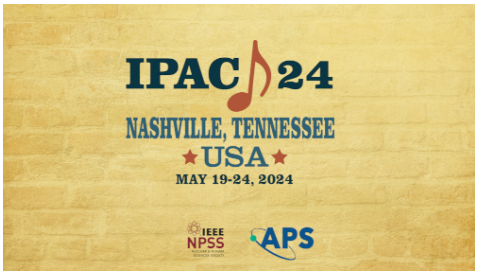

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Impact of second-order chromaticity on the Schottky spectra of bunched beams

Wednesday, 22 May 2024 16:00 (2 hours)

Observation of Schottky signals provides information on important beam and machine parameters, such as transverse emittance, betatron tune, and first-order chromaticity. However, the so-far developed theory of Schottky spectra does not include the impact of the higher-order chromaticity, known to be non-negligible in the case of the Large Hadron Collider (LHC). In this contribution, we expand the theory of Schottky spectra to also take into account second-order chromaticity. Analytical results are compared with macro-particle simulations and the errors resulting from neglecting second-order chromaticity are assessed for the case of the LHC.

Footnotes

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