

Abstract Submitted
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Beam Particle distribution Modification by low amplitude Modes¹ ROSCOE WHITE, Princeton University, NIKOLAI GORELENKOV, Princeton Plasma Physics Lab, WILLIAM HEIDBRINK, MICHAEL VAN ZEE-LAND, General Atomics — Modification of a high energy beam profile by a spectrum of low amplitude modes is investigated. The effects of a time dependent q profile and frequency chirping of the modes are included. It is found that a few modes with amplitudes of $\delta B/B = 2 \times 10^{-4}$ can have a significant effect on the beam distribution function provided that the spectrum includes modes that produce resonances in the particle distribution and that some modes chirp, ie have time dependent frequencies causing resonances to sweep through the plasma. The importance of the chirping is that as resonances move through the plasma they interact with each other and with particles of different location, energy and pitch. It is known that many modes are present in the experiments, to simulate the experimental results it is necessary to select those modes that through resonance are effective in modifying the distribution.

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