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HAXPES spectra and quantification of bulk Mo and MoSe₂ compound

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The HAXPES spectra of bulk Mo and MoSe₂ compounds obtained with Cr K α_1 excitation ($h\nu=5414.8$ eV) are presented, with special attention paid to binding energy scale correction, quantification and repeatability aspects [1]. Cr K α HAXPES allows to ionize all Mo and Se core-levels of principal quantum numbers N=2, 3 and 4.

Empirically determined sensitivity factors (RSFs) were provided by the PHI Multipak software version 9.9.0.8, from the most recently released RSF database. The RSFs were derived from the pure-element relative sensitivity factor as defined in ISO 18118:2015 [2] which were measured on pure element samples using a Cr K α source. Using the determined pure element RSF's leads to quantification error of ~5% for the MoSe₂ compound.

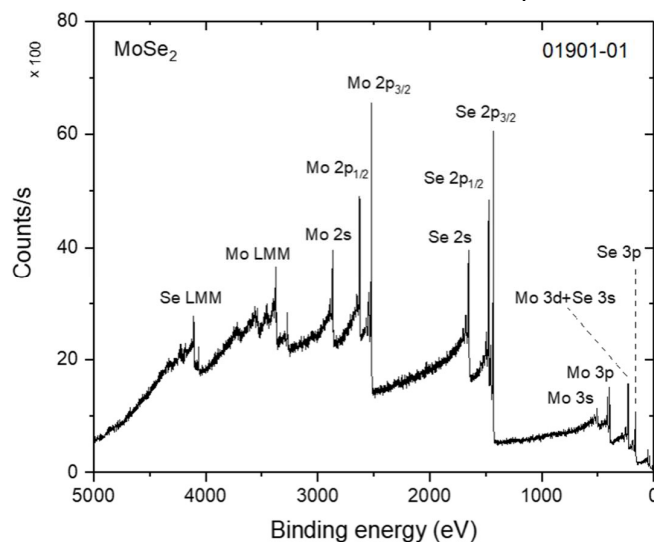


Fig.1- Cr K α HAXPES survey spectrum of bulk MoSe₂ [1].

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References

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- [2] International Organization for Standardization 2015, Surface chemical analysis - Auger electron spectroscopy and X-ray photoelectron spectroscopy - Guide to the use of experimentally determined relative sensitivity factors for the quantitative analysis of homogeneous materials, ISO 18118:2015