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Quasilinear Line Broadened Model for Energetic Particle Transport[1] KATY GHANTOUS, NIKOLAI GORELENKOV, Princeton Plasma Physics Lab, HERBERT BERK, Institute for Fusion Studies — We present a self-consistent quasi-linear model that describes wave-particle interaction in toroidal geometry and computes fast ion transport during TAE mode evolution. The model bridges the gap between single mode resonances, where it predicts the analytically expected saturation levels, and the case of multiple modes overlapping, where particles diffuse across phase space. Results are presented in the large aspect ratio limit where analytic expressions are used for Fourier harmonics of the power exchange between waves and particles, $< ev_d \cdot \delta E >$. Implemention of a more realistic mode structure calculated by NOVAK code are also presented.

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