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**Six-field two-fluid simulations of ELM power depositions on divertor target in real tokamak geometry using BOUT++ code**[1] T.Y. XIA, Institute of Plasma Physics, CAS, X.Q. XU, M.E. FENSTERMACHER, Lawrence Livermore National Laboratory — The six-field two-fluid model based on the Braginskii equations in BOUT++ simulation framework is used to study the edge localized modes (ELMs) in realistic tokamak discharges of DIII-D and EAST with the experimentally measured profiles of density, radial electric field, electron and ion temperatures as the initial conditions. The simulations with two different resolutions on the lower single-null geometry are done to describe the evolutions of pedestal energy loss, density profile and heat flux on divertor through the ELM event. The simulation for high resolution shows much faster energy loss than the low resolution one, and leads to the twice of the amplitude for ion heat flux. Our high simulations show that the total energy loss for the small ELM with high frequency is well consistent with the measurement. The amplitudes of heat flux on divertor target are comparable with the early time evolutions of the IR heat flux measurement. Plasma sheath boundary conditions (SBC) are implemented at the divertor plate and they can effectively broaden the heat flux distribution at the outer plate compared to the Dirichlet boundary conditions. The poloidal structures of the heat flux on divertor target will be reported in this paper.

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