

Abstract Submitted
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Transport and MHD simulations of intrinsic and pellet induced ELMs KI MIN KIM, Center for Advance Research in Fusion Reactor Engineering, YONG-SU NA, Seoul National University, SUMIN YI, National Fusion Research Institute, HYUNSEOK KIM, Seoul National University, JIN YONG KIM, National Fusion Research Institute — Verification of ELM mechanism and demonstration of ELM control are important issues in current fusion researches targeting ITER and DEMO. This work investigates the physics and operational characteristics of intrinsic and pellet induced ELMs throughout transport simulations using 1.5 D transport codes (C1.5/ASTRA) and MHD simulations using M3D code. Transport simulations are focused on prediction of the global parameters such as ELM energy loss in the type-I ELMy H-mode discharges with and without pellet pace making to examine an applicability of pellet injection for ELM mitigation in KSTAR and ITER. On the other hand, MHD simulations are conducted to explore the physics of intrinsic and pellet induced ELMs by applying the artificial free energy sources of velocity stream and density perturbations on the marginally stable equilibrium, respectively. Similarities and differences of triggering phenomena between intrinsic and pellet induced ELMs are discussed from the MHD approach.

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