

Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Plasma Wakefields Driven by Photons, Electrons and Neutrinos's

ROBERT BINGHAM, Rutherford Appleton Laboratory, L.O. SILVA, J.T. MENDONÇA, GOLP, Lisboa, Portugal, P.K. SHUKLA, Institut für Theoretische Physik IV, Bochum, Germany, A. SERBETO — Employing the relativistic kinetic equations for photons, electrons and neutrinos we investigate the formation of plasma wakes due to both short and long pulses driven for photons, the latter are known as self-modulated wakefields. We also investigate the effects of energy spread of the driver and show that modulational type instabilities exist for all drivers. Quasi-Linear equations are obtained for photons and neutrinos and we demonstrate significant energy transfer to the plasma particles. Applications to laboratory plasma accelerators and astrophysical accelerators will be discussed.

Robert Bingham
Rutherford Appleton Laboratory

Date submitted: 22 Jul 2006

Electronic form version 1.4