EDX
MICROANALYSIS

IXRF SYSTEMS
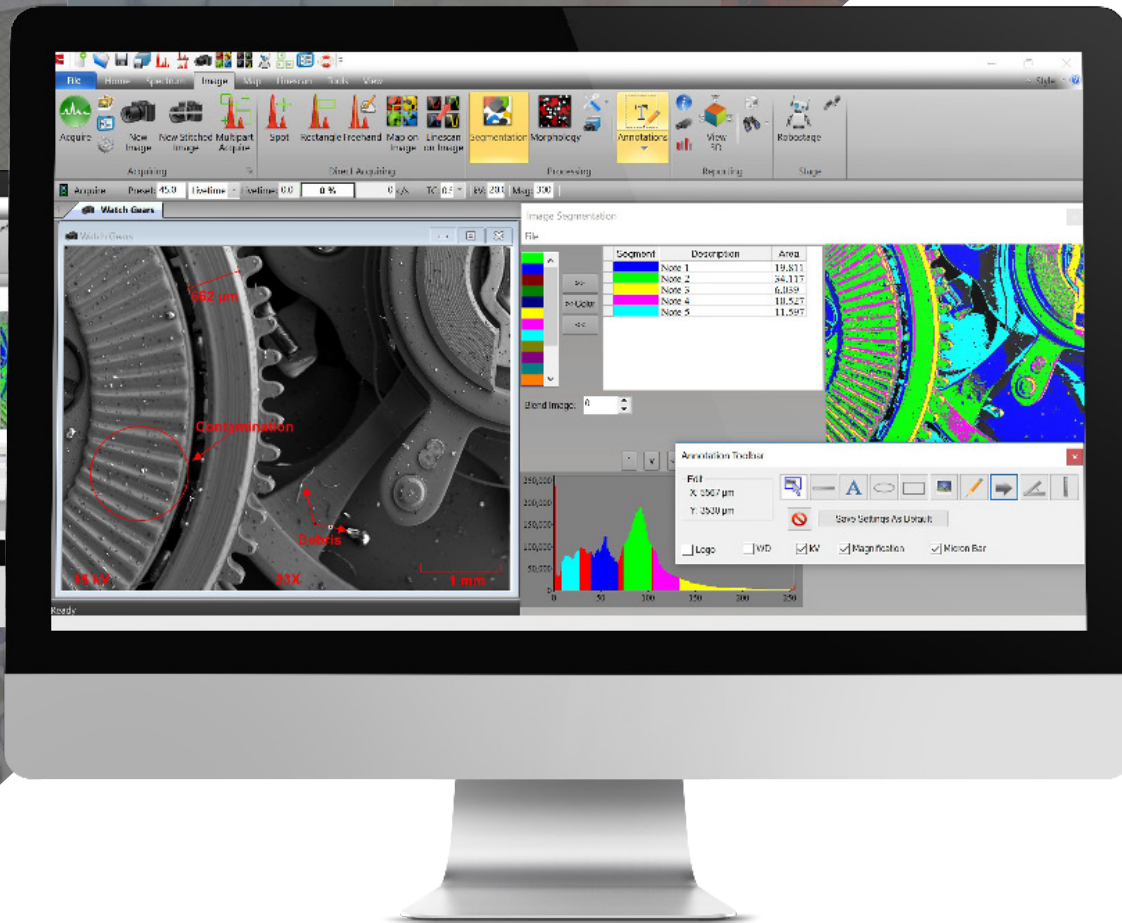
X-RAY MICROANALYSIS SYSTEMS

OVER THE PAST TWO DECADES, IXRF HAS PROVEN ITSELF AS A LEADER IN X-RAY MICROANALYSIS.

IXRF offers an all-inclusive high-end software suite featuring a myriad of spectra, mapping, imaging, and advanced automation analysis tools. IXRF couples only premium quality detectors with every system and offers industry leading features, in addition, to unique features no other EDS systems can offer. IXRF offers free software upgrades for the life of the system, so the analyst is never out of date.

HARDWARE

OUR ELECTRONICS ARE OPTIMIZED FOR TRUE "DATA STREAMING" AND ULTRA FAST X-RAY PROCESSING

IXRF's range of electronically cooled (LN$_2$ free) Silicon Drift Detectors are optimized when coupled with an innovative ethernet-based digital pulse processor. IXRF SDDs provide exceptional and stable performance over a wide range of input count rates.

TECHNICAL SPECIFICATIONS

Sensor Area	Window Option	Resolution eV (Mn K/C)
10mm^2	Light Element (AP3.3) or 8µm Be	≤123-133
30mm^2	Light Element (AP3.3) or 8µm Be	≤126-133
60mm^2	Light Element (AP3.3) or 8µm Be	≤126-133
100mm^2	Light Element (AP3.3) or 8µm Be	≤128-133

