Annotation for graduation work

By Ksenofontov Petr

To explain experiment results with interaction of relativistic laser pulse with different solid targets carried out in relativistic laser plasma lab ILC MSU there were held series of PIC-modeling using 2D3V full relativistic code named Mandor

The target contained 3 layers: long layer (90 mkm) with linear gradient of density from 0 to 0.5 Ncr and short (5 mkm) layer with linear gradient of density from 0.5 to Ncr and high dense (2 Ncr) 5 micron plasma. There were observed interactions of different targets with various geometry with lasers with various FWHM and pike power.

In the end there were analyzed processes of electron acceleration flowed in long preplasma layer such as ponderomotor acceleration, relativistic self focusing, parametric processes: two plasmon decay and Raman scattering. The first established that generating hot electron component determined by complex various processes in plasma

Researching of effectiveness and optimal parameters demands more resources.