

# X-ray spectroscopy for investigation of high-Z plasma formation in experiments with ultra intense femtosecond laser pulses

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In experiments with ultra intense laser fluxes on target up to  $10^{22}$  it becomes very important to control the plasma state, since it plays an important role and directly effects the physical processes and experimental results. Just X-ray radiation diagnostic allows to provide the monitoring of plasma source parameters since it strongly depends on experimental conditions. In this work we report on recent experiments with the J-KAREN-P laser facility and demonstrate that x-ray spectroscopy can be used for estimation of target integrity at the time of main laser pulse irradiation. That becomes possible because different observed spectral features indicated the interaction of main laser pulse with pre-plasma or solid target.