Contribution ID: **438** Type: **Poster**

Dynamics of Neon Ions after Neon Gas Seeding and Puffing into Tokamak Plasma

Thursday 25 October 2018 14:00 (20 minutes)

High Z Impurity seeding/puffing is an important topic as it is capable to provide radiative improvement of confinement and disruption mitigation in future tokamaks. Here, in this work, numerically and experimentally, we investigate the effect of low density 1% Ne gas (Z = 10, A = 20) seeding and also massive gas puffing. Two dimensional electrostatic interchange turbulence simulation has been done in the edge and SOL regions. The Ne ion density is found maximum in the edge region, which indicates inward motion of the ions. The polarization drift and turbulent eddies play a significant role for the inward motion. The numerical results have been compared with the results obtained from the Ne seeding experiments on the ADITYA. This experiment indicates several Ne lines of higher charged states. As Ne VII has an ionization potential of 157.9 eV, hence, a Ne penetration up to at least ~0.84 is achieved. Reduction of radially outward flux by the neon gas has been observed from the numerical simulations and also from the ADITYA experiments. In this work, these results will be compared. Simulation of massive neon gas puff has been done. Substantial cooling and modification of the plasma pressure gradient have been found.

Country or International Organization

India

Paper Number

TH/P6-23

Author: Dr BISAI, Nirmal Kumar (Institute for Plasma Research, Bhat, Gandhinagar-382428, India)

Co-authors: Ms RAJ, Harshita (Institute for Plasma Research); Dr GHOSH, Joydeep (Institute for Plasma Research); Mr JADEJA, Kumarpalsinh (Institute for plasma Research); Dr CHOWDHURI, Malay Bikas (Institute for Plasma Research); Mr TANNA, Rakesh (Institute For Plasma Research); Ms MANCHANDA, Ranjana (Institute for Plasma Research); Dr DEY, Ritu (Institute for Plasma Research); Dr BANERJEE, Santanu (Institute for Plasma Research)

Presenter: Dr BISAI, Nirmal Kumar (Institute for Plasma Research, Bhat, Gandhinagar-382428, India)

Session Classification: P6 Posters