Model 550i

DBC
POWER
PREAMP

Large Area SEM Detector

Standard SEM Detector

Tabletop SEM Detector

SPECTRA

SPECTRUM REPORTING - create a simple spreadsheet report of multiple spectra's quantitative analysis
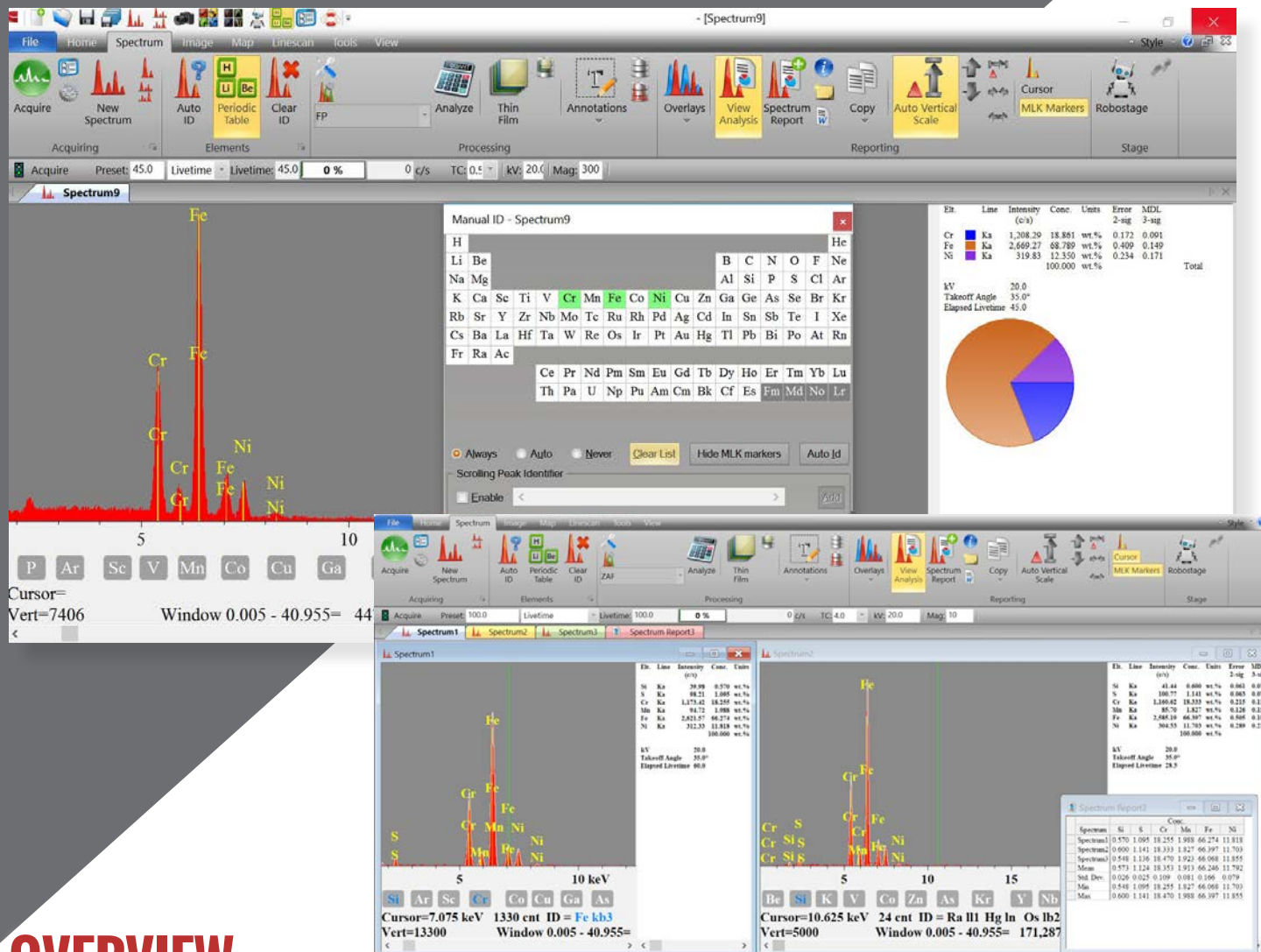
OVERVIEW

1. Identifying Elements

2. Spectrum Processing

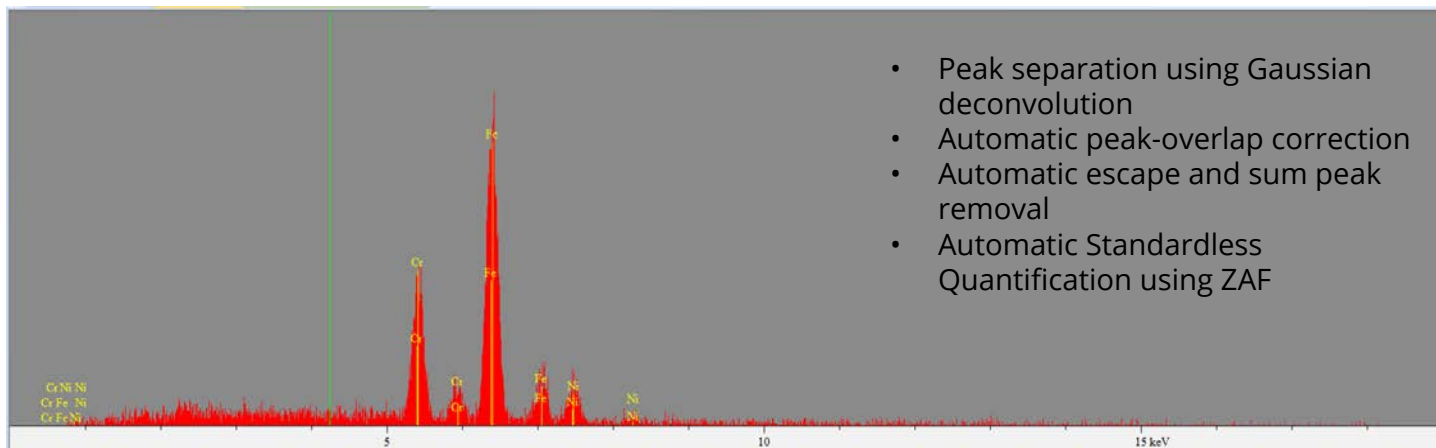3. Annotations

4. Spectrum Overlay

5. Spectrum Reporting

IDENTIFYING ELEMENTS

Kα Energy Markers help easily identify elemental peaks

Identify elements through cursor ID by selecting individual energy channels.

SPECTRUM PROCESSING

- Peak separation using Gaussian deconvolution
- Automatic peak-overlap correction
- Automatic escape and sum peak removal
- Automatic Standardless Quantification using ZAF
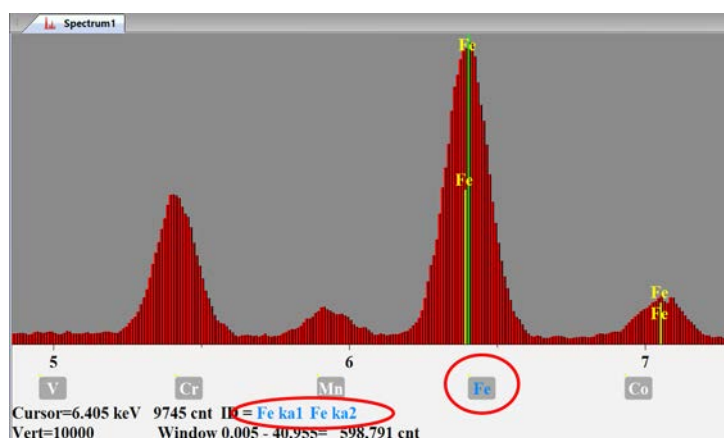
ANNOTATIONS

Selecting Annotations from the Spectrum toolbar opens a new window that allows the user to measure, label, add text, etc. on the spectrum. These annotations are fully customizable and can be exported with the spectrum.

