

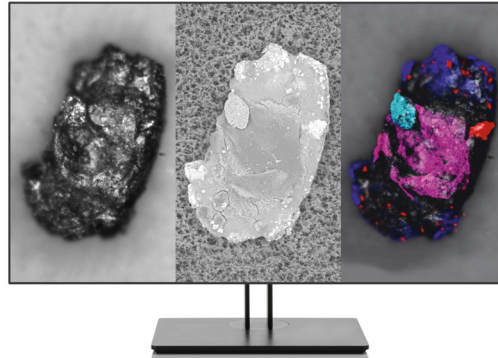
A high-magnification microscopic image of a material surface, likely a thin film or coating. The surface is characterized by a complex, irregular pattern of red and blue regions, which may represent different phases or orientations of the material. The texture is highly detailed, with sharp boundaries and fine-scale variations in color and shape.

ZEISS

From Micro To Nano

The ZEISS Product Portfolio for Materials

Combine multiple imaging technologies from ZEISS



You are looking for a suitable microscopy solution?

As a leading manufacturer of microscopes ZEISS offers inspiring solutions and services for material research and quality assurance.

From entry-level to high-end, from micro to nano – choose the ideal microscope solution for your application from the broadest product portfolio on the market.

Our sales team is happy to assist you!

Please contact:

ZEISS Industrial Quality Solutions Team Hungary



+36 23 880 930



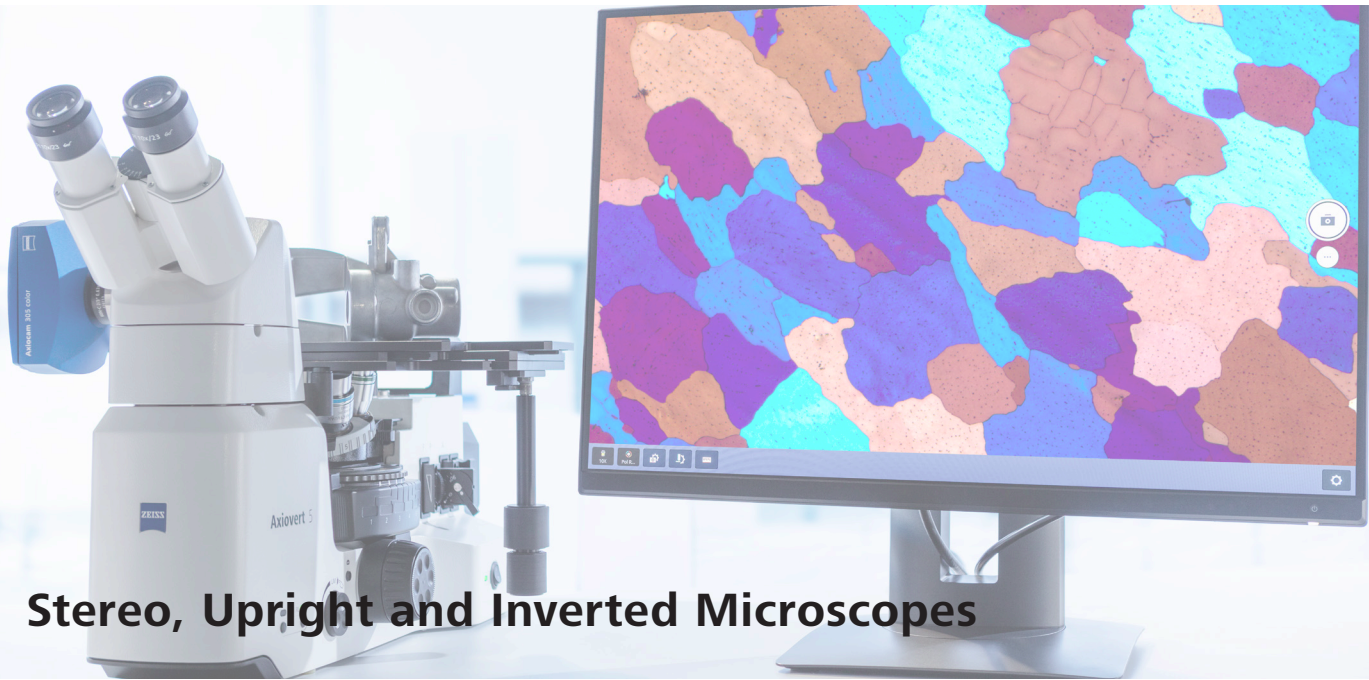
your.metrology.at@zeiss.com

For further information:

Please visit: www.zeiss.hu/microscopy

Kapcsolat

Entry Level.



