

# The first results from the x-ray emission measurements at Draco PW laser facility

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Laser-produced plasmas are widely studied complex systems. In order to get better understanding of their inner processes, advanced diagnostics methods have to be used to get a valuable insight – for example, x-ray emission spectroscopy has the capability to unfold atomic processes and plasma conditions and reveal information about the hot electron population.

Recently, two x-ray crystal spectrometers were installed in the Ion Acceleration Lab at Draco PW laser facility, which allows to acquire characteristic emission spectra including Ti K- $\alpha$  and He- $\alpha$  lines from Ti targets. While quartz spectrometer offers wide spectral range and excellent spectral resolution of  $\sim 0.3$  eV, Ge spectrometer focuses on Ti K- $\alpha$  emission lines and provides 1D spatial imaging with resolution below 10  $\mu\text{m}$ .

Here, we present the first results from the x-ray spectroscopic measurements from proton acceleration targets at the DRACO PW laser facility uncovering the plasma conditions and electron dynamics for various target and laser configurations including inclusion artificial prepulse or the use of reduced mass targets.