SPECTRUM OVERLAY

Spectra can be overlaid to easily compare the relative compositions in samples
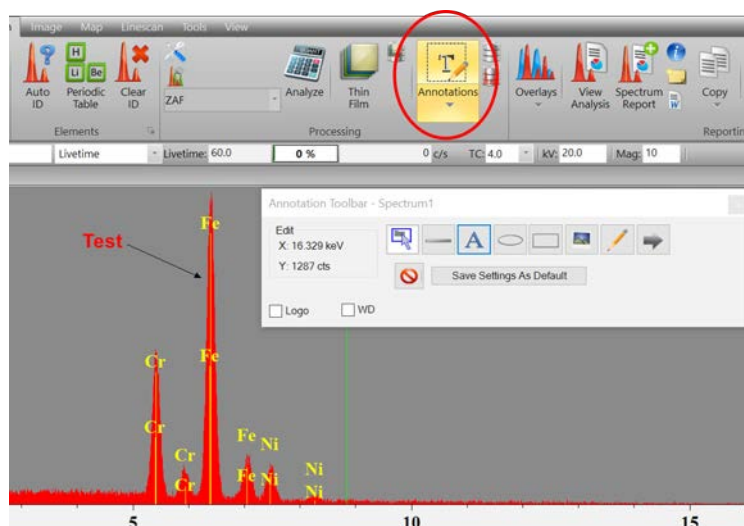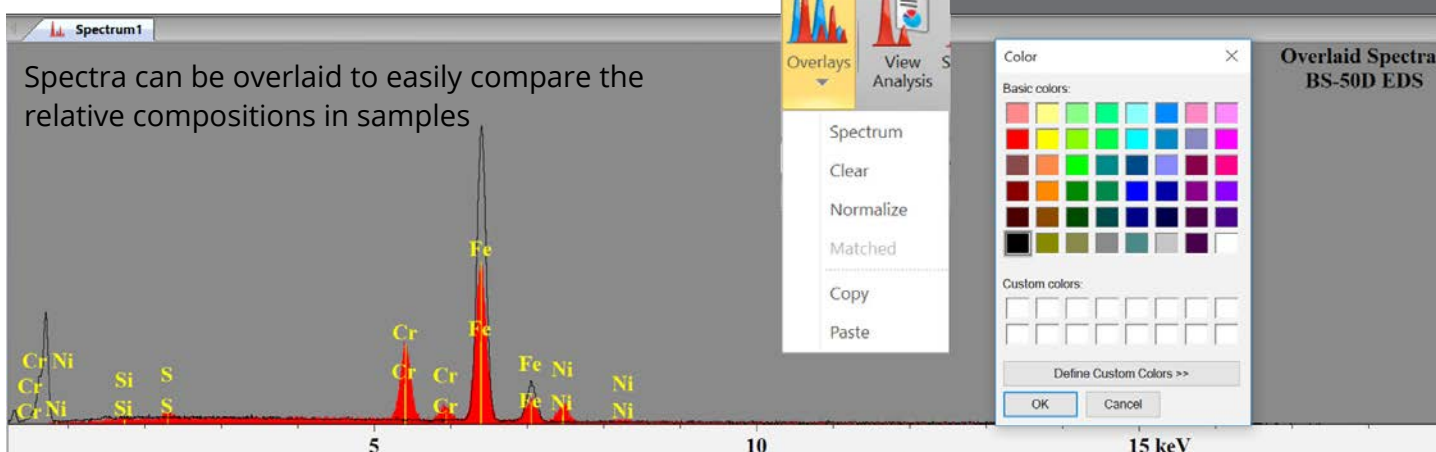
IMAGING
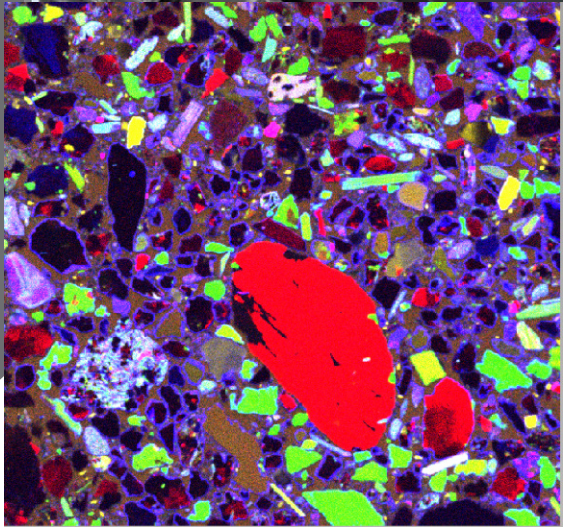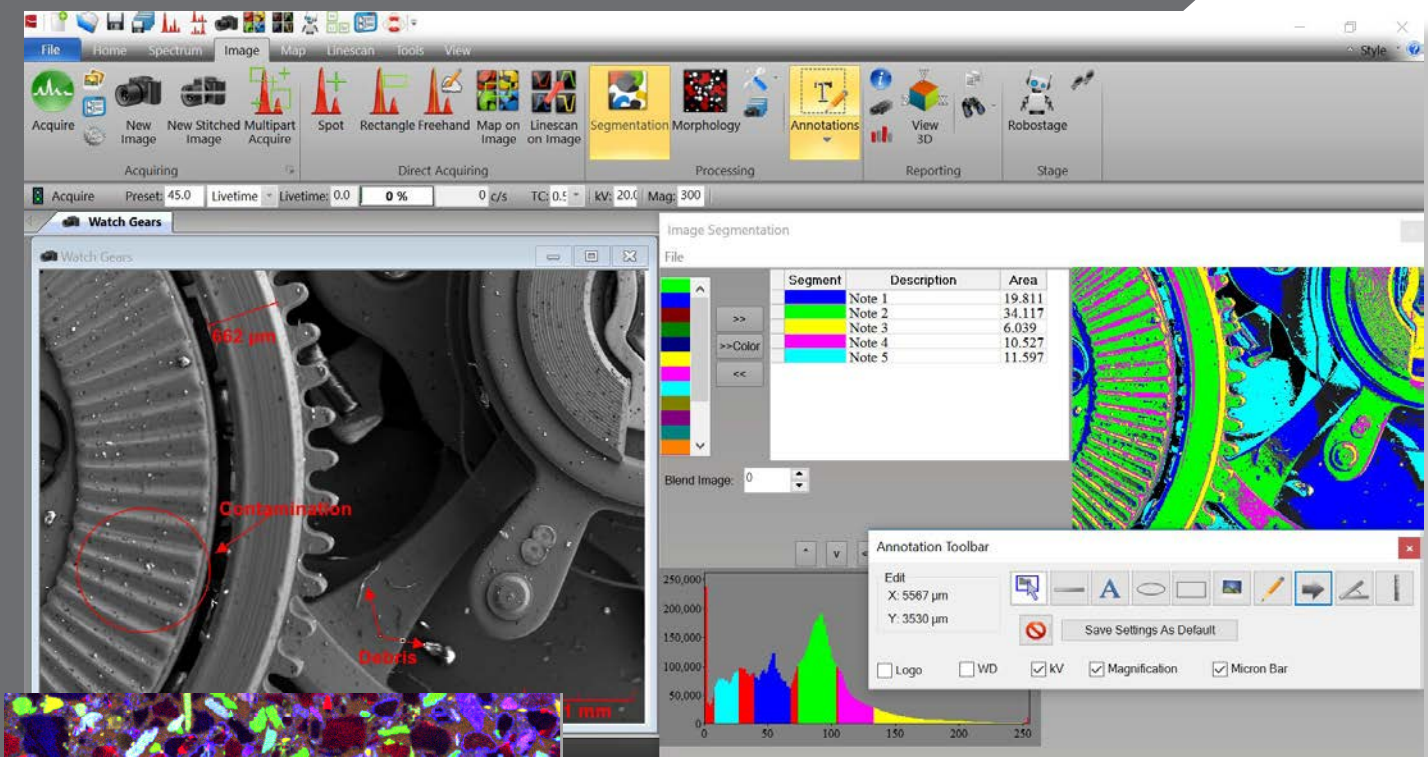
OVERVIEW

