

Abstract Submitted
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Spectroscopic Measurements of Photo Pumped Highly Charged Ions¹ A. GRAF, P. BEIERSDORFER, G.V. BROWN, LLNL, J.R. CRESPO LOPEZ URRUTIA, MPIK, HI-LIGHT EBIT TEAM — We report on recent x-ray laser spectroscopic measurements of line emission from photo-excited highly charged ions. The ion cloud of the HI-LIGHT portable electron beam ion trap (EBIT) was used as a target for the Linac Coherent Light Source (LCLS) free electron laser in the Soft X-Ray (SXR) end station. The SXR monochromator allowed a precision investigation of transition energies and oscillator strength ratios of emission lines from Na-like Fe¹⁵⁺ and Ne-like Fe¹⁶⁺ important for astrophysical diagnostics. We have demonstrated a technique for calibration of the SXR monochromator photon energy scale using photo-excited resonant fluorescence spectra of very well known lines from H-like and He-like F and O. Numerous instruments were used to diagnose the fluorescent and autoionizing decay channels of the trapped plasma including an Iglet-X broadband germanium detector, a variable line spacing reflection grating soft x-ray/VUV spectrometer and a Wien filter based ion extraction system. An overview of the experiment as well as preliminary results will be presented.

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