Joint DESY and University of Hamburg Accelerator Physics Seminar

Tuesday, 22.01.2019

(16:00 in Room 459/30b)

Studies of Collective Effects for Non Uniform Filling Patterns in Electron Storage Rings

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Abstract

Collective effects play a crucial role in the performance and stability of low-emittance storage rings. If not properly controlled, collective effects can lead to beam quality degradation and instabilities. Besides playing a detrimental role, collective effects may be used to enhance beam stability, as in the case of operations with passive harmonic cavities for bunch lengthening and beam lifetime improvement. The very common use of multi-bunch modes of operation with variable gaps in the uniform filling and hybrid bunch trains requires the analysis of collects effects for non uniform filling patterns. In this contribution we discuss the coupled-bunch instability for arbitrary multi-bunch configurations, and the stability and performance of a passive harmonic cavity system as a function of the gap in the uniform filling pattern, with parameters of the NSLS-II storage ring.

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