

Abstract Submitted
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X-ray emissions by inner-shell ionization in laser-cluster interaction Y. KISHIMOTO, H. NISHIYAMA, T. MASAKI, Kyoto University, K. MORIBAYASHI, JAEA, Y. FUKUDA, JAEA, J.Q. LI, Kyoto University — The dynamics of clusters irradiated by high intensity laser pulse has been interested due to its unique nature of the interaction different from other conventional targets and various applications have been proposed [1]. Specifically, an enhanced electric field that is more than one order of magnitude greater than the applied laser field is found to be produced due to the polarization effect near cluster surface. Generation of anomalously high charge state ions and associated short pulse X-rays were observed [2]. Based on simulation studies utilizing our particle code including atomic and relaxation processes [3] incorporated with a perturbation analyses of inner-shell ionization, we have investigated the properties of X-rays from F,O,N,C,B,Be,Li-like argon ions. With an increase of laser intensity, the X-ray pulse length becomes short, comparable to the order of incident laser pulse. [1] Y. Kishimoto et al., Phys. Plasmas 9, 589 (2002) [2] Y. Fukuda et al., Laer and Particle Beams 22, 215 (2004) [3] Y. Fukuda et al., Phys. Rev. A 73, 031201(R) (2006)

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