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Evaluation Method of Local Density Fluctuation Using Heavy Ion Beam Probe in CHS HARUHISA NAKANO, AKIHIDE FUJISAWA, AKIHIRO SHIMIZU, National Institute for Fusion Science, SHINSUKE OHSHIMA, Nagoya University, CHS GROUP TEAM — Density fluctuation measurement in a Heavy Ion Beam Probe (HIBP) contains not only local density fluctuation, but also density fluctuation along beam orbit (known as the path integral effect). We have developed a method to remove the path integral effect and to deduce the local density fluctuation from the detected beam fluctuation. In this method, it is necessary to know correlation property of fluctuations, supposed that the electron temperature and density are known from some other diagnostics to estimate the ionization cross-section. In CHS, the temperature and density are given, and the HIBP has three neighboring observation points that allow us to evaluate the correlation property. We have applied the developed method, and have obtained the reconstructed local density fluctuation profile successfully. Furthermore, the local density fluctuation spectrum is successfully deduced by treating Fourier components of fluctuations individually. The paper presents the method and the obtained results in CHS.

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