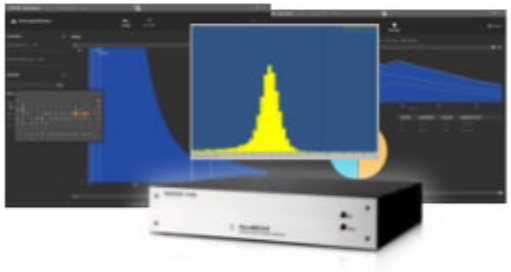
ENHANCED EELS & EDX SPECTROSCOPY

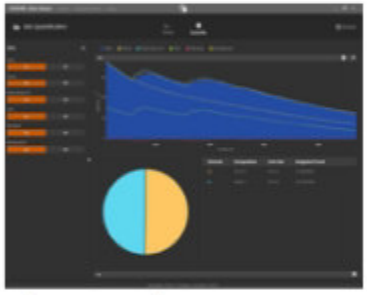


Beam Precession in EELS & EDX spectroscopy enhance the signal reducing channeling effects. Automated quantification with statistical error analysis is available. Multiple scattering derived from an automatically measured relative thickness.

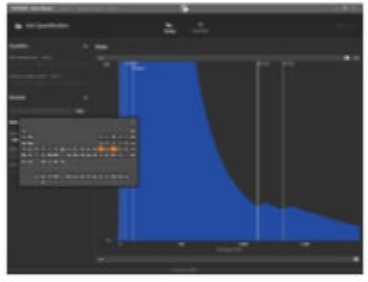
Model-Based EELS Quantification

Highly-automated EELS elemental analysis

Minimal user input required
Specify elements to quanitfy
Automated quantification with statistical error analysis
Multiple scattering derived from an automatically measured relative thickness
Elemental core-loss edges from several possible sources :
Theoretical : Hartree-Slater (Rez)
Intuitive workflow

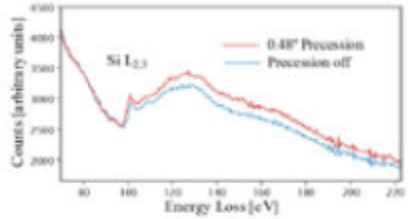


Automated quantifications with statistical error analysis

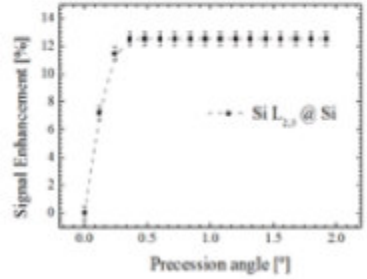


Identify elements to quantify

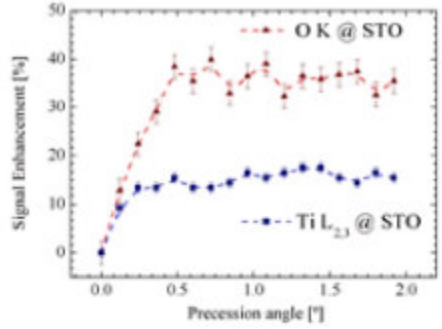
ENHANCED EELS SPECTROSCOPY

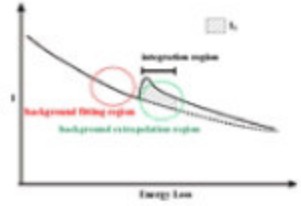


0.48° precessed and precession-less EEL spectra showing the Si $L_{2,3}$ edge in a Si crystal in <110> zone axis conditions.



Signal enhancement as a function of precession angle for the Si $L_{2,3}$ edge in a Si crystal in <110> zone axis conditions.





The signal enhancement (SE) for a given precession angle α is given by

$SE = (I(\alpha) - I(0)) / I(0)$

REFERENCES

Reduction of electron channeling in EDS using precession

Yifeng Liao, LaurenceD.Marks
Ultramicroscopy 126 (2013) 19–22

EELS signal enhancement by means of beam precession in the TEM

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