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Longitudinal beam dynamics II

Tuesday 27 June 2023 11:00 (1 hour)

In the first part of the lecture, the main characteristics of synchrotron motion, namely, synchronous particle and phase, bucket area and emittance are introduced. The equations of longitudinal particle motion in a single RF system of a proton synchrotron are re-derived and the phase equation is analysed for small and large amplitude particles. The particle motion below and above transition crossing is also considered.

The main applications and operation modes of a double RF system are discussed in the second part of the lecture.

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