Stereo, Upright and Inverted Microscopes

For material research, quality control, laboratory or routine – choose from a **broad range of products in proven ZEISS quality already available at entry-level.**

ZEISS Stemi 305

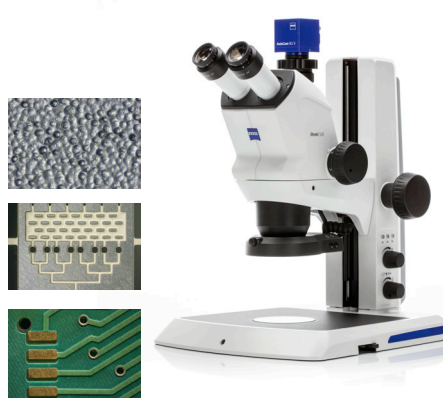
The all-in-one microscope. With integrated illumination and documentation.



- Compact, user-friendly stereo microscope with 5:1 zoom
- Free working distance of 110mm and object field diameter up to 29mm
- All accessible magnification range from 4x to 200x due to changeable optics
- Integrated 1.2 Megapixel Wifi camera or decide for the conventional phototube to gain access to all ZEISS Axiocam microscope cameras and the imaging software ZEN Core Starter
- Reflected and transmitted light: brightfield; darkfield; polarization; oblique light

ZEISS Stemi 508

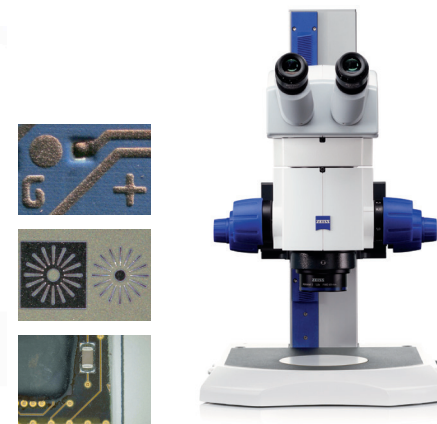
Excellent image contrast and color accuracy.



- Large 8:1 zoom with apochromatic correction brings details up to 250x magnification
- Precise mechanics for heavy workloads
- Add interchangeable optics and observe an area of up to 122 mm
- Choose from a wide range of different stands and accessories
- Reflected and transmitted light: brightfield; darkfield; polarization; oblique light

SteREO-Discovery

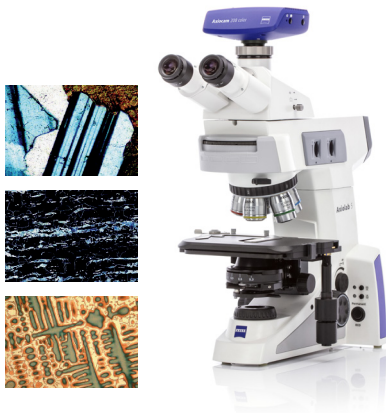
The modular stereo microscope with man./mot. zoom from 8:1. V.8, V.12, V.20



- Maximum flexibility through modular set-up
- Crisp and brilliant images throughout the whole 8:1 zoom range
- Available with various zoom and motorization
- 450 stand is large and heavy stable, minimizing vibration
- Choose from a wide range of different stands and accessories
- Reflected and transmitted light: brightfield; darkfield; polarization; fluorescence

ZEISS Axiolab 5

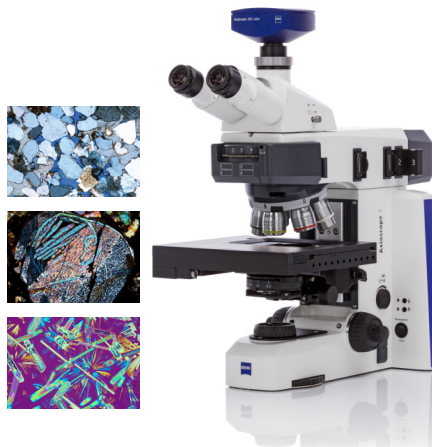
Your Microscope for Routine Materialography and Smart



- Axiolab 5 offers you an easy handling, ergonomic user concept that's adapted to your lab routine
- Save lab space and costs as Axiolab 5 does not require an additional computer and software
- Easy digital documentation with the Snap Button
- The Smart Microscopy concept also enables Axiolab 5 to be operated by both expert and non-expert users

ZEISS Axioscope

The modular microscope for routine and research.



