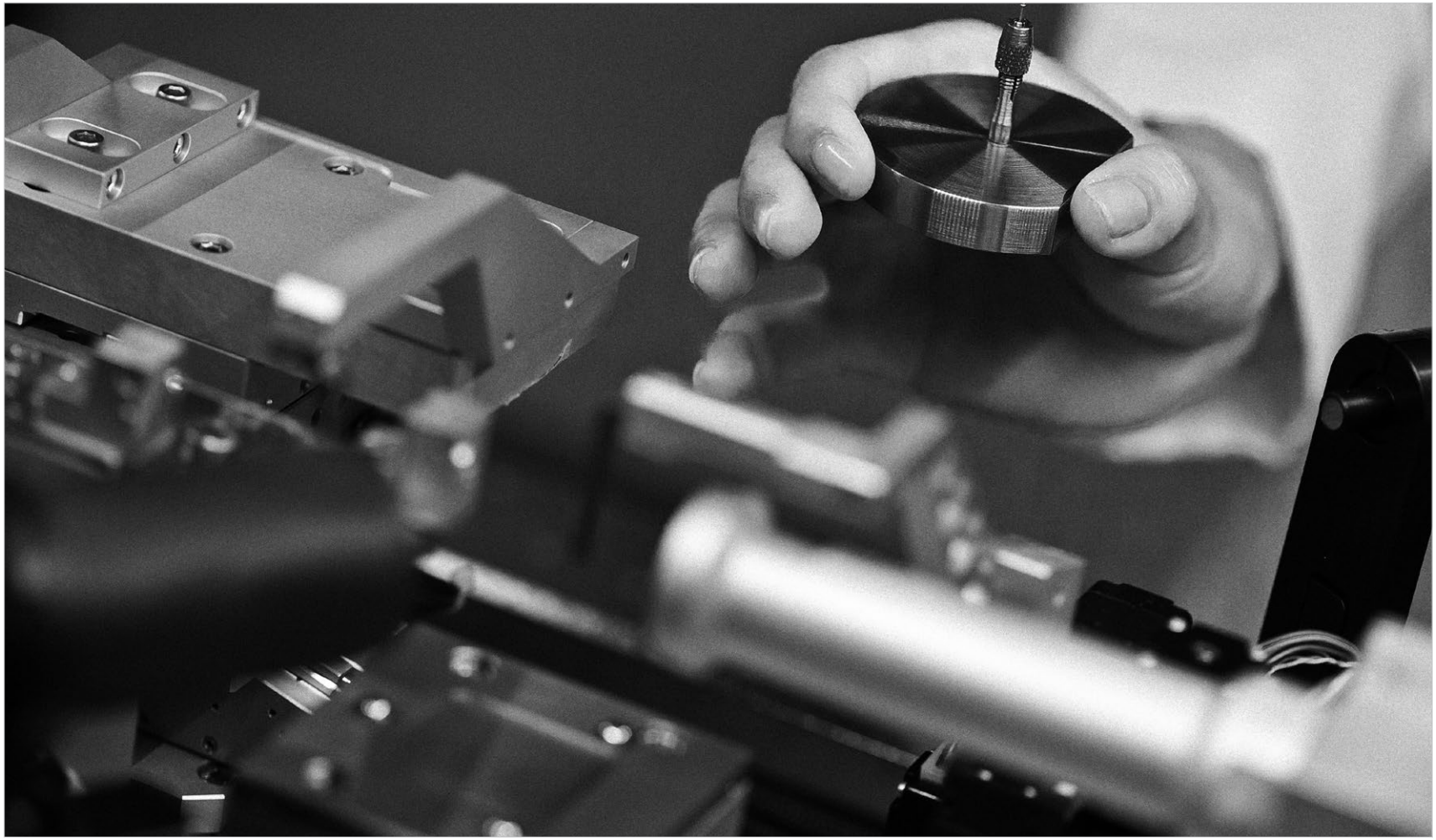


ZEISS Xradia 800 Ultra

Nanoscale X-ray Imaging:
Experience Synchroton-like Performance in the Lab

Product Information
Version 1.1

For more information please visit
msi-viking.com

We make it visible.

Achieve Resolution Down to 50 nm

With the ZEISS Xradia 800 Ultra X-ray microscope, you achieve spatial resolution down to 50 nm, the highest among lab-based X-ray imaging systems. With non-destructive 3D imaging playing a vital role in today's breakthrough research, you will experience unparalleled performance and flexibility in the lab. The innovative Xradia Ultra architecture features absorption and phase contrast, X-ray energy of 8 keV, and unique optics adapted from the synchrotron. With Xradia 800 Ultra, expect to accomplish unrivaled *in situ* and 4D capabilities for studying material evolution over time and extends the limits of X-ray imaging used in materials science, life sciences, natural resources, and diverse industrial applications.

Simpler. More Intelligent. More Integrated.

