

Simulations and Experimental Plans to Study Beam Driven Wakefields with Dielectric Loaded Waveguides

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Wakefield acceleration has recently received much interest due to large acceleration gradients and cost effectiveness. We discuss recent simulation studies concerning the optimization of the longitudinal current profile of a drive-bunch to maximize the peak accelerating field and transformer ratio in cylindrically symmetric dielectric lined waveguides (DLW). Moreover, we discuss the non-linear relationship between the longitudinal current profile of the drive-bunch and the parameters associated to the DLW. Lastly, we discuss experimental plans to study flat, longitudinally tailored drive-bunch shapes at ASTA.

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