- Axioscope 7 with motorized sample stage and focus drive: automate your processes and have a continuous digital workflow
- Examine large specimens without destruction and in one piece (up to a height of 110mm)
- Reflected and transmitted light or combined
- Reflected light: brightfield, darfield, CDIC, polarization
- Transmitted light: brightfield, darkfield, phase contrast, linear and circular polarization, orthoscopy

ZEISS Axiovert 5 - 7

Your inverted microscope for the materials lab and smart documentation



- Examine large, heavy samples, using a wide range of classic and advanced contrast methods
- Smart Microscopy: Simply focus and press a single button to save a high-quality image
- Controls are ergonomically arranged on the microscope for relaxed and efficient handling
- With Axiovert 7 you will benefit from the motorization of the Z-axis and a motorized XY stage
- The coded components ensure that erroneous operation and the associated falsification of the examination results can be largely ruled out



Automated Imaging Systems

Our products guarantee reliable results from incoming goods inspection to the research laboratory. And they are easy to use – even for untrained users.

Because of a **high automatization level** they ensure an **efficient sample throughput** and thus reduce your operating costs. Fully automated system solutions **enable independent and reproducible work with high accuracy** so that you are able to concentrate on what you see.

ZEISS Smartzoom 5

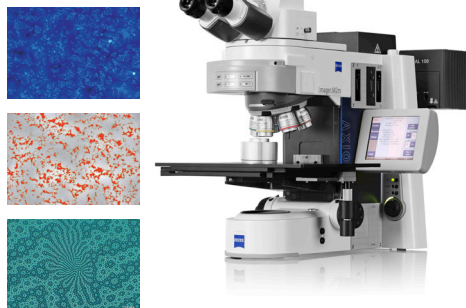
Smart Design. Smart Workflow.
Smart Output.



- Digital microscope for quality assurance applications with 10x zoom and three lenses
- Fast and easy to install and to use
- The optical engine combines zoom, overview camera and coaxial illumination in a single component
- The integrated QA/QC graphic user interface combined with gesture control to support a seamless macro-to-detail workflow, allowing easy navigation at all times
- Continuous status control of all main components and automatized calibration of single components
- Fast, reproducible QA/QC measurements for routine as well as failure analysis tasks

ZEISS Axio Imager 2

Your motorized microscopy platform
for material analysis.



- Quick and reproducible results while working under constant and vibration-free conditions
- Modular stand concept with a variety of motorized and coded components
- C-DIC for the contrasting of differently aligned object structures. The specimen no longer has to be rotated for best image contrast and quality
- Software-Module Shuttle & Find completes the structural analysis from a light microscope with the material analysis of an electron microscope
- Analyse surfaces of solar cells, identify different asbest fibres or analyse finecut with polarization

ZEISS Axio Observer

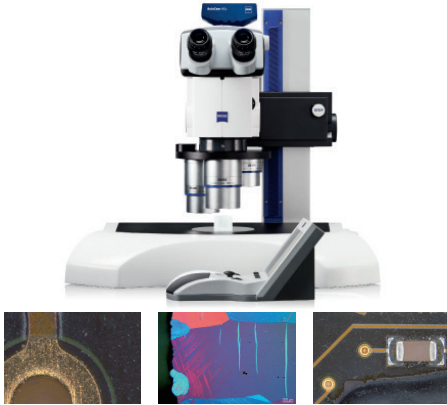
Your inverted microscope for investigation,
development and analysis of materials.



- With the three different stands, you can choose between different levels of automation and motorization
- Investigate, develop and analyze materials, especially metallographic specimens, in no time at all
- No need to refocus, even when changing magnification or switching metallurgical samples
- Stable imaging conditions and homogenous illumination for crisp images especially when working with high magnifications
- Broad range of software modules such as analysis of non-metallic inclusions, grain sizes
- Axio Observer is your open imaging platform: invest in only the features you need today

ZEISS SteREO Discovery. V20

Modular stereo microscope with motorized 20x zoom.



