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External injection in laser wakefield acceleration at the CLARA accelerator facility: a preparatory study ELISABETTA BOELLA, Lancaster University, LAURA CORNER, Cockcroft Institute for Accelerator Science and Technology , JAMES HOLLOWAY, University of Oxford, THALES SILVA, Instituto Superior Tecnico — External injection of an electron beam into a laser wakefield accelerating structure is a very attractive scheme because in principle allows for better controlling the characteristics of the electron bunch. Among few in the world, the CLARA accelerator facility at Daresbury Laboratory in the UK offers the right set of infrastructure to conduct proof-of-principle external injection experiments. In this poster, we are going to show preliminary results of one-to-one particle-in-cell simulations modelling the injection of the 50 MeV CLARA electron beam into the wakefield. A detailed parameter scan is performed to analyze the effect of different laser and plasma parameters. With the aim of providing indications useful for a future experiment, we study different injection angles and explore the possibility to accommodate the beam in one bucket or to spread it among a few buckets.

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