Improving Regular Acceleration in the Nonlinear Interaction of Particles and Waves[*],G. CORSO and <u>R. PAKTER</u> IF-UFRGS, Brasil -

In this work we study the effects arising from the inclusion of a stationary extraordinary mode in the resonant interaction of magnetized particles and perpendicularly propagating electrostatic waves[1]. It is found that for a stationary mode frequency of the order of the Larmor frequency and with a suitably chosen amplitude one is able to suppress the resonance which drives the weakly relativistic dynamics into chaos. Improved regular acceleration of initially low energy particles is thus attained. Analytical estimates of the optimal stationary mode amplitude is presented. Main results are verified with help of single particle numerical simulations.

1 R. Pakter and G. Corso, Phys. Plasmas 2, 4312 (1995).