- Use the 20:1 zoom to gain flexibility and switch from largest overview into the smallest detail
- Higher magnifications can be realized with smaller lenses thanks to the large zoom range of the microscope body. Because of the improved spatial impression even the smallest details can be recognized a lot faster
- Broad range of modules and accessories for adequate system extension
- Analysis of soldering joints, particles, fibres, lacquers, glass, textiles, artefacts on circuit boards
- Fibre-optically cold light source with spot-, ring-, line-, diffusor-, surface and coaxial illumination





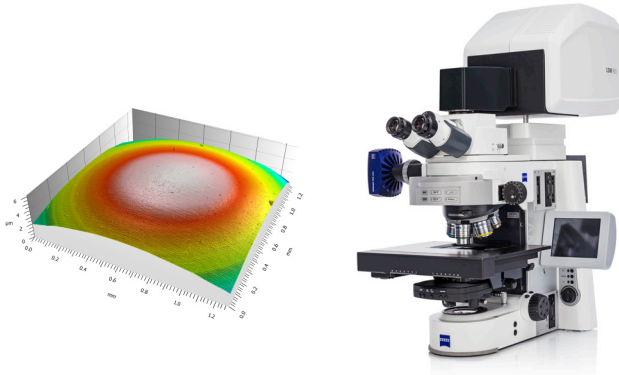
Confocal Microscopy

A confocal Laser Scanning microscope **scans a sample point by point and line by line to assemble an image**. Various levels are scanned by sequence to generate the surface of the sample.

As a result you acquire 3D optical sections with high contrast and high resolution in x, y and z.

ZEISS LSM 900

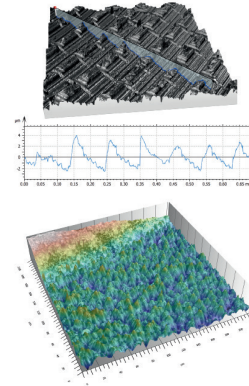
Your Versatile Confocal Microscope for Advanced Imaging and Surface Topography.



- LSM 900, your high-end confocal platform, is made for demanding materials applications, both in 2D and 3D
- Characterize topographic structures and evaluate surface roughness with non-contact confocal imaging
- Determine the thickness of coatings and thin films non-destructively
- Characterize 3D structures with fluorescence in optical contrast or in confocal mode
- Use a range of imaging techniques including polarization and fluorescence in optical contrast or in confocal mode
- Characterize metallographic specimens in reflected light or thin section of rock or polymer in transmitted light

ZEISS Smartproof 5

Integrated Widefield Confocal Microscope for Surface Analysis in QA/QC.



- Patented widefield confocal technology (Spinning Disk Aperturcorrelation) guarantees faster results
- Including ConfoMap – the ZEISS version of MountainsMap – the gold standard in characterization software
- Compact design and sturdy construction withstand vibration so effectively that there is no need for extra anti-vibration equipment
- Extra anti-vibration equipment
- Fully integrated system design: optics, electronics and camera are all enclosed in the microscope with the number of cables minimized to eliminate clutter
- ConfoMap Software ensures analysis of geometrical parameters of your probes or roughness analysis in 2D and 3D



Scanning Electron Microscopes

ZEISS Scanning Electron Microscopes (SEM) deliver high-resolution surface information, superior materials contrast and compositional information. Due to their unique capabilities SEMs are widely used in application fields such as **nanotechnology, material characterisation & development, semiconductor failure analysis**, and **quality control** and **assurance**.

A focused electron beam scans the sample surface. Various detectors record images containing e.g. information about the sample topography and composition.

ZEISS EVO Family

Modular SEM Platform for Intuitive Operation, Routine Investigations and Research Applications

The instruments of the EVO family combine high performance scanning electron microscopy with an intuitive, user-friendly experience that appeals to both trained microscopists and new users.

- **Excellent images from any sample with no or minimum sample preparation**
- **Maximum image quality with the optional lanthanum hexaboride (LaB6) emitter**
- **Imaging and analytical excellence on non-conductive and uncoated samples**
- **Workflow automation and data integrity**
- **Large chamber for bulky samples**

- **Class-Leading Usability thanks to Smart SEM Touch:**

It is easy to learn, reducing training effort and costs. Within minutes, even new users will begin capturing stunning images.