1. Image Acquisition
2. Analysis Suite (Toolbar)
3. Morphology
4. Segmentation
5. Stitching/Montage
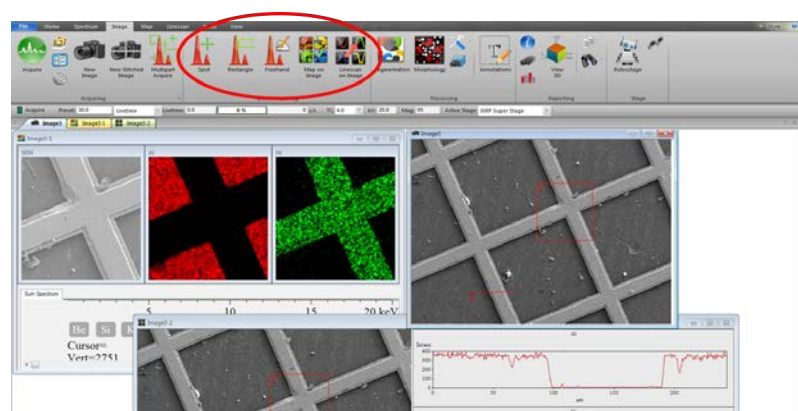6. Automated Particle & Multi-point Analysis

IMAGE DIRECT ACQUIRE

The Direct Acquire tools allow for EDS data to be collected by selecting the region of interest from the SEM image. This includes spot/rectangle/free hand spectra as well as maps and linescans on the image.

MULTIPART ACQUIRE

Multipart Acquire allows fully automated spectrum analysis with customized EDS settings and automatically generated spectrum analysis reports.

This includes single point, raster area, and freehand line spectrum acquisition.
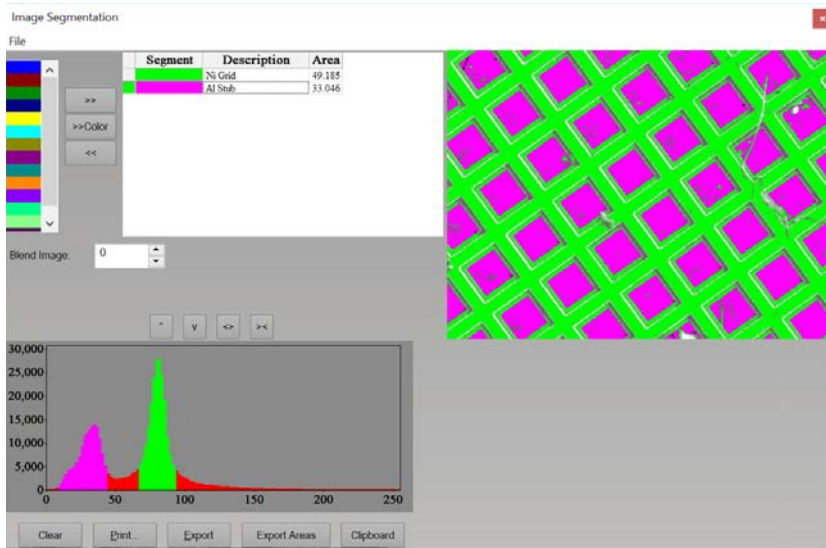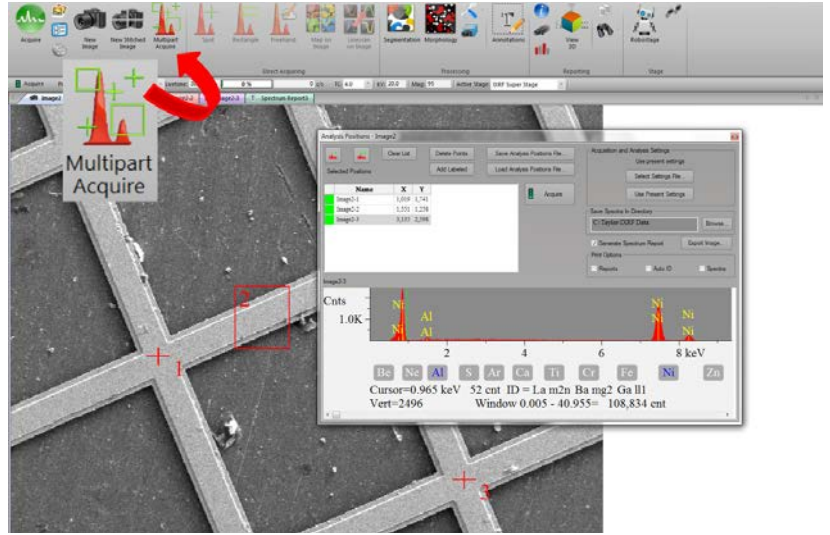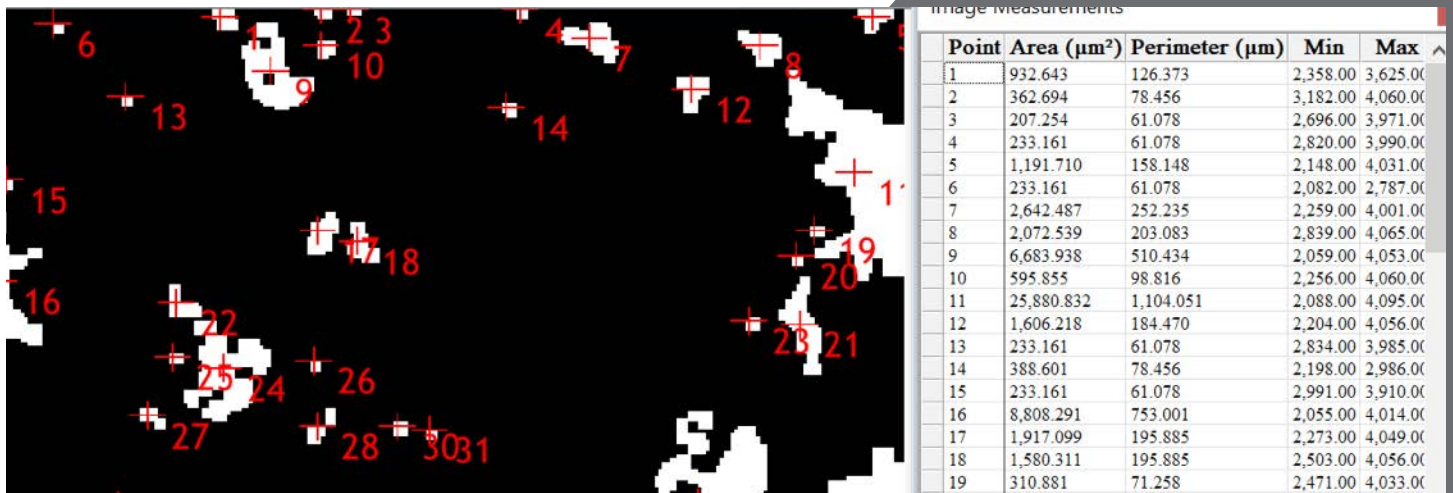

