

Abstract Submitted
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Plasma Rotation Control Experiment in a Strongly Diverging Magnetic Field¹ KENICHIRO TERASAKA, KANSHI FURUTA, Kyushu University, SHINJI YOSHIMURA, National Institute for Fusion Science, MITSUTOSHI ARAMAKI, Nihon University, MASAYOSHI Y. TANAKA, Kyushu University — It has been recognized that the plasma rotation affects the plasma flow structure along the magnetic field line. However, the effect of plasma rotation on structure formation in a strongly diverging magnetic field with magnetized electrons and unmagnetized ions has not been fully understood, so far. Understanding the flow structure formation in an ion-unmagnetized plasma is essential to control ion streamline detachment from the magnetic field line and also necessary to study the astrophysical phenomena in laboratory. In order to clarify the effect of plasma rotation in a diverging magnetic field, we have performed the plasma rotation control experiment in the HYPER-II device at Kyushu Univ., Japan. A set of cylindrical electrode was utilized to control the radial electric field, and the profile of azimuthal $E \times B$ rotation has been changed. We present the experimental results on the electron density pileup and the flow reversal appeared in the rotating plasma.

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