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δf gyrokinetics for the scrape-off layer transport QINGJIANG PAN, FRANK JENKO, DANIEL TOLD, Univ of California - Los Angeles — Edge plasmas present a few challenges for gyrokinetic simulations that are absent in tokamak cores. Among them are large amplitudes of fluctuations and plasma-wall interactions in the open field line region. Recently, the widely-used core-turbulence code GENE, which applies δf-splitting technique, is extended to simulate open systems with large electrostatic deviations from the background plasmas. With inclusion and proper discretization of the parallel nonlinear term, δf-splitting causes no extra fundamental difficulty in handling large deviations. The loss of particles to the wall is accounted by using logical sheath boundary, which is implemented in the context of finite-volume method. The extended GENE is benchmarked for the well-established parallel transport in the scrape-off layer (SOL) during edge-localized modes (ELMs). The parallel heat flux deposited onto the divertor target due to the ELM pulse is compared with previous simulation results and shows good agreement.

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