- **EDX Solutions for Microanalysis Applications:**

One PC Solution: Control both EDS and SEM in parallel using one single PC.

This integration improves usability. At the same time, you will enjoy dedicated user interfaces for your microscope and your EDS system. Reduce your EDS acquisition time by leveraging the optimized detector integration that boosts the EDS signal inputs by at least 17%.

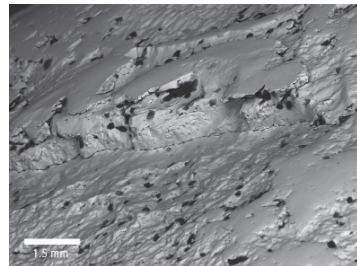
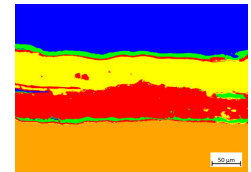
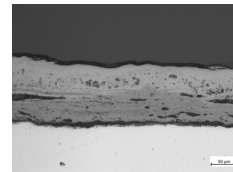


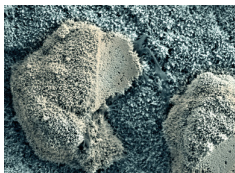
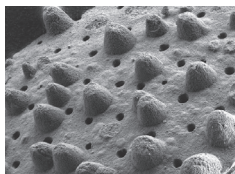
Image of the surface of a ball bearing. Imaged with the HDBSD showing cracking and flaking of the surface structure.



Segmentation of different substructures in a corrosion layer by ZEN Artificial Intelligence Toolkit module of ZEN core.

ZEISS SIGMA

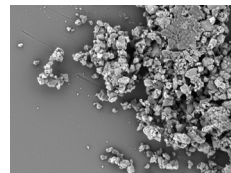
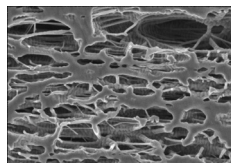
FE-SEM for Outstanding Image Quality & Advanced Analytical Microscopy



- ZEISS unique proven Gemini electron optics combines field emission SEM (FE-SEM) technology with advanced analytics even on demanding and magnetic samples
- Choose from a variety of detector options to obtain high contrast images
- ZEISS 4-step workflow for semi-automated image acquisition and analysis reduces the need for operator presence at the SEM and thus increases productivity
- Get your elemental analysis results fast and convenient with Sigma 500's best-in-class EDS geometry. You can have trust in accurate, reproducible results from any sample, every time
- Acquire complete, shadow-free analytics with Dual EDS at +/- 35° and only 8,5mm working distance
- Experience fully integrated research-grade, confocal Raman Imaging and Scanning Electron Microscopy (RISE)
- Use NanoVP-lite for imaging and analysis of the most challenging non-conductive samples

ZEISS GeminiSEM

For Your Highest Demands in Sub-nanometer Imaging, Analytics and Sample Flexibility



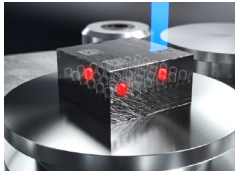
- ZEISS GeminiSEM stands for effortless imaging with sub-nanometer resolution
- Take sub-nanometer images below 1 kV without an immersion lens
- Discover three unique designs of the Gemini electron column
- ZEISS GeminiSEM 360 with its Gemini 1 electron optical column delivers high resolution imaging and analytics over the widest range of applications and sample types
- ZEISS GeminiSEM 460 and its Gemini 2 column serve the most challenging tasks in analytical microscopy. Switch seamlessly between imaging and analytical conditions over a wide range of probe currents
- The new standard for surface imaging – introducing ZEISS GeminiSEM 560, featuring the new Gemini 3 column with its new electron optical engine Smart Autopilot functionality. It delivers the highest resolution in the family at all working conditions
- Discover automated in-situ experiments and data recording

ZEISS Crossbeam

FIB-SEM for High Throughput 3D Analysis
and Sample Preparation

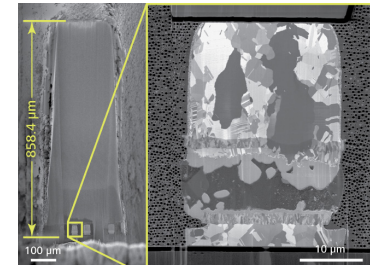
Combine imaging and analytical performance of a high resolution field emission scanning electron microscope (FE-SEM) with the processing ability of a next-generation focused ion beam (FIB).