SEGMENTATION

Image Segmentation provides a visual representation of different phases in an image.

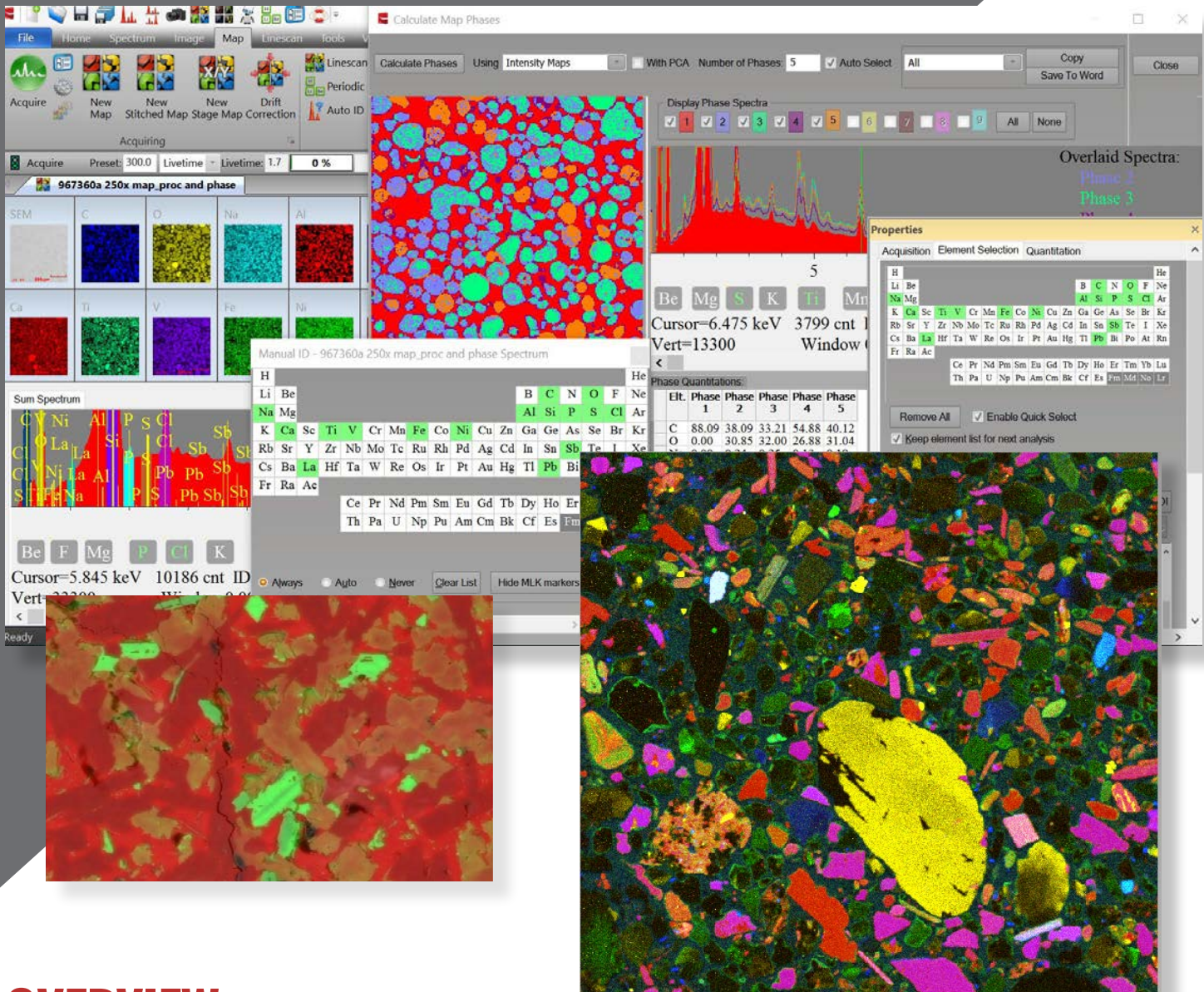Based upon histogram analysis, you can see the percent area each phase occupies.

MORPHOLOGY

Image Morphology provides particle information through image binarization. Image binarization transforms the image into grayscale based upon histogram data.

This allows you to label and measure pixels to provide an abundance of morphological data.

