

Auto Slice & View 5 Software

Multi-modal 3D data collection from FIB-SEM instruments

Auto Slice & View 5 Software allows for automated acquisition of high-resolution 3D images and analytical maps (EBSD, EDS). It acquires data by milling serial sections (slices) and then imaging each slice of a user-defined region of interest of the sample.

For comprehensive 3D data analyses it is important to collect as much information from the sample as possible. Thermo Scientific™ Auto Slice & View™ 5 Software (AS&V) enables acquisition of multiple imaging and analysis modalities on every slice. This includes information such as materials and channeling contrast generated by multiple detectors for SEM and FIB. In addition, elemental information can be collected by EDS, and grain orientation/strain texture analysis can be provided by EBSD mapping, typically using different conditions than those used to image.

Auto Slice & View 5 Software has drastically enhanced the flexibility of acquisition. In many cases, the relevant content of a sample is revealed only during cross sectioning. It provides necessary features to adjust the cross section job during the run. Define new imaging acquisitions, adjust or modify existing regions of interest, or adjust or define new analytical mappings during the run.

Visualizing and understanding the content of the cross section is the ultimate goal of any slice and view job. Cut placement accuracy and slice thickness uniformity are critical components in the transition from cross sectional raw data to meaningful information. Auto Slice & View 5 Software implements a state-of-the-art, proprietary, image-matching algorithm to ensure that slice thicknesses as low as 2 nm can be achieved. Auto Slice & View 5 Software has enhanced its workflow with Thermo Scientific Avizo™ Software for Materials Science, providing the fastest path from raw data to advanced 3D visualization and quantitative analysis.

Key Benefits
Unified software for every acquisition type. Integrating SEM, FIB imaging and EBSD/EDS mapping in one package.
Highly flexible slicing and imaging with arbitrary angle milling, independent beam parameters and stage positions per acquisition
Reliable acquisition with precise and repeatable cut placement and robust autofunctions
On-the-fly editing capabilities for highest throughput collection of relevant data
Intuitive, easy to use UI with streamlined workflows
Large area polishing and 3D data acquisition using optional Spin Mill package on PFIB instruments



Figure 1. Auto Slice & View 5 Software’s user interface. Workflow steps are at the bottom and settings on the right. Its intuitive UI with user guidance and instructive graphics enables acquisition of high-quality 3D datasets for all users.

Auto Slice & View 5 Software is optimized for high-throughput job setup and data acquisition. Customizable templates allow you to complete the setup in just a few clicks, and, for imaging, it is possible to focus only on the information needed. By defining multiple areas of interest on the cross-section cut face, only those relevant areas are imaged. Also, it is possible to collect staggered information; e.g., acquiring a BSE image on every slice, but collecting an EBSD map only on every fifth slice. In this way, only the meaningful information is acquired with huge time savings.

Brand-new spin mill functionality is introduced with Auto Slice & View 5 Software. With spin mill, the sample surface is exposed to ions at a nearly glancing angle, allowing for the processing of areas of up to 1 mm in diameter. This method can be used both for large-volume 3D characterization or simply to prepare high-quality surfaces for high-resolution SEM imaging or EBSD analysis.

Key features	Included
Robust autofunctions (auto focus, stigmation, lens align, source tilt)	✓
Drift correction and SmartScan advanced scanning strategies	✓
Region-of-interest imaging	✓
Multi-detector acquisition	✓
Optimized imaging conditions (stage shuttling)	✓
Every N-slice option for acquisition and auto-functions	✓
8- or 16-bit image acquisition	✓
Up to 60 k image resolution	✓
Multi-site acquisition	✓
Curtain-free slicing with Rocking Mill	✓
Unlimited Y-shift correction with beam shift and stage moves	✓
Running projects are editable on-the-fly	✓
Configurable templates for easy project setup	✓
Python interface	✓
Rich manual and best practice documents	✓
Low-vacuum support (Scios DualBeam)	✓
EDS and EBSD mapping (optional)	✓
Spin Mill (optional)	✓

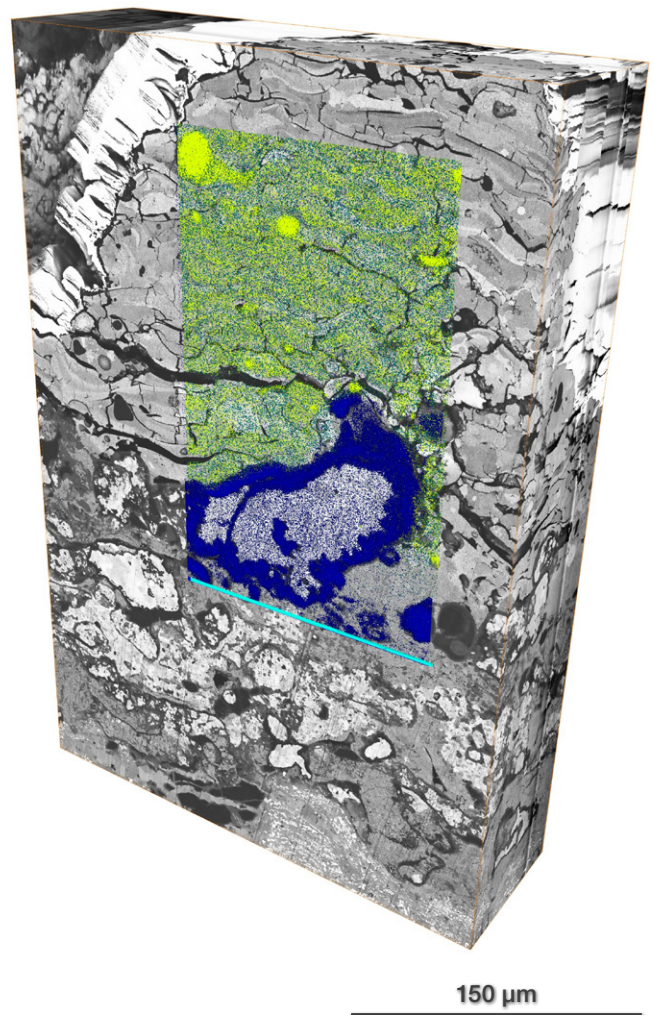


Figure 2. 3D reconstruction of thermal barrier coating from an afterburner nozzle of a ramjet aero engine showing the microstructure state at end-of-life of the engine exhaust system. Overlaid EDS map shows elemental distribution on the top coat and bond coat interface: blue is aluminum, yellow is magnesium, and turquoise is yttria. The data have been produced with a Thermo Scientific Helios™ 5 PFIB, Auto Slice & View 5 Software and Avizo Software for Materials Science. Scale bar is 150 microns.

Learn more at thermofisher.com/DualBeam

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