

Abstract Submitted
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Modelling external injection of an electron beam into a laser wake field accelerator JOHN SCOTT, Physics Department, Lancaster University, Lancaster (UK), LAURA CORNER, LEWIS REID, Department of Engineering, University of Liverpool, Liverpool (UK); Cockcroft Institute, Sci-Tech Daresbury, Warrington (UK), ELISABETTA BOELLA, Physics Department, Lancaster University, Lancaster (UK); Cockcroft Institute, Sci-Tech Daresbury, Warrington (UK) — Electron beams produced by laser-driven plasma-based accelerators have broader energy spreads and greater shot-to-shot instability than those from conventional linacs. External injection of electron bunches into laser wakefield accelerators holds the prospect of vastly improving the characteristics of the accelerated bunches. The CLARA facility at Daresbury Laboratory provides the opportunity to experimentally explore such a scheme. This poster presents the results of modelling the acceleration of an externally injected electron beam into a laser driven wakefield accelerator using the CLARA facility parameters. The campaign of simulations utilised particle-in-cell codes to scan a multitude of parameter sets with the aim of maximising the acceleration gradient experienced by the electrons without degradation of beam quality.

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