

# Novel Spectroscopic Schemes using a Highly Brilliant Laser-Produced Plasma Source

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The BLiX laser-produced plasma source emits broadband radiation in the range between 1 and 20 nm with 100 Hz repetition rate and a source size of  $\sim 35\mu\text{m}$ . With two beamlines for parallel measurements, 3 possible laser pulse durations and continuous 8 hours a day operation, the source proves to be a flexible tool for routine measurements. We present 2 applications showing the versatility of the source using new optical and detection schemes.

Soft X-ray absorption spectroscopy measurements employing reflection zone plates at the C and N K-edge show a resolution of  $\lambda/\Delta\lambda\sim 1000$ . The high efficiency of the dispersive elements enables single shot measurements, limiting the exposure time to the pulse duration of the source. With a novel multilayer optic, angle-resolved soft X-ray emission spectroscopy measurements were performed on layered samples with an energy-dispersive area detector. The presented measurements prove that nm-resolved elemental depth profiling is feasible in the laboratory.

## References

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