

Abstract Submitted
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ECE imaging of modified edge localized modes (ELMs) under n=1 magnetic perturbations in KSTAR¹ JAEHYUN LEE, G.S. YUN, M. KIM, M.J. CHOI, W. LEE, H.K. PARK, POSTECH, Pohang, Korea, J.H. LEE, Y.M. JEON, National Fusion Research Inst., Daejeon, Korea, C.W. DOMIER, N.C. LUHMANN, JR., Univ. California, Davis, A.J.H. DONNÉ, FOM-DIFFER and Eindhoven Univ. of Tech., The Netherlands, KSTAR TEAM — In order to control the ELMs in KSTAR H-mode plasmas, magnetic perturbations (MPs) of toroidal mode number n=1 were introduced through three sets of field error correction (FEC) coils [1] during the 2011 campaign. The plasma response was studied in 2-D using electron cyclotron emission imaging (ECEI) diagnostic [2], which showed alteration of both the spatial structure and temporal dynamics of the ELMs. The characteristics of the ELMs such as the growth rate, filament size, and poloidal flow are compared before and after the n=1 MP for various configurations of the FEC coil currents. In particular, the ELM suppression by resonant MP condition is characterized by occasional (non-periodic) tiny transport events, which involve the appearance and crash of transient filament structure localized near the separatrix.

[1] Y. Jeon et al., accepted for publication in Phys. Rev. Lett.

[2] G.S. Yun et al., Phys. Rev. Lett., 107, 045004 (2011).

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