Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Radio frequency bursts accompanied by the crash dynamics of edge-localized mode[1] MINHO KIM, SHEKAR G. THATIPAMULA, GUNSU S. YUN, Pohang University of Science and Technology, KANGWOOK KIM, Kyungpook National University, YONG-UN NAM, National Fusion Research Institute — Electromagnetic burst emissions in the radio frequency (RF) range (0.1˜1 GHz) from the KSTAR high confinement (H) – mode plasma are detected using RF spectrometers. The RF burst emission is primarily associated with the crash dynamics of the edge-localized mode (ELM) observed by imaging diagnostics [G. S. Yun et al. Phys. Rev. Lett. 107, 045004 (2011); J. Lee et al. Phys. Rev. Lett. accepted (2016)]. A persistent emission appears in narrow band prior to the ELM crash, often overlapping with deuteron or proton ion cyclotron harmonics. The emission lines become more intense and broader toward crash, which is correlated with the structural change of the mode. At the onset of ELM crash, the emission turns wide band and is often followed by short intense bursts (2–3 μs) with rapid-frequency chirping in steps of deuteron or proton cyclotron frequency. Hence, the RF signals offer the scope for revealing the complex dynamics of the ELM crash. *Work supported by the National Research Foundation of Korea (NRF) under contract No. NRF-2014M1A7A1A03029881 and BK21+ program.

[1]National Research Foundation of Korea

Gunsu Yun
Pohang University of Science and Technology

Date submitted: 15 Jul 2016 Electronic form version 1.4