- **Maximize your SEM insights**
- **Increase your FIB sample throughput**
- **Experience best 3D resolution in your FIB-SEM analysis**
- **Excess deeply buried structures with the optional fs-Laser**



Crossbeam laser Workflow

- Gain rapid access to deeply buried structures
- Benefit from minimal damage and heat affected zones due to femtosecond laser pulses in a controlled vacuum environment
- Perform laser work in a dedicated integrated chamber to maintain cleanliness of your FIB-SEM main chamber and detectors
- Automate laser processing, polishing, cleaning and transfer of the sample to the FIB chamber
- Prepare multiple samples from cross-sections over TEM lamellae to pillar arrays, and work efficiently by using pre-installed recipes for different materials



Rapid Analysis of Deeply Buried 3D Package Interconnects

Crossbeam laser FIB-SEM provides fast, high-quality cross sections of 25 μm diameter Cu-pillar microbumps and BEOL structures buried 860 μm deep in a 3D integrated circuit (IC) package with total time to results of <1 hour.

Left: 3D IC prepared using laser ablation and FIB polishing.

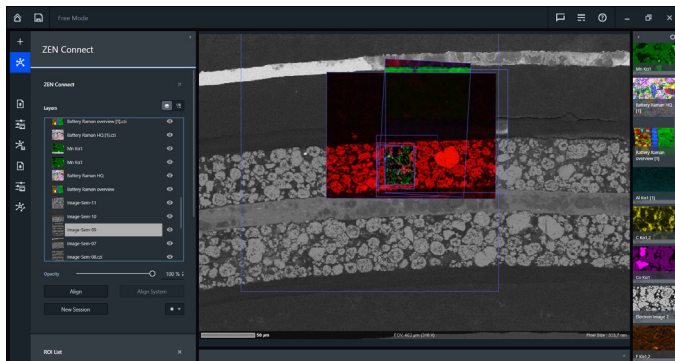
Right: Backscattered electron image of microbump.

ZEISS ZEN core Software

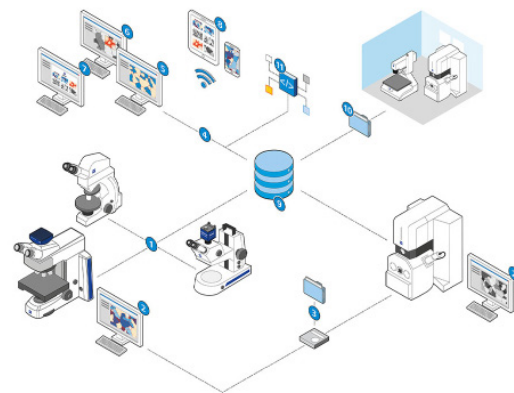
Software Suite for Connected Microscopy

ZEN core handles more than just microscopy imaging. ZEN core is the most comprehensive suite of imaging, segmentation, analysis, and data connectivity tools for multi-modal microscopy in connected material laboratories.

- **Easy to configure, easy to use - the adaptive user interface**
- **Advanced imaging and automated analysis**
- **Connected lab**
- **One Interface for all ZEISS Microscopes in a Multi-user Environment**



Multi-modal experiment on a lithium-ion battery using ZEN Connect showing the overlay of a SEM image and a Witec Raman map displayed in the viewer of the Correlative Workspace.



From entry-level stereo microscopes to fully automated imaging systems, ZEN core provides you with a unified user interface for ZEISS microscopes and cameras.

- » Perform multimodal workflows and correlate light and electron microscopy.
- » Connect all imaging and analytical data between systems, laboratories, and locations.

■ One Interface for all ZEISS Microscopes in a Multi-user Environment

From entry-level stereo microscopes to fully automated imaging systems, ZEN core provides you with a unified user interface for ZEISS microscopes and cameras.

Perform multi-modal workflows and correlate light and electron microscopy.

■ Toolkit Packages for specific applications:

AI Package

Segment, classify, and denoise images based on machine learning algorithms accessible through a dedicated userfriendly interface for training AI models. Implement trained models in any image processing workflow.

