



Iranian Journal of Physics Research, Vol. 17, No. 2, 2017
Proceedings of the 2nd National Conference on Particle Accelerators & Their Application, November 2015

Electron acceleration by an asymmetric laser pulse

M Akhyani, M Rezaei-Pandari, F Jahangiri, A R Niknam, R Massudi
Laser and Plasma Research Institute, Shahid Beheshti university, Tehran, Iran

E-mail: r-massudi@sbu.ac.ir

Abstract

In this paper, electron acceleration in the field of laser pulse is investigated. To limit the interaction region for electron pulse, which is required for acceleration, a new method is presented based on the injection of electron on temporal peak of the laser pulse. In this method, the electron is provided by a plasma source and is steered inside the laser field by utilizing the magnetic field and the interaction time is optimized for maximum energy gain. The dependence of the electron energy gain on duration and initial phase of the laser pulse as well as the injection angle of the electron is studied and optimized.

Keywords: asymmetric laser pulse, acceleration, electron

For full article, refer to the Persian section