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Comparative ELM study between the observation by ECEI and linear/nonlinear simulation in the KSTAR plasmas[1] MINWOO KIM, UNIST, HYEON K. PARK, UNIST and NFRI, GUNSU YUN, JAEHYUN LEE, JIEUN LEE, POSTECH, WOOCHANG LEE, UNIST, STEPHEN JARDIN, PPPL, X. Q. XU, LLNL, KSTAR TEAM — The modeling of the Edge-localized-mode (ELM) should be rigorously pursued for reliable and robust ELM control for steady-state long-pulse H-mode operation in ITER as well as DEMO. In the KSTAR discharge #7328, a linear stability of the ELMs is investigated using M3D-C1 and BOUT++ codes. This is achieved by linear simulation for the $n = 8$ mode structure of the ELM observed by the KSTAR electron cyclotron emission imaging (ECEI) systems. In the process of analysis, variations due to the plasma equilibrium profiles and transport coefficients on the ELM growth rate are investigated and simulation results with the two codes are compared. The numerical simulations are extended to nonlinear phase of the ELM dynamics, which includes saturation and crash of the modes. Preliminary results of the nonlinear simulations are compared with the measured images especially from the saturation to the crash.

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