

Abstract Submitted  
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**Effects of stochastic field lines on the pressure driven MHD instabilities in the Large Helical Device**<sup>1</sup> SATOSHI OHDACHI, KIYOMASA WATANABE, SATORU SAKAKIBARA, YASUHIRO SUZUKI, HAYATO TSUCHIYA, TINGFENG MING, XIAODI DU, National Institute for Fusion Science, LHD EXPERIMENT GROUP TEAM — In the Large Helical Device (LHD), the plasma is surrounded by the so-called magnetic stochastic region, where the Kolmogorov length of the magnetic field lines is very short, from several tens of meters and to thousands meters. Finite pressure gradient are formed in this region and MHD instabilities localized in this region is observed since the edge region of the LHD is always unstable against the pressure driven mode. Therefore, the saturation level of the instabilities is the key issue in order to evaluate the risk of this kind of MHD instabilities. The saturation level depends on the pressure gradient and on the magnetic Reynolds number; there results are similar to the MHD mode in the closed magnetic surface region. The saturation level in the stochastic region is affected also by the stochasticity itself. Parameter dependence of the saturation level of the MHD activities in the region is discussed in detail.

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