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Modelling a Laser- plasma accelerator driven FEL

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Abstract:

A Free Electron Laser (FEL) is the brightest and coherent radiation source in the world and many research interest in reducing the cost and the size of the bright future FELs by utilizing different kinds of accelerator techniques. In this work we consider Laser-Plasma accelerator as a promising future driven FEL next-generation compact light sources. In this modelling of a laser- plasma accelerator driven FEL many advantages are achieved. It has a high accelerating gradients and large peak current. Comparing the electron beam from plasma accelerator with conventional linac sources, the e-beams typical of plasma accelerator have small emittance, large energy spread, and very short. We simulated and produced FEL from electron beam parameters from LPA by using simulation code Puffin at Strathclyde University.

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