

Transverse instabilities induced periodic modulation in laser driven proton beams

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We report on experimental observation on periodic modulation in the energy spectrum of laser accelerated proton beams. Interestingly, theoretical model and two-dimensional particle-in-cell simulations, in good agreement with the experimental finding, indicated that such modulation is associated with periodic modulated electron density induced by transverse instability. These results, may have implications for further understanding for the accelerating mechanisms as well as optimization strategies for laser driven ion acceleration.

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