

Abstract Submitted  
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**Simulation of the ELMs triggering by lithium pellet on EAST tokamak using BOUT++<sup>1</sup>** Y. M. WANG, X. Q. XU, LLNL, Z. WANG, LANL, Z. SUN, J. S. HU, X. GAO, ASIPP — A new lithium granule injector (LGI) was developed on EAST. Using the LGI, lithium granules can be efficiently injected into EAST tokamak with the granule radius 0.2- 1 mm and the granules velocity  $\sim$ 30-110 m/s. ELM pacing was realized during EAST shot #70123 at time window from 4.4-4.7s, the average velocity of the pellet was  $\sim$ 75 m/s and the average injection rate is at  $\sim$ 99Hz. The BOUT++ 6-field electromagnetic turbulence code has been used to simulate the ELM pacing process. A neutral gas shielding (NGS) model has been implemented during the pellet ablation process. The neutral transport code is used to evaluate the ionized electron and Li ion densities with the charge exchange as a dominant factor in the neutral cloud diffusion process. The snapshot plasma profiles during the pellet ablation and toroidal symmetrization process are used in the 6-field turbulence code to evaluate the impact of the pellets on ELMs. Destabilizing effects of the peeling-ballooning modes are found with lithium pellet injection, which is consistent with the experimental results. A scan of the pellet size, shape and the injection velocity will be conducted, which will benefit the pellet injection design in both the present and future devices.

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Yumin Wang  
Lawrence Livermore Natl Lab

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