

Abstract Submitted
for the GEC14 Meeting of
The American Physical Society

Carbon Multicharged Ion Generation from Laser Plasma¹

OGUZHAN BALKI, HANI E. ELSAYED-ALI, Old Dominion Univ — Multicharged ions (MCI) have potential uses in different areas such as microelectronics and medical physics. Carbon MCI therapy for cancer treatment is considered due to its localized energy delivery to hard-to-reach tumors at a minimal damage to surrounding tissues. We use a Q-switched Nd:YAG laser with 40 ns pulse width operated at 1064 nm to ablate a graphite target in ultrahigh vacuum. A time-of-flight energy analyzer followed by a Faraday cup is used to characterize the carbon MCI extracted from the laser plasma. The MCI charge state and energy distribution are obtained. With increase in the laser fluence, the ion charge states and ion energy are increased. Carbon MCI up to C^{+9} are observed along with carbon clusters. When an acceleration voltage is applied between the carbon target and a grounded mesh, ion extraction is observed to increase with the applied voltage.

¹National Science Foundation

Oguzhan Balki
Old Dominion Univ

Date submitted: 13 Jun 2014

Electronic form version 1.4