TriLambda40-XRM
Highest performance 3D x-ray microscope/Nano-CT

Highest resolution 3D x-ray microscope

Multi-energy flexibility for accelerating research in advanced laboratories

Quantum Design EUROPE

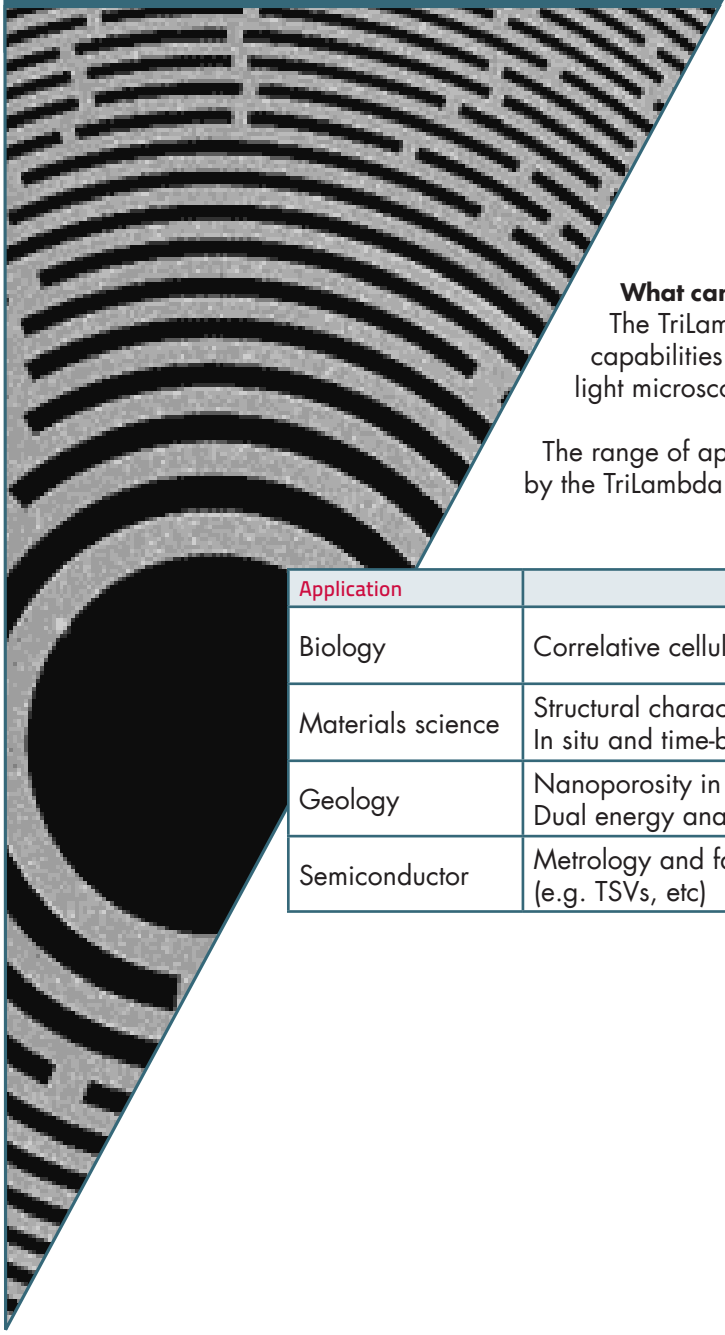
Quantum Design GmbH
Breitwieserweg 9
D-64319 Pfungstadt

Dr. Andreas Bergner: +49 6157 80710-12
bergner@qd-europe.com
Find your local contact at: www.qd-europe.com

SIGRAY

TriLambda40-XRM
Highest performance 3D x-ray microscope/Nano-CT

TriLambda is zoneplate-based to achieve unprecedented resolutions
High resolution mode: 40 nm spatial resolution | 10 nm voxel
Large field of view mode: 120 nm spatial | 40 nm voxel



What can the Trilambda™ offer your lab?
The TriLambda provides essential correlative capabilities by fulfilling the critical gap between light microscopy and electron microscopy analysis.

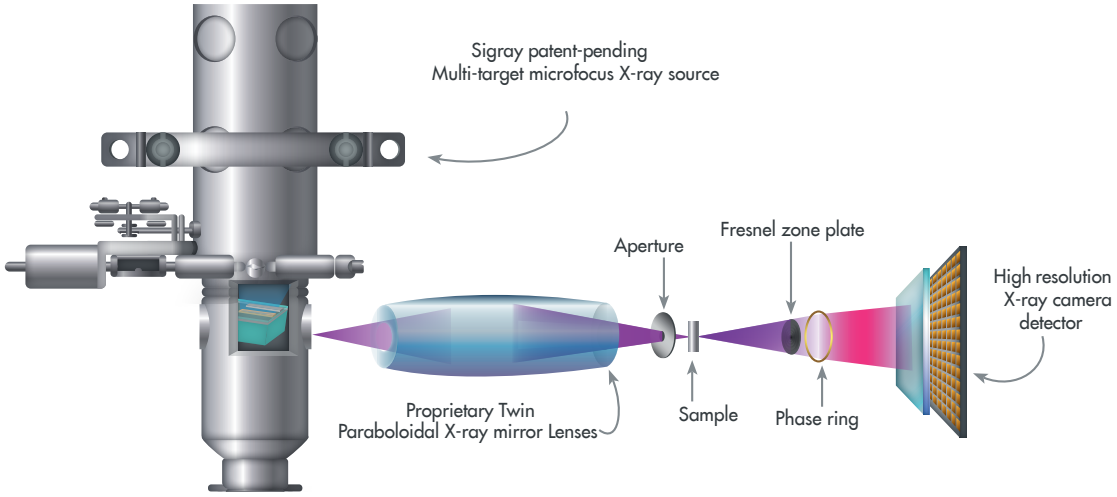
The range of applications enabled by the TriLambda include:

