

Abstract Submitted  
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**X-ray Polarization Spectroscopy to Study Hot Electron Transport in High Intensity Laser Produced Plasma** H. NISHIMURA, ILE, Osaka U., Y. INUBUSHI, Osaka U., Y. OKANO, U. of Tokyo, Japan, S. FUJIOKA, ILE, Osaka U., T. KAI, JAEA, Kanasai, T. KAWAMURA, Tokyo Inst. Tech., D. BATANI, A. MORACE, R. REDAELLI, U. of Milan, Bicocca, C. FOURMENT, J. SANTOS, CELIA, U. Bordeaux 1, G. MALKA, CENBG, U. Bordeaux 1, A. BOSCHERON, CEA/CESTA Le BARP, A. CASNER, CEA-DAM Ile de France, M. KOENIG, LULI, T. JHOZAKI, H. NAGATOMO, K. MIMA, ILE, Osaka U. — X-ray polarization spectroscopy was used to study anisotropy of hot electron velocity distribution functions (VDFs) in a plasma generated at  $10^{18}\text{W}/\text{cm}^2$ . Chlorinated triple-layer targets were irradiated and polarization degree of Cl He $\alpha$  line was measured as a function of overcoat thickness. The polarization degree, nearly zero at the surface, becomes negative then positive, and finally becomes zero with increase in the thickness. This result indicate that VDF in under-dens region is affected with laser field, and that in over-dense region is with acceleration along the laser propagation. Depolarization seen in the surface and dense region is consistent with predictions with a time-dependent atomic kinetics code [1].  
[1] T. Kawamura, et al., PRL **99**, 115003 (2007)

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