

Abstract Submitted
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Waveguide assisted wakefield acceleration in near critical density plasmas¹ LINUS FEDER, GEORGE HINE, FATHOLAH SALEHI, BO MIAO, ANDY GOERS, HOWARD MILCHBERG, Univ of Maryland-College Park — We demonstrate the generation of multi-MeV electron beams with stable pointing and improved divergence using a sub-mJ prepulse to form a channel for the main 10-300 mJ accelerating pulse. An ultrashort, low energy pre-pulse a few nanoseconds before the main pulse ionizes a column through a thin near critical density gas jet. The column then expands to form a guiding structure for the main pulse, which then accelerates electrons through laser wakefield acceleration.

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