

Observation of Fe $K\alpha$ emission spectra under keV temperature solid-density conditions

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Studies of hot dense matter from low Z elements with X-ray free electron laser motivated theoretical efforts in improved modeling [1,2] and have led to a study of highly ionized states in higher Z elements at other facilities [3,4,5]. Recently we demonstrated creation of keV temperature solid-density Fe plasma using 8 keV at LCLS and observed $K\alpha$ emissions from highly ionized hot-dense Fe plasmas. In this talk, we will present nano-focusing technique providing peak intensity of 10^{19} W/cm² for isochoric X-ray heating and spectroscopic results and discuss electronic structure with increasing ionization.

References

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