Abstract Submitted
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Observation of keV X-ray emitted from laser produced Au plasmas by using a crystal spectrometer[1] TAKEHIRO MORISHITA, YASUHIRO MATSUMOTO, CHRISTIAN JOHN, Hiroshima University, MAKI KISHIMOTO, QST, TOMOYUKI JOHZAKI, Hiroshima University, TAKEO EJIMA, Tohoku University, ATSUSHI SUNAHARA, Purdue University, TAKUMA ENDO, Hiroshima University, TAKESHI HIGASHIGUCHI, Utsunomiya Universuty, SHINICHI NAMBA, Hiroshima University, HIROSHIMA UNIVERSITY TEAM, QST COLLABORATION, PURDUE UNIVERSITY COLLABORATION, TOHOKU UNIVERSITY COLLABORATION, UTSUNOMIYA UNIVERSITY COLLABORATION — X-ray emitted by a laser generated plasma has various applications. Serious issue to be solved is that the energy conversion efficiency from the laser to X-ray is quite low. Recently, it was found that the X-ray emitted by the laser produced Au plasma increases under nitrogen atmospheres. In particular, the intensity of the water window soft X-ray (2.4-4.4 nm) increases approximately ten times. In order to elucidate this enhancement mechanism of X-ray, we have measured soft X-ray spectra from Au plasma in the wavelength of 1-7 nm so far. Recently, we fabricated a TAP crystal spectrometer to observe the photons over 1 keV region (1.0-1.9 eV), which provides useful information of plasma temperature. As a detector, an imaging plate(IP) was used. Titanium filters was also used to block out-of-band emission. As a result, continuum spectra attributed unresolved transition arrays (UTAs) was observed from the Au laser plasma. This spectral profile was compared with the Star2D hydrodynamic code.

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