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EX/P3-03: Potential Fluctuation Study from the Core Plasma to End Region in the GAMMA 10 Tandem Mirror

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Correlation between the drift type fluctuation and anomalous radial transport was observed in GAMMA 10 and these fluctuations were suppressed by electron cyclotron heating (ECH) driven radial electric field. We have developed new diagnostics to investigate for these studies, which are a simultaneous two points measuring gold neutral beam probe (GNBP) for the radial electric field and potential fluctuation and a high speed end plate potential fluctuation measurement system. The radial electric field and its fluctuation successfully obtained by using simultaneous two point measurements. The potential fluctuation phase difference between the two measuring positions in a single plasma shot was obtained for fluctuation analysis. The coherency of the drift type potential fluctuations between the core plasma by GNBP and that of the end plate measurement was clearly observed. By using end plate system with the GNBP, we can study detailed potential fluctuations in the core plasma without ECH. It is found that these potential and electric field fluctuations are clearly suppressed by the positive electric fields. We have obtained the strong tools for investigating the correlation of the radial electric field and the potential fluctuations between core and edge plasmas.

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