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14.54 Analysis of Edge Passive Emission in Charge Exchange Recombination Spectra on EAST Tokamak

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For the edge CXRS on EAST, the ACX signal is strongly overlapped with passive signals, and the CXRS measurements are compounded spectra consisting of ACX signal and line-integrated background passive signal. Therefore, the analysis and understanding of passive emission is crucial to exclude its influence on the measurement of the ACX. The 1-D impurity transport code STRAHL is used to study the distribution of passive emission. By using assumed transport coefficients D and v , the carbon ions ($C5+$, $C6+$) distributions are calculated by STRAHL. According to the photon emissivity coefficients taken from ADAS, the radial emissivity profiles of the three components of passive emission, EIE, REC and PCX are obtained. Total local passive emission profile is integrated along line-of-sight (LOS) to give the intensity profile. It is consistent well with the experimental LOS profile in $\rho < 0.9$ region. While in $\rho > 0.9$ region, the experimental emission is much higher than the simulated value. By comparing with the local emission profile deduced by Abel inversion, the inconsistency of simulated and experimental results is considered due to the unreasonable high local emissivity at the edge region, which could be caused by strong wall reflection.

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