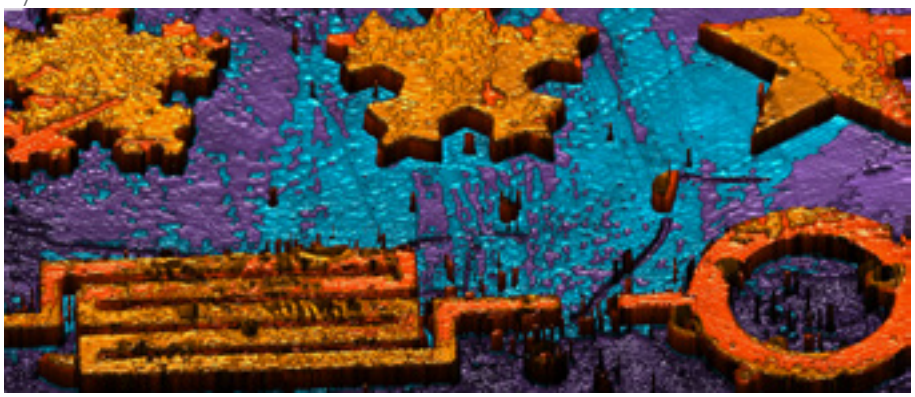
EUV imaging and analysis system

Bringing time resolution and EUV analytics from the synchrotron to the lab.



Three-dimensional reconstruction by CDI on titanium shapes patterned with e-beam lithography onto a silicon substrate. Achieve subsurface and compositional analysis at the nanoscale with a tabletop EUV system in your lab. *Courtesy of JILA, University of Colorado, USA.*

Non-destructive. No sample prep. Completing your correlative suite.

QM Quantum Microscope™ advanced photon imaging solution is a suite of integrated systems developed to elucidate critical details of critical technology problems. By combining the time sensitivity of femtosecond lasers with the spatial resolution of EUV microscopy and diffraction, QM enables a series of techniques tuned for important challenges in research and industry. E.g., for batteries, EUV absorption near the lithium edge provides a microscopic and spectroscopically rich area to understand lithium bonding. For semiconductors, QM provides critical detail on buried and surface nanotopography with unique sensitivity to bonding.

Applications in Development

- Coherent diffraction imaging (CDI)
- Pump probe spectroscopy
- Magnetic dynamics
- ARPES
- MOKE diffraction and magnetic imaging
- Reflectometry
- Magnetic imaging at band edge
- IR pump/EUV probe diffraction imaging for thermomechanical and elastic data
- High speed spin transport dynamics

Features

- Integrated, high performance ultrafast EUV laser source
- High resolution interferometric surface and subsurface imaging
- x/y spatial resolution to <20 nm
- Multiuse beamline with configurable endstations
- Pump probe (XUV pump/IR probe) designs
- Extensible to VUV (60 - 150 nm or 8.3 to 20.7 eV)

QM Quantum Microscope Benefits

- Non-destructive imaging brings time-resolved research to nanometer lengthscales
- Uniquely capable of topographical surface imaging(biological, semiconductor, quantum)
- One or more beamlines with endstations configured to your requirements
- Diffraction for nanometer-scale order in self-assembled materials
- Structural pump probe for mechanical and thin-film property evaluation to understand elasticity response, thermal transport, and phonon modes
- High resolution, revolutionary measurement of magnetic systems is highly sensitive to different magnetic layers

KMLABS™ inc.

Quantum Microscope

Microscopy at the Quantum Scale

Microscopy Technique	Time Resolved	Elemental Contrast (low Z)	Subsurface	No Sample Prep (non-destructive)
Quantum	☑	☑	☑	☑
Scanning Electron	☒	☒	☒	☑
Atomic Force	☒	☒	☒	☑
X-ray	☒	☒	☑	☒
Transmission Electron	—	☑	☑	☒

**LM requires transparent materials and is only time resolved in special cases*

QM configurations

Photon supply: choose from KMLabs pedigreed laser solutions

Pantheon™ integrated laser solution of RAEA + XUUS + beamline

Y-Fi VUV + beamline

End stations include options for:

Imaging

Pump probe

Third party devices (e.g., ARPES)

Commercial Collaboration & Student Support Program

Applications under development have been performed on KMLabs equipped systems as initial proof of concept.We are seeking collaborators for the first commercial installations to develop turnkey solutions.

Contact us for details of our student support program.

sales@kmlabs.com

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