

Radial Characteristics of a Magnetized Plasma Column

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The cross-field transport of electrons/ions across magnetic field is fundamentally important as it determines the characteristics of plasma wetted area in the scrape of layer region and particle confinement in magnetically confined plasma devices. The electrically biased objects in the edge region inside tokamaks as well as in Linear plasma devices are known to influence the dynamics of charge particles. The external electrodes in magnetized column can introduce long range electric fields in the plasma column. This leads to either excitation/ suppression of the instabilities responsible for such transport.

In this paper we present experimental results on radial plasma characteristics obtained of a cylindrical plasma column produced in a Linear Device. The magnetized plasma column at one end is terminated with conducting electrodes which are deliberately biased with respect to the plasma. The nature of the long range perturbation during application of electric bias on the electrodes have been investigated using electric probes and its impact on the radial characteristics have been qualitatively explained.

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Primary author: Mr DAS, Satadal (Institute For Plasma Research)

Co-author: Dr KARKARI, Shantanu K. (Institute For Plasma Research)

Presenter: Mr DAS, Satadal (Institute For Plasma Research)

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