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Time-resolved measurements of transverse beam excitation in an electron storage ring

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In the Karlsruhe Research Accelerator (KARA), electron beams of up to 200 mA are stored with an energy of 2.5 GeV, while injection is performed at 500 MeV. At the injection energy, the beam life time and the injection efficiency depend largely on Touschek scattering. As a counter-measure, the beam size can be enlarged transversally by an excitiing modulation, e.g. applied via a strip-line. Here, we examine different excitation strategies and their effects on beam size and the beam orbit. The ultra-fast line camera KALYPSO is used to measure the transverse beam profile via the emitted synchrotron radiation on a turn-by-turn basis.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

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