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Modeling on Pellet Injection in Tokamak Plasmas KI MIN KIM, HYUNSUN HAN, YONG-SU NA, SANG HEE HONG, Seoul National University, P.T. LANG, Max Planck Institute for Plasma Physics, B. ALPER, A. BOBOC, Euratom/UKAEA Fusion Association, JET-EFDA CONTRIBUTERS COLLABORATION[1] — Modeling on pellet injection in tokamak plasmas is conducted with a 1.5D core transport code. The calculated electron density evolution after the sequential pellet injections appear to be in good agreements with the JET measurements. Some discrepancies are observed on the particle transport in the higher density enhanced in each pellet fueling phase. The modeling reproduces the measured data more closely by increasing the plasma transports when approaching the higher density. Based on this simulation, the pellet fueling in KSTAR is predicted to provide the design parameters of a pellet launching system. ELM triggering by pellet is studied with the transport code as well, which discusses that the enhancements of surface-averaged pressures and locally-perturbed pressure gradients by pellets might be responsible for driving the ideal ballooning mode to trigger ELMs. Density-enhanced ELMs in the post pellet phase are presented as additional ELMs induced by pellet injection.

[1]See the Appendix of F. Romanelli et al., Fusion Energy (Proc. 22nd Int. Conf. Chengdu) IAEA, 2008

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