Perform Non-destructive and *In Situ* Imaging

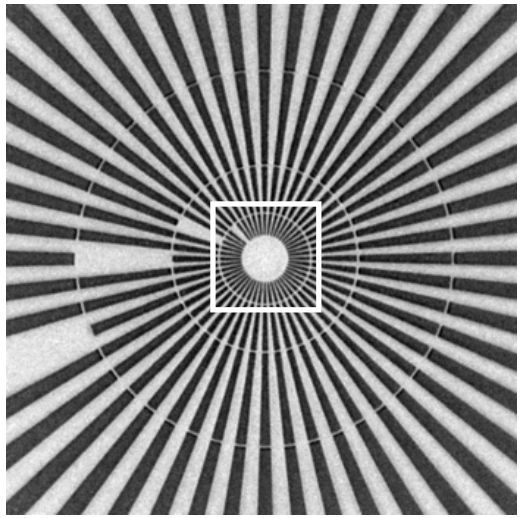
ZEISS Xradia 800 Ultra delivers reliable internal 3D information otherwise only accessible to you with destructive methods like cross-sectioning. The large working distance and atmospheric sample environment allow you to perform *in situ* studies with ease.

Achieve Unsurpassed Resolution

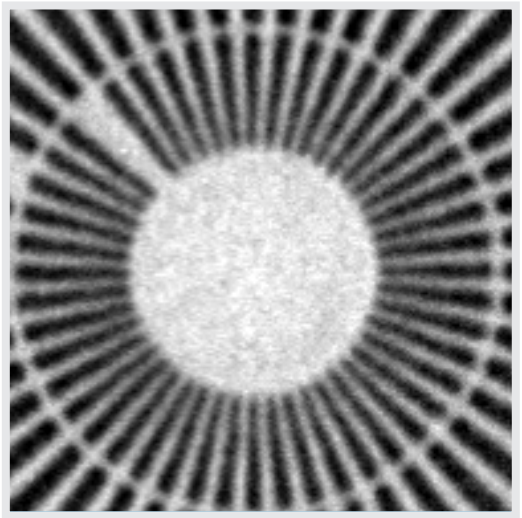
With resolution as fine as 50 nm, Xradia 800 Ultra provides you with insight into microscopic structures and processes previously not accessible with conventional lab-based X-ray technology. Operating with 8 keV X-ray provides excellent penetration and contrast for a wide range of materials, enabling you to observe structures and materials in their natural state.

Experience Unparalleled Contrast for Soft Materials

ZEISS Xradia integrated phase contrast technology employing the Zernike method allows enhanced visibility of grain boundaries and material interfaces when absorption contrast is low, providing you with visibility of ultra- and nano-structures without staining.



Resolution target: 50 nm lines and spaces

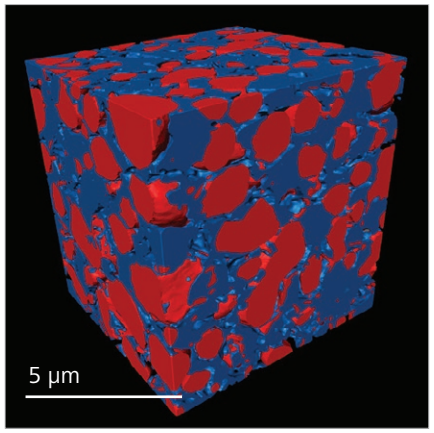


Precisely Tailored to Your Applications

	Task	Xradia 800 Ultra offers
Materials Research	Study and predict material properties and evolution Measure and identify porosity, cracks, phase distribution etc.	Non-destructive, high resolution 4D and *in situ* capabilities
Natural Resources	Perform virtual core analysis to reduce time to results	Nanoscale pore structure measurements for geological samples can now be conducted in a few hours compared to traditional core analysis
Life Sciences	Examine both hard and soft tissue	Superior contrast, nanoscale 3D X-ray imaging of a variety of bio materials such as polymers for drug delivery, tissue samples, and scaffolds for tissue engineering
Electronics	Optimize your package development process	Nanoscale visualization of semiconductor samples for electronics packaging research and development

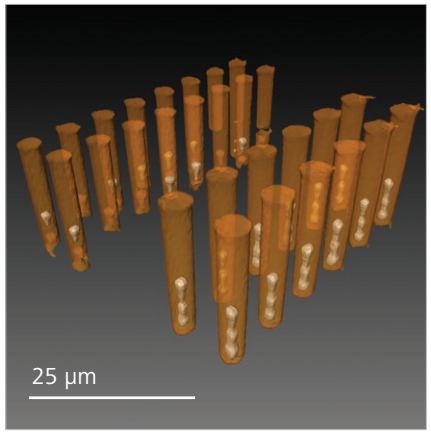
ZEISS Xradia 800 Ultra at Work

Materials Research



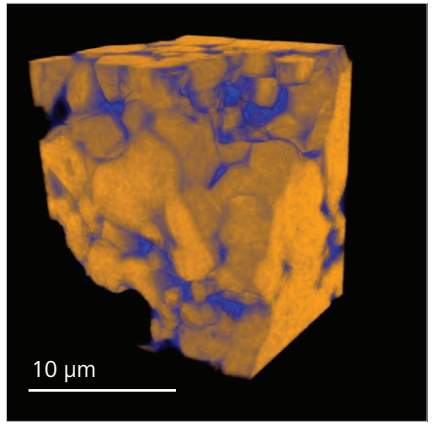
Solid Oxide Fuel Cell (SOFC) – multi-phase imaging

