

# **Proton driven plasma wakefield acceleration**

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In recent years, laser-driven plasma wakefields and electron-driven plasma wakefields have demonstrated acceleration gradients in the 50-100 GV/m range. These impressive gradients can however not be maintained over long distances, such that many stages would be needed to bring a bunch of particles to the energy frontier of particle physics. This would result in a reduced effective gradient and complicated accelerator structure. Proton-driven plasma wakefield acceleration has recently been proposed as a method to accelerate a bunch of electrons to the TeV scale in a single acceleration channel. This proposal will be described, as well as plans for a demonstration experiment.