

Abstract Submitted
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Fast Ion Generation by Short High Intensity Laser Pulses GALINA DUDNIKOVA, UMD College Park, VALERY BYCHENKOV, Lebedev Institute Physics RAS, Moscow — Developments in laser technology have enabled high power lasers to produce multi-terawatt picosecond and femtosecond pulses which allow to examine the fundamental physics of high intensity, $I > 10^{19}$ W/cm², laser-produced plasmas and have many potential applications: compact neutron source, new methods in nuclear medicine, isotope and relativistic ion beam production. On the base of 2D PIC simulation ion generation from an overdense plasma foil illuminated by the laser pulse with variable intensity and FWHM duration has been studied. Formation of quasi-monoenergetic ion beam takes place with thin homogeneous foils with light and heavy ions. The conditions of optimal ion acceleration in terms of the intensity and pulse duration are carried out.

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