Image Measurements

Point	Area (µm²)	Perimeter (µm)	Min	Max
1	932.643	126.373	2,358.00	3,625.00
2	362.694	78.456	3,182.00	4,060.00
3	207.254	61.078	2,696.00	3,971.00
4	233.161	61.078	2,820.00	3,990.00
5	1,191.710	158.148	2,148.00	4,031.00
6	233.161	61.078	2,082.00	2,787.00
7	2,642.487	252.235	2,259.00	4,001.00
8	2,072.539	203.083	2,839.00	4,065.00
9	6,683.938	510.434	2,059.00	4,053.00
10	595.855	98.816	2,256.00	4,060.00
11	25,880.832	1,104.051	2,088.00	4,095.00
12	1,606.218	184.470	2,204.00	4,056.00
13	233.161	61.078	2,834.00	3,985.00
14	388.601	78.456	2,198.00	2,986.00
15	233.161	61.078	2,991.00	3,910.00
16	8,808.291	753.001	2,055.00	4,014.00
17	1,917.099	195.885	2,273.00	4,049.00
18	1,580.311	195.885	2,503.00	4,056.00
19	310.881	71.258	2,471.00	4,033.00

MAPPING

OVERVIEW

1. Mutielement Quantitative Mapping
2. Overlay Maps
3. Map Analysis Suite (Toolbar)
4. Extract Spectra (Freehand, Spot, Area)
5. Extract Linescan
6. DataView (Intensity/Concentration)
7. Beam Drift Correction
8. Maximum Pixel Spectrum
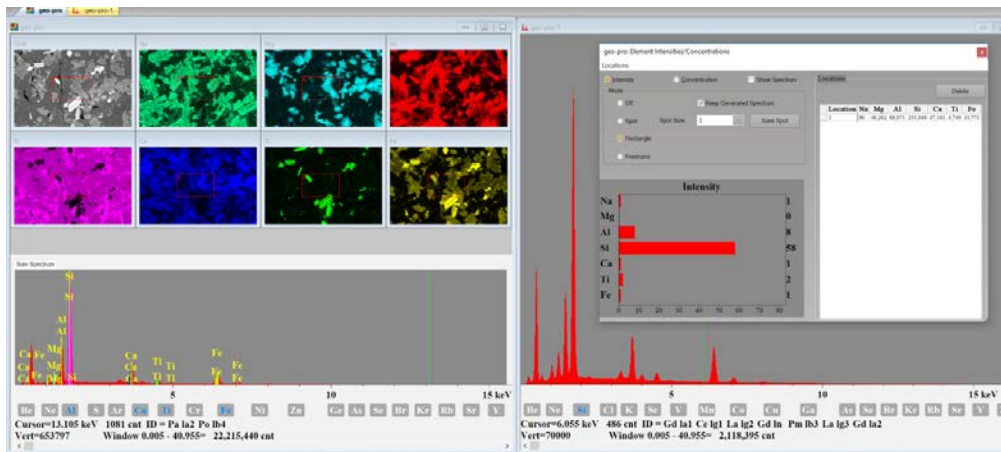9. Map stitch & montage
10. Automate Stage and Beam
11. Composition Mapping
12. Phase Analysis

MAP ANNOTATIONS

Selecting Annotations from the Map toolbar opens a new window that allows the user to measure, label, add text, etc. on the map.
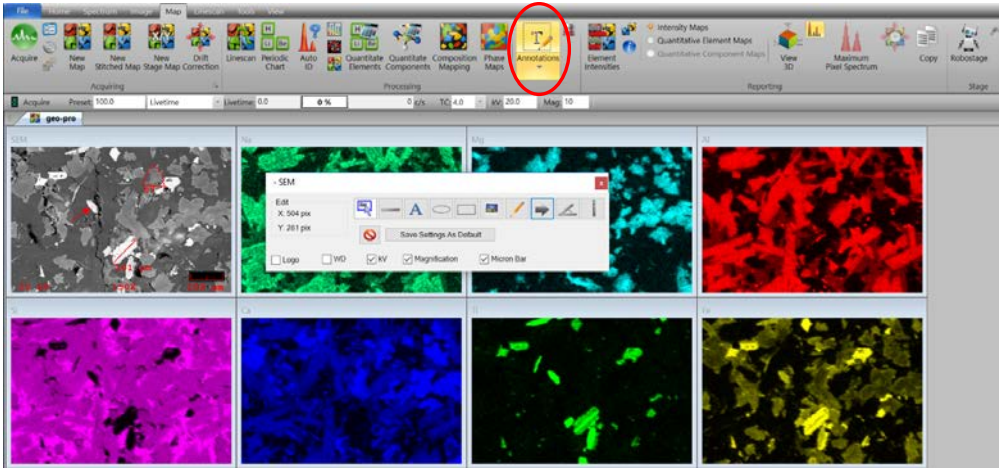
SPECTRA FROM MAP