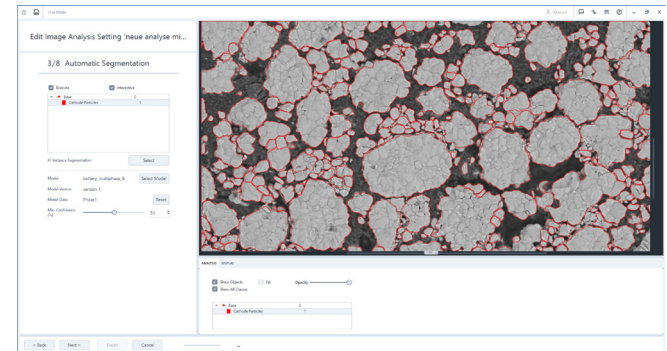
Connect

Acquire and correlate images from different instruments such as light and electron microscopes or any other digital source, with a sample-centric workspace and a dedicated file management system. Perform workflows in 2D and 3D, optionally simplified by using sample holders with L-marker calibration.

■ Advanced Imaging and Automated Analysis

ZEN core is your command center for automated imaging and analysis functions on any microscope. Use built-in automated image acquisition and analysis routines and benefit from the consistency of an advanced and repeatable workflow.

ZEN core Artificial Intelligency Toolkit offers automated image segmentation based on machine learning algorithms and image analysis functionality such as phase analysis or particle counting.



Battery cathode material, scanning electron microscope image segmented with a deep learning segmentation model.



X-Ray Microscopes

ZEISS 3D X-ray microscopes (XRM) offers advanced imaging solutions that have overcome major hurdles for non-destructive three-dimensional imaging by achieving **high contrast** and **submicron resolution** even for your relatively large samples with ZEISS patented RaaD® detector. Advanced reconstruction tools powered by AI allow for enhanced image quality or higher sample throughput.

These groundbreaking advances in non-destructive, 3D imaging empower a broad range of technical disciplines, like **material characterisation & development**, **process control** and **quality assurance**.

ZEISS Xradia Context microCT

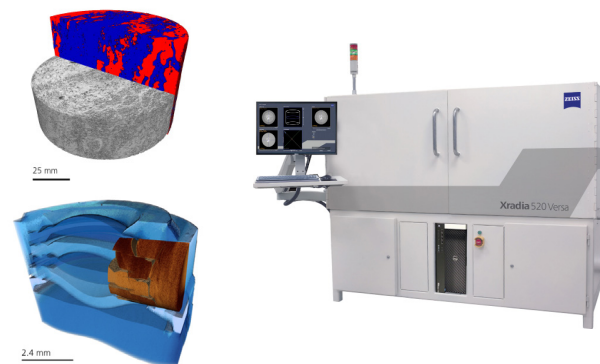
Large field-of-view, non-destructive 3D X-ray micro-computed tomography system.



- Obtain 3D data on entire electronic circuit boards, large components, rock, concrete or other raw materials samples or biological specimens
- Perform non-destructive failure analysis to identify internal defects without cutting your sample or workpiece
- Characterize and quantify performance-defining heterogeneities in your materials, like porosity, cracks, inclusions, defects or multiple phases
- Perform 4D evolutionary studies, through ex situ treatment or in situ sample manipulation
- Connect to the ZEISS correlative microscopy environment and perform non-destructive 3D imaging to identify regions of interest for subsequent high resolution 2D or 3D electron microscopy imaging

ZEISS Xradia Versa

Versatile, High-Resolution, non-destructive 3D X-ray Microscope with RaadD®.



- Experience resolution beyond Micro-CT with ZEISS patented Resolution-at-a-Distance (RaadD®) detector system
- Get high-resolution internal 3D tomography data without cutting your sample
- Advanced contrast techniques like propagation phase contrast or Dual Scan Contrast Visualizer (DSCoVer)
- Tune your X-ray energy spectrum with source filters enabled by the Automated Filter Changer
- Characterize materials in-situ and in 4D
- Upgrade the modular design with FPX (flat panel) for extra large samples, LabDCT (diffraction contrast tomographie) for information of crystallographic orientation or the Autoloader for unattended sample change
- Groundbreaking 450nm spatial resolution with the new 40x Prime detector and improved resolution performance even at high energies
- Pioneering NavX user interface delivers effortless data acquisition workflows for all users
- Extend productivity and performance via AI by adding ZEISS Advanced Reconstruction Toolbox



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