

Radial Transport and Electron Cyclotron Current Drive in the TCV and DIII-D Tokamaks

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Abstract

Calculation of electron cyclotron current drive (ECCD) with the comprehensive CQL3D Fokker-Planck code for a TCV tokamak shot gives 550 kA of driven toroidal current, in marked disagreement with the 100 kA experimental value. Published ECCD efficiencies calculated with CQL3D in the much larger, higher-confinement DIII-D tokamak are in excellent agreement with experiment. The disagreement is resolved by including in the calculations electrostatic-type radial transport at levels given by global energy confinement in tokamaks. The radial transport of energy and toroidal current are in agreement.

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