,Rongkwang District, Phrae Province 54140, Thailand

plasma group velocities of neon with oxygen admixture (ug) are obtained by intensified charge coupled device (ICCD) camera images at fixed gate width time of 5 ns. The propagation velocities outside interelectrode region are in the order of 104 m/s.The plasma ambipolar diffusion velocities are calculated to be in the order of 102 m/s. Plasma jet is generated by all fixed sinusoidal power supply, total gas flow and repetition frequency at 3 kV, 800 sccm and 40 kHz, respectively. The amount of oxygen admixture is varied from 0 to 2.75 %. By employing one dimensional convective wave packet model, the electron temperatures in non-thermal atmospheric-pressure plasma jet are estimated to be in a range from 1.65 to 1.95 eV.

Keywords: Non-thermal atmospheric-pressure plasma jet, convective wave packet model, electron temperature