

Dynamic Aperture Studies at the ESRF,
A. ROPERT, ESRF - Machine performances in third generation light sources could be significantly affected by an insufficient dynamic aperture. At the ESRF, the dynamic aperture is mainly dominated by the strong chromaticity correcting sextupoles and by lattice imperfections. Despite the more demanding requirements induced by the evolution of the optics (reduction of the initial 7 nm emittance down to the present 3.7 nm figure, decrease of the vertical betatron functions in the straight sections from 11 to 2.5 m), a significant enlargement of the theoretical dynamic aperture has been achieved. In this paper, the results of dynamic aperture measurements are presented and compared with simulations. A troubleshooting method to identify unexpected transverse aperture limitations is also discussed.