

Evaluation of Dynamic Aperture in the Presence of Phase Space Distortions, E. TODESCO*, INFN; M. GIOVANNOZZI, W. SCANDALE, CERN - We study symplectic mappings which occur in the modelization of the 4D betatronic motion in a magnetic lattice and define the dynamic aperture in terms of the connected volume in phase space of initial conditions which are bounded for a given number of iterations. Different methods for a fast estimate of the dynamic aperture are outlined; the analysis of the associated errors and the optimization of the integration steps are also reviewed. The accuracy of the different approaches have been tested by mean of numerical simulations. Both simple models and more realistic lattices have been considered.

* Work partially supported by EC Human Capital and Mobility contract Nr. ERBCHRXCT940480.