

LITHOGRAPHY

What We Offer

Design &
Simulation



Prototyping &
Fabrication



Testing &
Characterization



Lithography is a micro- and nano- fabrication process used to create precise patterns on various substrates. Combined with etching or lift-off process it enables the fabrication of features like trenches, vias, and metal layers. The Lithuanian Chips Competence Centre (ChipsC2-LT) offers three primary lithography techniques through its partner institutions.

Key applications

**Semiconductor
device fabrications**

**Micro- and
nano- scale patterning**

**Research and
development**

Electron beam lithography

- **e-LiNE plus, RAITH GmbH**
- Electron beam energy: 20 V – 30 kV
- Beam current: 5 pA – 1.5 nA
- Positioning accuracy: 1 nm in a 100 × 100 mm field
- Writing speed: 0.125 Hz – 20 MHz pixel frequency
- Beam size: >1.6 nm at 20 keV
- Stitching accuracy: >40 nm (mean+3σ)

Cleanroom class: ISO5

Contact person:

Dr. Mindaugas Juodėnas

Institute of Materials Science
Kaunas University of Technology
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Capabilities

- Nanopatterning
- Photomask fabrication
- Advanced material analysis

Features

- Scanning electron microscope (SEM) with "in-lens" and Everhart-Thornley type detectors, capable of magnification up to x1,000,000
- Equipped with a Bruker QUANTAX 200 energy dispersive spectrometer (EDS)

Laser lithography

- **Microtech LaserWriter LW405D**
- Direct laser writing sources: 405 nm GaN laser, 60-100mW, 375 nm GaN laser, 60mW
- Write modes: beam-scan, stage-scan, vector, contour, flash
- Optical resolution: up to 600 nm
- Write area: 100 × 100 mm²
- Stage resolution: 10 nm
- Overlay accuracy: <0.5 μm with interferometer
- Exposure dose: 1 – 200 mJ/cm²

Cleanroom class: ISO8

Contact person:

Dr. Roland Tomašiūnas

Institute of Photonics and
Nanotechnology, Vilnius University
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Capabilities

- Micropatterning
- Photomask fabrication
- Grey-level patterning for 3D relief and diffractive optics

Laser lithography

- **DWL66+ Laser Lithography System, Heidelberg Instruments**
- Direct laser writing source: 405nm single mode diode laser
- Laser power: 350mW
- Critical dimension: 800nm
- Write speed: up to 140mm²/min
- Wafer size: up to 200mm x 200mm
- Stage resolution: 10 nm

Cleanroom class: ISO5

Contact person:

Dr. Virginijus Bukauskas

Department of Physical

Technologies, FTMC

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Capabilities

- Micropatterning
- Photomask fabrication
- Double-side alignment
- Vector exposure mode providing stitch-free lines

Photolithography

- **MA/BA6 Gen4 Mask aligner, SUSS MicroTec Lithography**
- UV-LED light sources: 365 nm (i-line), 405 nm (h-line), 436 nm (g-line)
- Alignment gap: programmable 1 – 1000 µm
- Resolution: 1 µm
- Wafer size: up to 150 mm diameter
- Mask holders: 3.5" x 3.5", 4" x 4", 5" x 5", 6" x 6"
- Chucks for wafers: 1", 2", 3", 100 mm diameter

Cleanroom class: ISO5

Contact person:

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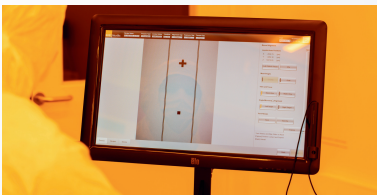
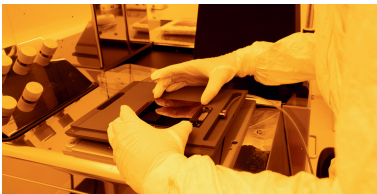
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Capabilities

- Micropatterning
- Semi-automated process
- Back-side alignment



If you have any questions, please contact us by email:
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