Combine X-Ray Map pixels to extract spectra from a region of interest

ELEMENTAL INTENSITIES

Selecting Element Intensities from the Map tab will open a new window. A spot/rectangle/freehand can be placed on the image to compare the intensity/concentration.
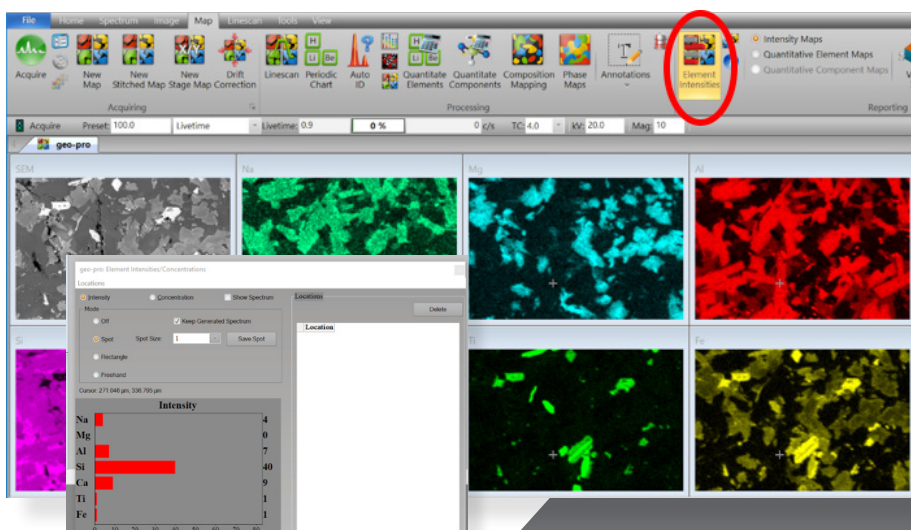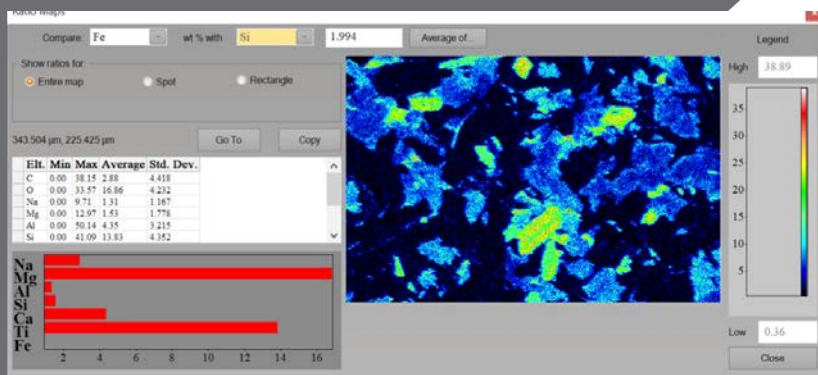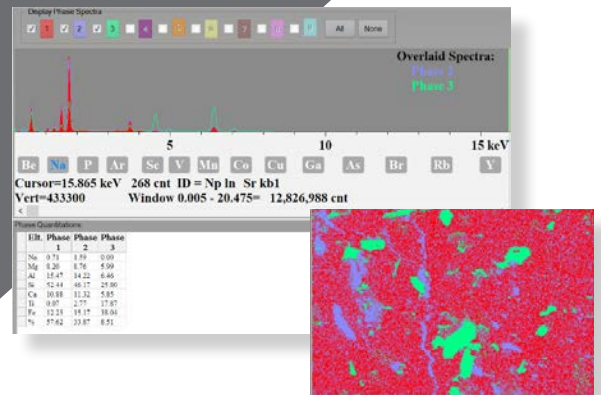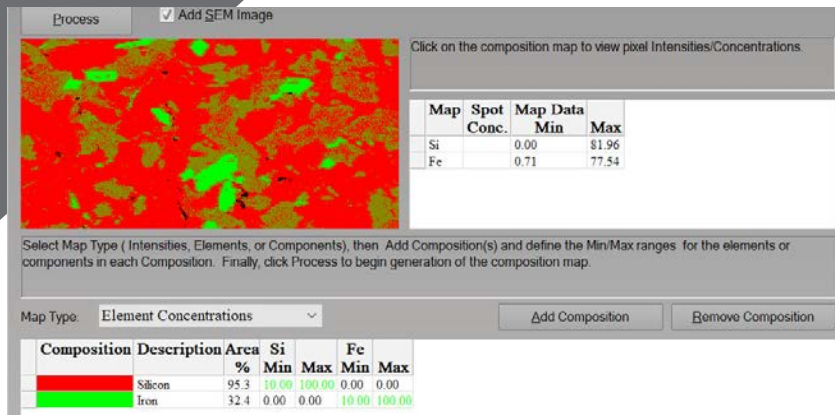
MAPPING

PHASE MAPS

Selecting Phase Maps from the Map tab automatically identifies phases within a sample and quantitatively analyze the elements within each phase.

The different phases will be graphically displayed in a map alongside phase-specific overlaid spectra to provide a qualitative comparison.

RATIO MAPS

Analyze the element ratios in a region of interest and display a comparison of element weight percent ratios.


COMPOSITION MAPPING

Composition mapping allows the user to define what compositions they want to display. These compositions can be standard compounds or customer specific materials.

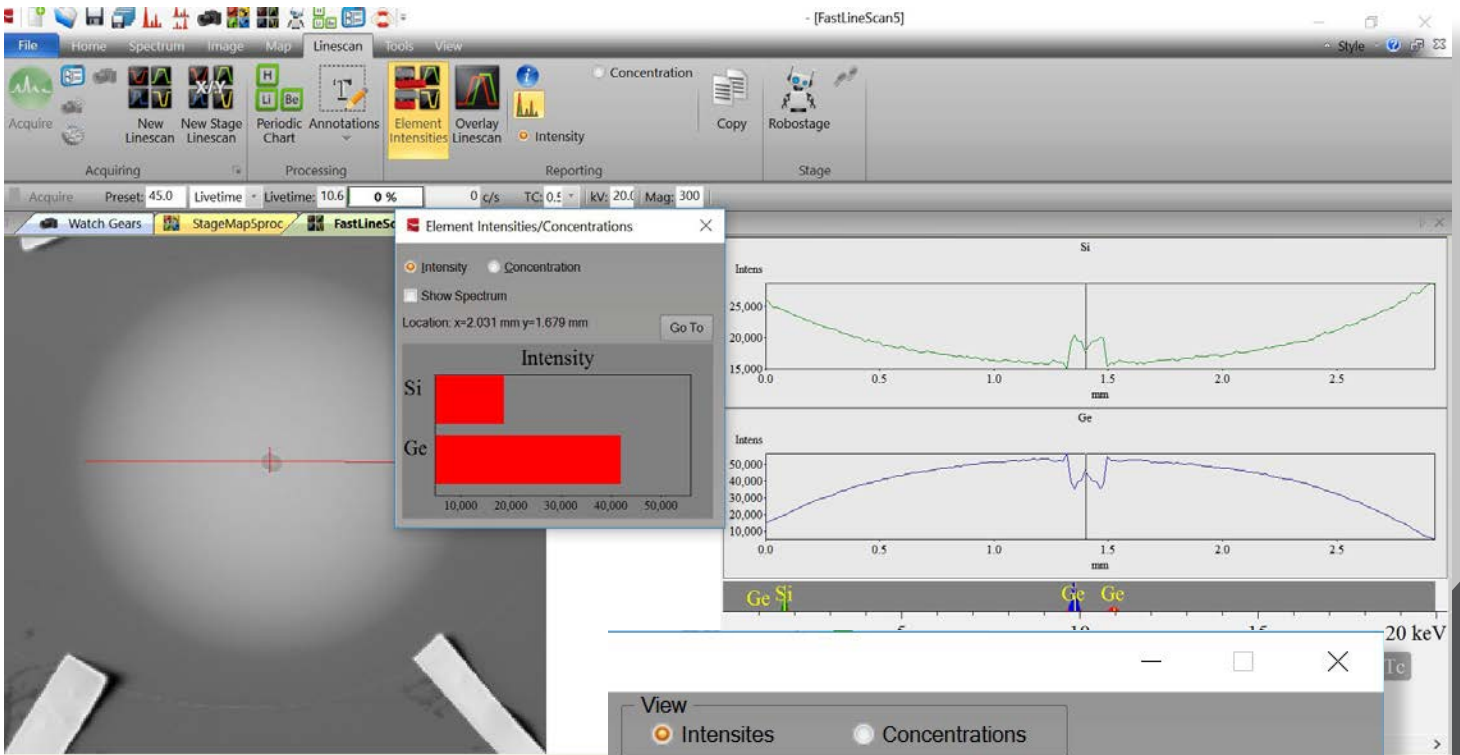The maps are then reorganized to display the defined compositions.

