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Progress towards high quality, high-repetition-rate plasma acceleration at FLASHForward

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Plasma-wakefield acceleration represents an exciting route towards reducing the footprint of future high-energy electron accelerators by accelerating bunches in fields exceeding 1 GV/m. One such technique employs a double-bunch structure where the trailing bunch is accelerated in the fields of a high-amplitude plasma-density wake driven by the leading bunch. A future particle collider or photon science facility incorporating plasma accelerators will be required to have high overall energy efficiency and to accelerate up to millions of bunches per second, all while preserving the brightness, emittance and energy spread of the accelerating bunch. This contribution presents the latest progress towards these goals at FLASHForward (DESY).

Footnotes

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