

# Thermo Scientific Auto Cross Section Software

## Automated cross sectioning for advanced materials analysis

Thermo Scientific™ Auto Cross Section (AXS) Software automates cross-sectioning and SEM imaging across multiple sites, scales, and resolutions, enabling high-throughput, reproducible multi-site and multi-sample cross-section preparation and imaging on Thermo Scientific focused ion beam scanning electron microscopes (FIB-SEMs).

The software delivers precise FIB milling to remove material and expose subsurface regions and detailed SEM imaging for direct visualization of features that are otherwise hidden beneath the surface, such as layer structures, interfaces, defects, and inclusions. This core FIB-SEM capability is indispensable in providing insights into material composition, structural integrity, and failure mechanisms.

AXS Software supports a wide range of materials, from metals and coatings to soft and beam-sensitive materials, enabling reliable analysis across both industrial and research environments. Its ability to handle features spanning multiple length scales—from micrometer-sized structures to nanoscale details—makes it a versatile tool for comprehensive materials characterization.

Powered by smart automation, AXS Software makes advanced FIB-SEM capabilities accessible to non-expert users while also helping expert users increase throughput and achieve highly reproducible, high-quality results with minimal manual intervention.

No matter your level of experience, AXS Software can help you focus on data interpretation rather than instrument operation. AXS Software is supported on the Thermo Scientific™ Scios™ 3 FIB-SEM, Helios™ 5 FIB-SEM, and Helios Hydra™ PFIB-SEM.

- Key benefits**
- Automated FIB milling and SEM imaging on multiple sites across multiple specimens
- Batch processing for unattended operation
- Flexible and reliable imaging with advanced auto functions and multiple detectors
- Easy operation for non-FIB experts
- Smart templates pre-configured for a wide variety of materials
- Key features**
- Automated FIB milling of multiple regions
- Multi-detector, multi-ROI SEM image acquisition
- Basic and advanced UI modes for users of different expertise
- Rocking mill support
- Possibility to configure arrays of sites
- Reporting capabilities, result review, and measurement tools

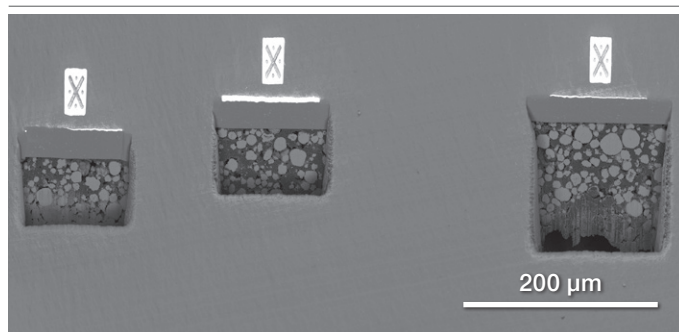


Figure 1. Cross sections automatically prepared from the battery cathode NMC particles.

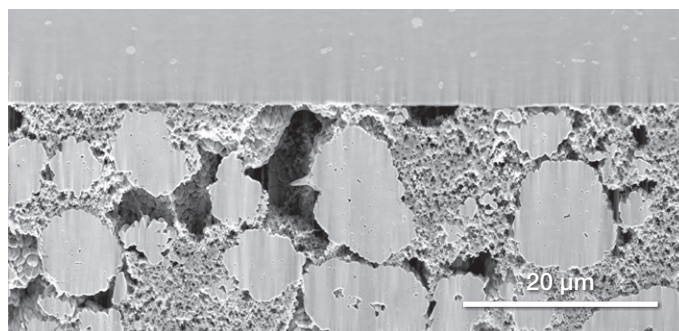


Figure 2. Image of the interface between the Al protective layer and NMC cathode particles automatically acquired using AXS Software.