QUANTITATIVE ELEMENT/ COMPONENT MAPS

Quantitative Maps convert the intensity maps to Concentration (wt%).

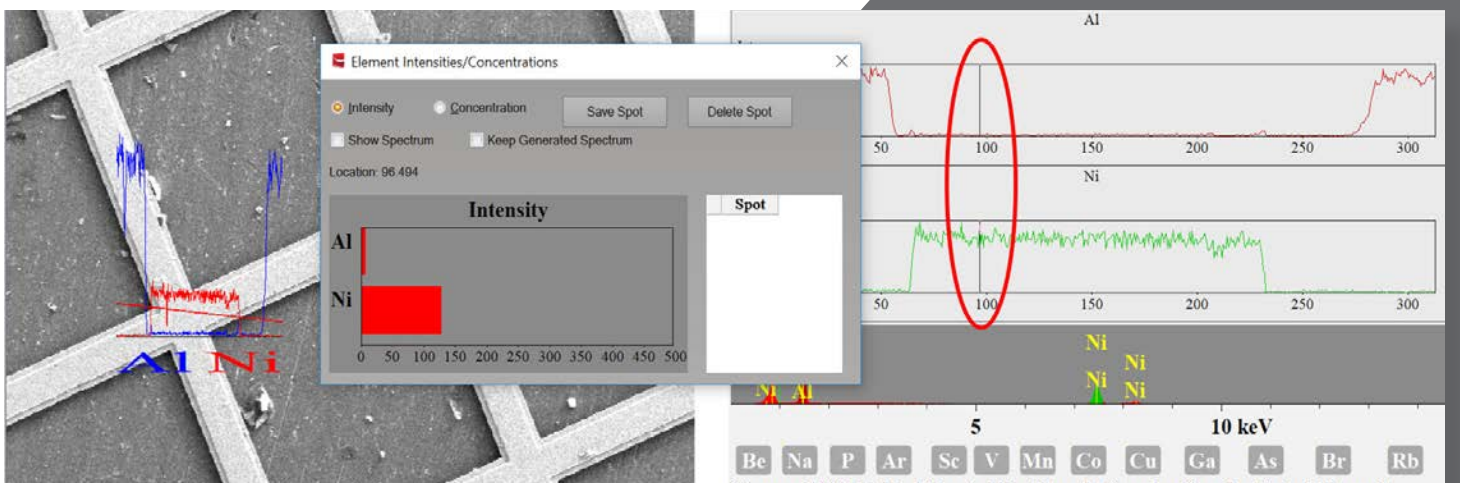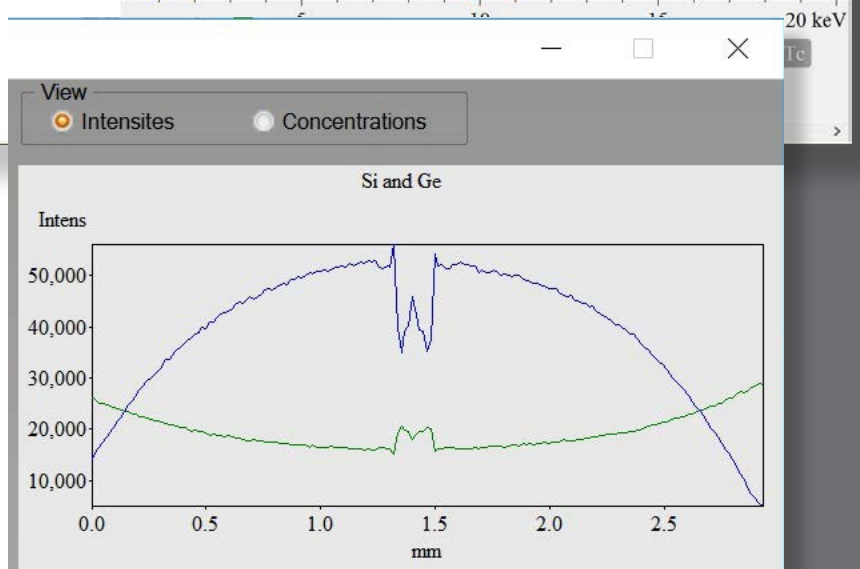This feature can display the quantitative maps as either elemental maps or components maps (ie; oxides).
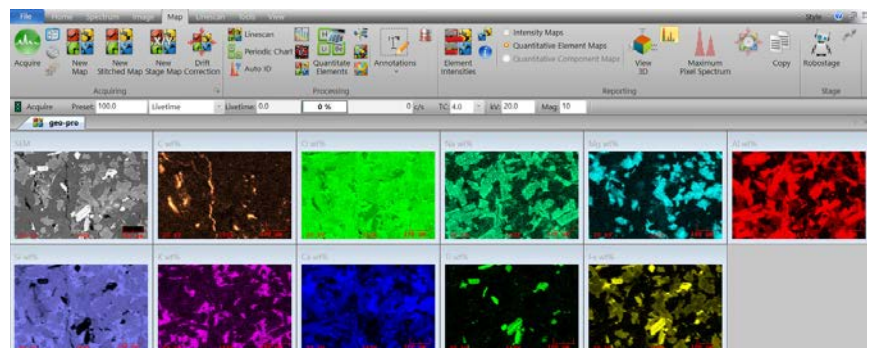
LINESCANS

OVERVIEW

1. Mutlielement Linescan Acquisition

2. Linescan Overlay

3. DataView (Intensity/Concentration)

4. MultiScan

IXRF SYSTEMS