Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

**Modified edge-localized mode (ELM) structures and dynamics under static n=1 resonant MP in the KSTAR tokamak**[1] J. LEE, G.S. YUN, M. KIM, M.J. CHOI, W. LEE, H.K. PARK, Pohang University of Science and Technology, C.W. DOMIER, N.C. LUHMANN, JR., University of California, Davis, Y.M. JEON, S.G. LEE, National Fusion Research Institute, KSTAR TEAM — Magnetic perturbations (MPs) are one of the methods to suppress or mitigate the edge-localized modes (ELMs) by enhancing particle transport and keeping the edge pressure gradient below a threshold. In the 2012 KSTAR campaign, static $n = 1$ resonant MPs [1] altered both the spatial structure and temporal dynamics of ELMs. In particular, the electron cyclotron emission (ECE) images [2] of the plasma edge region showed that the ELM filaments still remained without burst during the entire ELM-crash-suppressed period. The observation suggests that the MP did not prevent the growth of ELM perturbation, but instead kept the growth below a critical value. During this period, the apparent poloidal motion of the ELM filaments was random, suggesting that the MP caused the plasma edge to become stationary in the laboratory frame. The poloidal spacing between the filaments reduced from $\sim 20$ cm before MP to $\sim 13$ cm after MP, which suggests a transition to a higher toroidal mode number.

[1] Y.M. Jeon et al. Phys. Rev. Lett. 109 (2012)
[2] G.S. Yun et al., Phys. Rev. Lett. 81 (2011)

[1]Work supported by NRF Korea under contract no. 2013035905 and US DoE under contract no. DE-FG-02-99ER54531

Gunsu Yun
Pohang University of Science and Technology

Date submitted: 12 Jul 2013 Electronic form version 1.4