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Linear Imperfections

Thursday 12 May 2022 11:25 (1 hour)

A real accelerator may deviate significantly with respect to the ideal model due to manufacturing and installation uncertainties. Such deviations or imperfections impact many aspects like machine apertures, optics quality and performance, and they must be corrected to limit or minimize their impact of the beam. This lecture discusses the uncertainties affecting the linear machine: errors in dipole and quadrupolar fields as well as misalignment and their impact on orbit and optics. The concepts to compensate the errors are outlined. The impact of tides and vibrations are presented as example of how dynamically varying imperfections may impact a large accelerator like the LHC.

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