ANALYTICAL MODEL FOR THE PERPENDICULAR TEMPERATURE ENHANCEMENT IN LOWER-HYBRID CURRENT DRIVE

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Abstract

The enhancement of the perpendicular temperature inside the resonant region, observed in numerical studies of the two-dimensional Fokker-Planck equation, combined with unidirectional RF quasilinear diffusion, is modeled on the basis of the collisional relaxation equations. Strong RF diffusion is assumed and relativistic effects are taken into account. The resulting enhanced perpendicular temperature is a function of the position and the width of the applied RF spectrum. Good agreement with two-dimensional Fokker-Planck numerical results has been found.

August 1985

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