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P4.2014 Excitation of plasma wakefields by proton drive beam

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See the full abstract here:
http://ocs.ciemat.es/EPS2019ABS/pdf/P4.2014.pdf

A discussion have been made to demonstrate travelling wave solution for nonlinear relativistic electron plasma wave excited by an intense proton beam. The structures of the excited wake wave electric field and the perturbed plasma electron fluid density are obtained by considering a rectangular proton beam source. This theoretical investigation is primarily aimed to benchmark the proposed AWAKE (Advanced Wake Field Acceleration) experimental programme on proton beam driven plasma wake field accelerator (PDPWFA) at CERN. Alongside an alternative method is adopted to find the stationary wave solution for the wake wave excited by single proton beam as well as equi-spaced train of small proton bunches with the inclusion of the non-relativistic plasma ion dynamics.

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