

P2-004

A Study on Neutral Atom Heating in Inductively Coupled Plasma

서병훈^{1,2}, 유신재^{2,*}, 김정형², 성대진², 장홍영¹

¹카이스트, ²한국표준과학연구원

Neutral atom temperature was measured by Laser Rayleigh scattering method using neutral depletion by neutral heating with ideal gas law in Inductively coupled plasma. We observed sudden pressure change when plasma is turned on and off. We analyzed mechanism of neutral heating by employing zero-dimensional neutral and ion energy balance model simultaneously. The results showed that neutral atom temperature increase with ion density. The mechanism of neutral atom heating and cooling is mainly dominated by ion-neutral collision including elastic and charge-exchange collision and by wall cooling respectively.

Keywords: 플라즈마 진단, Laser scattering diagnostics, neutral heating