Application	
Biology	Correlative cellular mapping and nano particle distribution
Materials science	Structural characterization of battery electrode analysis In situ and time-based understanding of microstructural evolution
Geology	Nanoporosity in shales and carbontes Dual energy analysis for mineralogy
Semiconductor	Metrology and failure analysis of advanced packaging (e.g. TSVs, etc)

Quantum Design EUROPE
Quantum Design GmbH
Breitwieserweg 9
D-64319 Pfungstadt
Dr. Andreas Bergner: +49 6157 80710-12
bergner@qd-europe.com
Find your local contact at: www.qd-europe.com
SIGRAY

TriLambda40-XRM
Highest performance 3D x-ray microscope/Nano-CT

TriLambda relies on innovative, patent-pending technology to surpass other x-ray microscopes



Bring synchrotron XRM capabilities to your lab

Highest resolution x-ray microscope with multi-energy capabilities

Tri Lambda ™-40 3D nano x-ray microscope is the highest resolution (40 nm) laboratory x-ray microscope in the world, with the power to image internal nanostructure and optimized performance in a wide range of samples, spanning everything from cells and polymers to geological samples and metals.

What sets the Tri Lambda apart?

The Trilambda is a tri-energy system that provides the highest resolution on the market. It is one of two zone-plate-based nanoCTs on the market, both developed by Dr. Wenbing Yun, who is well-recognized as a pioneer in x-ray microscopy and was the founder of Xradia (now the x-ray microscope division of Carl Zeiss). The system features significant improvements over previous technology, including better resolution, increased field of view (FOV), and multi-energy capabilities for faster data acquisition and increased contrast.

Patent-pending X-ray technology: source & optics

Achieving the unparalleled performance of the Tri-Lambda requires major innovations in key component technology.

Sigray has developed an ultrahigh brightness x-ray source featuring an x-ray target comprised of multiple materials in close thermal contact with a diamond substrate. Software selection of the target material enables rapid switching between different characteristic x-ray energies of each material, for example: 5.4 keV (Cr), 6.4 keV (Fe), 8 keV (Cu), and more. The flexibility in energy choice overcomes the trade-off of other systems in which only a single operational x-ray energy must be selected upfront.

Coupled to the source are twin paraboloidal microfocusing x-ray optics, a type of optic exclusively fabricated by Sigray. Compared to ellipsoidal capillaries, these optics provide uniform illumination of the zone plate and increased imaging performance.

Quantum Design EUROPE
Quantum Design GmbH
Breitwieserweg 9
D-64319 Pfungstadt
Dr. Andreas Bergner: +49 6157 80710-12
bergner@qd-europe.com
Find your local contact at: www.qd-europe.com
SIGRAY

TriLambda40-XRM
Highest performance 3D x-ray microscope/Nano-CT

Highest resolution, rapid throughput 3D x-ray microscope for accelerating research in advanced laboratories

Tri-Lambda is zoneplate-based to achieve unprecedented resolutions
High resolution mode: 40 nm spatial resolution | 10 nm voxel
Large field of view mode: 120 nm spatial | 40 nm voxel

TriLambda advantages at a glance

- Highest resolution 3D XRM, with **40 nanometer spatial resolution**
- **Patent-pending x-ray source** with multiple x-ray source target materials for unique advantages including dual energy imaging and optimization of acquisition speed
- Optimized throughput for time-based (4D) & in-situ studies
- Designed by the world's **foremost** experts on x-ray microscopes

Parameter	Specification
High resolution mode	
Resolution	40 nm
Voxel	13 nm
Field of view	18 µm
Sample size	15 - 25 µm preferred
Large field of view mode	
Resolution	120 nm
Voxel	40 nm
Field of view	60 µm
Sample size	60 - 100 µm preferred
Contrast mode	Absorption and phase contrast
Source	Sigray high brightness microfocus source
Target material	Dual energy (standard): Cr (5.4 keV) and Cu (8.0 keV) Additional targets include: Fe (6.4 keV), Au (9.7 keV), others available on request
Power	100 W
X-ray optics	
Condenser	2 sets of Sigray twin paraboloidal x-ray optics matched to zone plates
Focusing objective	Fresnel diffraction zone plate lens system
Phase ring	Zernike phase shift ring
X-ray detectors	High efficiency x-ray detector system, CCD 2048 x 2048 pixel
Footprint [L x W x H]	2.3 x 1.3 x 1.5 m, 2000 kg
Maximum load	1 kg
Stage	High precision tomography stage with 12 x 10 x 12 mm travel XYZ

Quantum Design EUROPE
Quantum Design GmbH
Breitwieserweg 9
D-64319 Pfungstadt
Dr. Andreas Bergner: +49 6157 80710-12
bergner@qd-europe.com
Find your local contact at: www.qd-europe.com
SIGRAY