Electronics



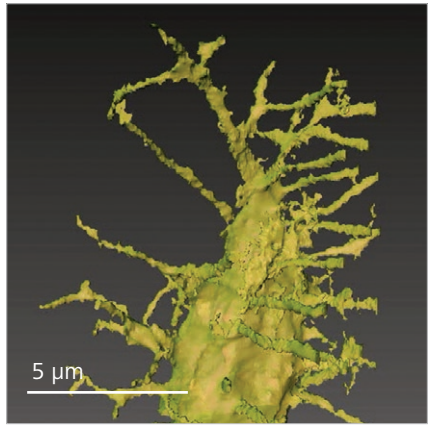
Through Silicon Vias – process characterization and failure analysis

Natural Resources



Carbonate-calcite grains with micrite – virtual core analysis (rock physics)

Life Sciences



Osteocyte lacuna with canaliculi – bone research (beyond histology)

Your Flexible Imaging Solution

1 X-ray Microscope
- ZEISS Xradia 800 Ultra
- 50 nm spatial resolution for synchrotron-quality imaging in the laboratory

2 X-ray Source
- High brightness
- 8.0 keV energy

3 Optics
- High efficiency condenser
- High resolution, high efficiency zone plate objectives
- Phase contrast optics (optional)

4 Detector System
- Optically coupled scintillator with high resolution and sensitivity

5 Workstation and Software
- Powerful workstation with GPU-based reconstruction
- XMController for data acquisition
- XMReconstructor for tomographic reconstruction
- XM3DViewer for 3D visualization
- Compatible with a wide range of 3D viewers and analysis programs

6 Microscope architecture for stability, flexibility and ease of use
- Vibration isolation and thermal control
- Ability to integrate *in situ* stages
- Integrated visible light microscope for sample inspection and alignment
- ORS Visual SI for 3D visualization and analysis (optional)

Technical Specifications

Imaging	**High Resolution Mode (HRES)**	**Large Field of View Mode (LFOV)**
Spatial resolution	50 nm	150 nm
Field of View	16 µm	65 µm
Voxel size	16 nm	64 nm
Magnification	800x	200x

Contrast Modes	
Absorption Contrast	Standard
Phase contrast	Optional

X-ray Source	**Xradia 810 Ultra**	**Xradia 800 Ultra**
Source type	Rotating Anode	Rotating Anode
Target Material	Chromium	Copper
X-ray Photon Energy	5.4 keV	8.0 keV
Voltage	35 keV	40 keV
Power	0.9 kW	1.2 kW
Radiation Safety	< 1 µS/hr	

Sample Stage	
Travel (x, y, z)	12, 8, 12 mm
Rotation	280°
Load capacity	1 kg

Features	**Xradia 810 Ultra**	**Xradia 800 Ultra**
Automated image alignment for tomographic reconstruction*	HRES and LFOV modes	LFOV mode
Integrated visible light microscope	■	■
GPU based tomographic reconstruction	■	■
Comprehensive software suite for data acquisition, reconstruction and visualization	■	■

* Sufficient room temperature and sample stability required

Count on Service in the True Sense of the Word

Because the ZEISS microscope system is one of your most important tools, we make sure it is always ready to perform. What's more, we'll see to it that you are employing all the options that get the best from your microscope. You can choose from a range of service products, each delivered by highly qualified ZEISS specialists who will support you long beyond the purchase of your system. Our aim is to enable you to experience those special moments that inspire your work.

Repair. Maintain. Optimize.
Attain maximum uptime with your microscope. A ZEISS Protect Service Agreement lets you budget for operating costs, all the while reducing costly downtime and achieving the best results through the improved performance of your system. Choose from service agreements designed to give you a range of options and control levels. We'll work with you to select the service program that addresses your system needs and usage requirements, in line with your organization's standard practices.

Our service on-demand also brings you distinct advantages. ZEISS service staff will analyze issues at hand and resolve them – whether using remote maintenance software or working on site.

Enhance Your Microscope System.
Your ZEISS microscope system is designed for a variety of updates: open interfaces allow you to maintain a high technological level at all times. As a result you'll work more efficiently now, while extending the productive lifetime of your microscope as new update possibilities come on stream.

Profit from the optimized performance of your microscope system with a Carl Zeiss service contract – now and for years to come.

>> www.zeiss.com/microservice

The moment exploration becomes discovery.
This is the moment we work for.

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Total Metrology Solutions

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msi-viking.com

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