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Simulation studies for dielectric wakefield programme on CLARA facility

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The dielectric wakefield acceleration R&D programme has been initiated on a recently constructed CLARA (Phase I) facility at Daresbury Laboratory. The machine is capable of generating sub-ps electron bunches with up to 250pC bunch charges and ~50MeV beam energy. We present simulation results for upcoming experiments that will utilise a planar variable gap dielectric lined waveguide as a source of tunable THz radiation and a prototype for CLARA FEL energy dechirper. The emphasis is on investigation of wakefield longitudinal and transverse effects on drive bunches generated by CLARA. THz spectra and expected tunability range are also evaluated.

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