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Emittance measurement through betatron radiation in laser-plasma accelerators

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A technique to measure the transverse phase space and the rms emittance of plasma accelerated electron beams is described. First tests have been performed at the SPARC-LAB test facility through the interaction of the ultra-short ultra-intense Ti:Sa laser FLAME with a He gas-jet target. The proposed technique seems to be promising for the detection of ultra-low (sub-micrometric) emittances of high-quality plasma accelerated electron beams.

Summary

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