

Abstract Submitted  
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**Phase Space Dynamics of Runaway Electrons in Current Overdrive Regime** XIAOYIN GUAN, HONG QIN, NATHANIEL FISCH — Phase space structure of runaway electrons in current overdrive regime is studied. During current overdrive, RF waves drive current in the opposite direction of the Ohmic field, which recharges the central solenoid in steady state tokamak. High power RF waves can push electrons to the high energy region in the momentum space, which is able to generate a large population of backward runaway electrons. Phase space evolution of runaway electrons mainly depends on the balance of Ohmic field, radiation, and collisions. It is shown that it's easier to generate backward runaway electrons in some momentum space regions than others. In the current overdrive regime, we need to carefully choose RF wave parameters to avoid generating too many backward runaway electrons.

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