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Emittance exchange with periphery cut for high-brightness beam

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The exchange of transverse and longitudinal emittances is a unique feature of emittance exchange (EEX) beamline, but it is also a limitation of it at the same time. Most of the modern high-brightness injectors provide much smaller emittance in the transverse plane than the longitudinal plane. Thus, a beam passing through a single EEX beamline ends up with a large transverse emittance, which significantly limits EEX beamline's use for its various applications. Here, we present a preliminary study for avoiding this issue by optimizing the beamline for longitudinal emittance, correcting nonlinearities, and cutting the periphery of the phase space.

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Footnotes

I have read and accept the Privacy Policy Statement

Yes

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