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MENT algorithm for transverse phase space reconstruction at SIRIUS

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The injector system of SIRIUS, the brazilian 4th generation synchrotron light source, currently operates with non-ideal injection efficiencies, which may impose limits to future top-up operation modes. Within this context, diagnostic techniques to access beam quality in the injector are essential tools for optimizations. In this work, the MENT algorithm was implemented for the reconstruction of two-dimensional probability densities, aiming to determine the electron density in the transverse phase space at the end of the LINAC. The implemented method has been validated through simulations of several distributions, demonstrating its reliability, and applied to analyze preliminary experimental results.

Footnotes

Paper preparation format

LaTeX

Region represented

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