

Abstract Submitted  
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**Polarized K-shell radiation due to anisotropic fast electron distribution in ultra-intense laser produced plasmas** TORU KAWAMURA, Tokyo Institute of Technology, TAKESHI KAI, ILE, Osaka University, FUMIHIRO KOIKE, Kitasato University, SHINOBU NAKAZAKI, University of Miyazaki, YUICHI INUBUSHI, YASUAKI OKANO, SHINSUKE FUJIOKA, TATSUFUMI NAKAMURA, TOMOYUKI JOHZAKI, HIDEO NAGATOMO, HIROAKI NISHIMURA, KUNIOKI MIMA, ILE, Osaka University — In fast ignition research, the transport of fast electrons generated by ultra-intense laser pulses is one of critical issues. To gain insight into the fast electron transport, polarized x-ray spectroscopy has been proposed. At a laser intensity of about  $10^{17}W/cm^2$ , the polarized K-shell radiation was observed [1]. A new time-dependent atomic population kinetics code has been developed [2], and the numerical predictions show that the polarization arises in corona region, and no polarization is found in dense region. An aspect ratio of anisotropic fast electron temperatures associated with longitudinal and transverse directions is correlated with the polarization. In the presentation, the prospect of fast electron transport will be discussed for fast ignition research. [1] H. Nishimura et al., PPCF, 47, B823 (2005). [2] T. Kai et al., PRA, 75, 012703 (2007), T.Kawamura et al., submitted (2007).

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