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Optics Diagnostics with AC Dipoles (CANCELLED)

Tuesday 21 June 2011 09:20 (20 minutes)

An AC dipole is an exciter of a beam bunch for optics measurements based on observation of turn-by-turn orbits with beam position monitors. By driving the bunch with a sinusoidally oscillating dipole magnetic field, whose frequency is close to betatron frequency and amplitude is adiabatically ramped up and down, the AC dipole can produce a sustained large oscillation with almost no emittance growth. Non-destruction nature of the AC dipole is particularly useful for slow cycled hadron rings with no dumping from synchrotron radiation and effectiveness of the AC dipole has been demonstrated in AGS, SPS, RHIC, Tevatron, and LHC. This talk presents a basic concept and operational experience of the AC dipole based optics measurement as well as address statistical and systematic limitation of this method.

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