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High Charge Electron Beams Generated with a Hybrid Laser Plasma Accelerator Driven by Picosecond, Kilojoule class lasers

Monday, September 16, 2019 7:00 PM (1 hour)

A hybrid laser plasma accelerator (HLPA) has been developed to produce low divergence (< 100 mrad), high charge (> 60 nC) electron beams with energies greater than 150 MeV. The HLPAs, driven by ps, kJ class lasers, uses an interplay between self-modulated laser wakefield acceleration and direct laser acceleration to trap and accelerate electrons through up to 10 mm of plasma. The resulting electron beams are used to generate x-rays capable of probing the dense, short lived materials common in high energy density and laboratory astrophysics experiments.

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