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Effect of step ionizations on the high energy electron temperature in an argon inductively coupled plasma. PARK GEUN-HONG, KIM KYUNG-HYUN, CHUNG CHIN-WOOK, Hanyang University — The effect of step ionizations on the high energy electron temperature was studied in an argon inductive discharge. The electron energy distribution function (EEDF) was measured by using Langmuir probe at various powers and pressures. The optical emission spectrum was also measured to obtain metastable densities. We observed the change of high energy electron temperature as increasing absorbed power. This can be explained that the contribution of multi-step ionizations increases with the electron density and pressure. The high metastable densities tend to be more affected the variation of the high energy electron temperature. As a result, the high metastable densities enhance the multi-step ionizations and therefore the high energy electron temperature increases.

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