

Effect of collisional quenching on the measurement of ion specie ratios in Neutral Beam Injectors

P. Bharathi and V. Prahlad

Institute for Plasma Research, Bhat, Gandhinagar-382 428,India

E-mail: bharathi@ipr.res.in

In positive ion based Neutral Beam Injectors(NBI), generally corona model is used in analyzing the Doppler shifted spectroscopy diagnostics data for estimating the ion specie mix in the ion-source , ion and beam specie fractions in extracted beam and power fractions injected into Tokamak. At the beam energies 20-60KeV/amu, the non-radiative processes such as collisional quenching of the excited neutrals affect these estimations when background pressure is $\geq 1\text{mTorr}$. We present here a modified corona model that takes into account the affect due to collisional quenching. We describe the application of the present model to a typical Doppler shifted spectral data obtained in SST-1-NBI injector.