

Abstract Submitted
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Simulation studies of neutron production and triton burn-up rates in the deuterium plasma of LHD S MURAKAMI, Y SAITO, M HOMMA, Dpt. Nuclear Eng., Kyoto Univ., H YAMAGUCHI, M ISOBE, K OGAWA, T NISHITANI, NIFS, NINS, LHD EXP GROUP TEAM — The deuterium plasma experiment has been started from 2017 campaign in LHD. The study of the energetic particle is one of the important issues in the deuterium plasma experiment of LHD. We investigate the D-D fusion reaction rates in the deuterium plasma to compare with the experimental results in LHD. The NBI blip experiment was performed and the time behaviour of the neutron production rate was measured. We evaluate the neutron production rate by GNET-TD assuming the experimentally observed density and temperatures of the NBI blip experiment. We see a relatively good agreement in the time behavior of the neutron production rate. Also, we compare the simulation and experimental results in the stationary plasma. Next, we perform the triton burn-up simulation of the deuterium experiment of LHD and evaluate the D-T fusion reaction rates to compare with the experimental results of the 14 MeV neutron diagnostic system.

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