Plasma conductivity measurement during hot cathode pre-ionization in Alborz Tokamak

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Abstract

In conventional Tokamaks the more plasma conductivity during pre-ionization, the more plasma current with low volt-sec at Ohmic Heating discharge. In Alborz Tokamak the electron density and plasma temperature during the hot cathode pre-ionization is measured by a single Longmuir probe in different locations and equivalent conductivity is calculated. The results compared to the PIC-FEM simulation results. The calculated plasma conductivity near the hot cathode is about $6.8 \times 10^3 \text{S/m}$ which is in good agreement with the simulation results.