Abstract Submitted
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Magnetic Fluctuation Profile Measurement Using Optics of Motional Stark Effect Diagnostics in JT-60U[1] TAKAHIRO SUZUKI, AKIHIKO ISAYAMA, GO MATSUNAGA, TAKAAKI FUJITA, TOSHIHIRO OIKAWA, YUTAKA KAMADA, Japan Atomic Energy Agency — Motional Stark effect (MSE) diagnostics in JT-60U works as polarimeter to measure the pitch angle of magnetic field as well as beam-emission-spectroscopy (BES) monochromator simultaneously at 30 spatial channels. Fluctuation in the BES signal contains fluctuations in plasma density and pitch angle. In a high beta plasma with MHD activity, density fluctuation is measured at the same frequency as the n=1 magnetic fluctuation measured by pickup-coils outside the plasma. With correlation analysis of the BES signals, the density fluctuation profile is not only inverted near q=2 surface measured by the MSE, but also inverted at opposite toroidal angles at the same radial position. Thus, it is reasonably concluded that the fluctuation is induced by rotating magnetic islands spatially localized about q=2 surface. In the discharge, fluctuation at the beat frequency ($f_{\mathrm{PEM}} \pm f_{\mathrm{n}}$) of pitch angle measurement (f_{PEM}) and density fluctuation (f_{n}) shows a signature of pitch angle fluctuation. The spatial structure of the pitch angle fluctuation is discussed.

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