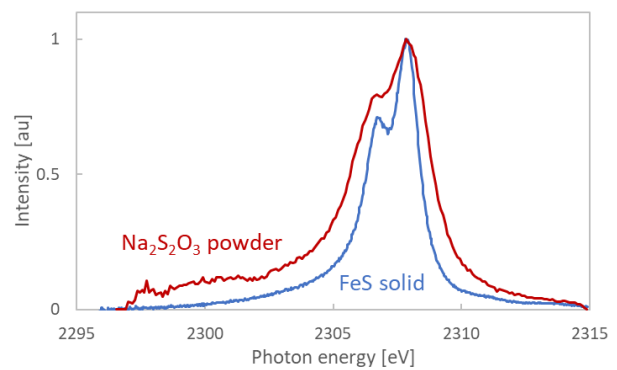
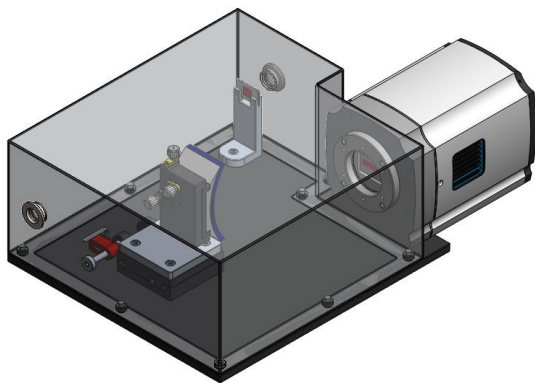


H + P SPECTROSCOPY SCIENTIFIC INSTRUMENTATION

hardLIGHT TXS Tender X-ray Spectrometer

Our novel TXS spectrometer enables accurate photon diagnostics at HHG beamlines, X-ray free-electron lasers, and table-top X-ray lasers. Photon energies between 2 keV and 4 keV can be measured in single-shot. In von Hamos geometry with high-efficiency backscattering, the X-ray spectrum is fingerprinted for online beam characterization. The transmitted beam remains undisturbed with >90% transmission for further use in experiments.

By simply exchanging the backscattering probe with a material sample, the hardLIGHT TXS is made ready for X-ray emission spectroscopy (XES). The tender X-ray range provides sensitive access to the chemical state of many materials, e.g. investigations of sulfur at 2keV allow for important insights for battery research.



X-ray absorption spectroscopy (XAS)
at the sulfur K-edge
(data courtesy of Dr. W. Malzer, TU Berlin)

<p>Versatile single-shot diagnostic</p> <ul style="list-style-type: none"> ▪ tender X-ray range 2-4keV ▪ pulse-to-pulse measurement ▪ diagnostic mode: <ul style="list-style-type: none"> non-interfering architecture with high-transmission backscattering probe ▪ XES mode: <ul style="list-style-type: none"> mounting options for various solid samples ▪ high energy resolution of 10^{-4} in a bandwidth of 2% 	<p>Compact and mobile</p> <ul style="list-style-type: none"> ▪ small footprint ▪ easily transferred between experimental stations ▪ intuitive operation
<p>Special solutions</p> <ul style="list-style-type: none"> ▪ non-magnetic instruments ▪ UHV configurations ▪ etc. 	<p>Customizations</p> <ul style="list-style-type: none"> ▪ every spectrometer is customized to exactly match the desired application, e.g.: <ul style="list-style-type: none"> ▪ interfacing to experimental setup ▪ user-defined sample and filter mounts

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