



IAEA FEC 201

Contribution ID: 54

Type: **Poster**

Improvement of Characteristics of Laser Source of Ions by changing the parameters of the target and external parameters

Thursday, 20 October 2016 08:30 (4 hours)

In recent years the ion components of the laser-produced plasmas has been intensively studied as an object to provide high-density and high-energy ion sources, which can be effectively used in the field of inertial confinement fusion. It is well known that processes taking place during the interaction of laser radiation with solid targets strongly depend on the target material leading to different erosion thresholds, etching rates, chemical yields etc. In this work we discuss three methods to improve characteristics of laser source of ions, namely: i) effects of gamma radiations on the properties of glass materials, ii) influence of laser frequency on the parameters of plasma ions generated on the surface of porous targets, and iii) effect of light gas atom inclusions on the characteristics of laser-produced plasma ions. Our study will be based on the analysis of mass-charge spectrum of laser-produced plasma ions for different intensity of laser radiation.

The main impact of the radiation is observed in the charge state of the plasma ions: for small energy ions the charge increases with increasing the radiation dose, whereas the increase in the radiation dose results in the decrease of the charge of high-energy ions. The maximum energy of the ions also decreases with increasing the radiation dose.

Paper Number

IFE/P5-2

Country or International Organization

Uzbekistan

Primary author: Dr KHAYDAROV, Rajabbay (IAPh)

Co-authors: Dr BERDIYROV, Golibjon (IAPh); Dr BESINBAEVA, Holida (IAPh); Mr KHAYDAROV, Ravshan (IAPh)

Presenter: Dr KHAYDAROV, Rajabbay (IAPh)

Session Classification: Poster 5

Track Classification: IFE - Inertial Fusion Experiments and Theory