

Electromagnetic effects on quasilinear turbulent particle transport

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Particle transport in tokamak plasmas requires a nonadiabatic part of the electron density response. There are two main reactive such effects, electron trapping and electromagnetic induction. Electromagnetic induction gives a phase difference between density and potential perturbations which we have expressed analytically and analysed. Parameter scans and comparisons with more general numerical results including parallel ion motion and impurities have been made. The results show that modes propagating in the ion drift direction give an outward electron flux while modes propagating in the electron drift direction give electromagnetic pinch contributions. The modes driving the pinch are kinetic ballooning modes.