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Beam tilt characterization with passive corrugated structures

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Passive wakefield devices such as corrugated structures have demonstrated great potential for longitudinal phase space control and diagnostics in FEL. In this work, we will explore the application of corrugated structures in beam tilt characterization. We show that a tilted beam experience asymmetric kicks when passing through corrugated metal jaws with the asymmetry of the streaked profiles directly correlating to the degree of tilt. We also discuss practical approaches to implementing beam tilt correction based on these observations, highlighting the utility of corrugated structures in beam quality optimization.

Footnotes

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