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Study of Type III ELMs in the KSTAR Tokamak

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In this paper, we report the characteristics of Type III ELM in KSTAR mostly focusing on the Type III ELM regime after L-H transition. In the KSTAR tokamak, Type III ELMs are frequently observed after the transition from L-mode to H-mode. The repetition frequency of the Type III ELMs is 200~1000 Hz. As the edge plasma pressure increases, ELM-free regime occurs, which is followed by Type I ELM regime. Type III ELM regime at the L-H transition occurs regardless of the input powers. A magnetic precursor oscillation observed before the Type III ELM crash in the low field side midplane while ELM bursts are observed in all toroidal and poloidal Mirnov coils. In this study, we perform the MHD stability analysis of the plasma edge with considering the density perturbation.

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