

Abstract Submitted
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Collective Thomson scattering investigations of the Hall thruster plasma SEDINA TSIKATA, ICARE, CNRS, CYRILLE HONORE, DOMINIQUE GRESILLON, LPP, Ecole Polytechnique, NICOLAS LEMOINE, JORDAN CAVALLIER, Institut Jean Lamour, Universite de Lorraine — Anomalous electron transport outside the Hall thruster channel is believed to be due to plasma turbulence. Recent experiments using a specially-designed collective Thomson scattering diagnostic on a 5kW thruster have permitted the identification of a wave believed to be involved in transport. The observed properties of the mode, which is naturally driven by the fast azimuthal electron drift, are in line with predictions from PIC simulations and linear kinetic theory analysis. Detailed characterizations of mode properties, including dispersion relation, directivity, spatial extent and fluctuation amplitude have been obtained. These studies are now extended to consider the universality of mode features in a 200W permanent magnet Hall thruster and links between thruster performance, operating régimes and the presence of such a mode.

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