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【327】Transverse beam stability and Landau damping at LHC and FCC

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During their passages in the accelerator beam pipe, the charged particles induce electromagnetic wake fields that cause coherent oscillations of the beams. The excited coherent modes may lead to beam instabilities with a consequent limitation of the collider performances. The Landau damping, given by the diversification of oscillation frequencies of the particles in the beams, is a stabilizing mechanisms to mitigate such effects. Motivated by the observed LHC instabilities, we present studies of the Landau damping for the LHC and extrapolations for the Future Circular Collider (FCC).

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