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Two-dimensional impurity transport study in stochastic magnetic field layer at low- and high-density discharges of LHD[1] SHIGERU MORITA, TETSUTAROU OISHI, National Institute for Fusion Science, HONGMING ZHANG, Department of Fusion Science, Graduate University for Advanced Studies, MASAHIRO KOBAYASHI, MOTOSHI GOTO, GAKUSHI KAWAMURA, National Institute for Fusion Science, XIANLI HUANG, Department of Fusion Science, Graduate University for Advanced Studies — Edge stochastic magnetic field layer of Large Helical Device (LHD) consists of short and long open magnetic fields ranging in $10 \leq L_c \leq 2000$m. When the edge density increases, the friction force along magnetic field is entirely dominant in outer region of the stochastic magnetic layer which leads to the impurity screening. In order to study the parallel impurity transport two-dimensional impurity emissions from several impurity spices have been measured in EUV wavelength range (10-500Å) and a clear impurity footprint along poloidal X-point trajectory is observed. The poloidal impurity footprint, e.g. CIV, is separated into double trajectories at high-density discharges ($n_e \geq 5\text{x}10^{13}\text{cm}^{-3}$), whereas it shows single trajectory at low-density discharges ($n_e \leq 2\text{x}10^{13}\text{cm}^{-3}$). The result clearly indicates the presence of the friction force. The 2-D distribution analyzed by 3-D edge transport code, EMC3-EIRENE is discussed on the friction force and temperature gradient force along magnetic fields.

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