

Abstract Submitted
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Statistics of field-aligned intermittent electron flux in a linear ECR plasma¹ SHINJI YOSHIMURA, National Institute for Fusion Science, KENICHIRO TERASAKA, Kyushu University, MITSUTOSHI ARAMAKI, Nagoya University, MASAYOSHI Y. TANAKA, Kyushu University — Spontaneous emission of field-aligned intermittent high-energy electron flux has been observed in a linear electron-cyclotron-resonance (ECR) plasma produced in the HYPER-I device (NIFS, Japan). We utilized the temporal variation of probe's floating potential due to electron influx as an index of the intermittent events. Time series of the floating potential fluctuation have been analyzed statistically. The probability density function (PDF) exhibits a non-Gaussian distribution with a long tail in the negative amplitude side, indicating that the signal is dominated by large amplitude negative spikes. The frequency distribution of waiting time, which is defined by the time interval between two consecutive spikes, is well fitted by an exponential distribution, implying a probable connection to the stationary Poisson process. Although a power-law dependence is found in the duration distribution, its relation to the self-organized criticality has not been clear. The effect of ion species on the statistics above will also be discussed.

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