

About us



We are young Slovak photonics startup developing advanced laser interference lithography systems for materials science, photonics and sensing. Our compact device, Fyeld.one, enables fast, precise, and repeatable fabrication of periodic, quasi-periodic, and moiré structures.

We collaborate with research groups, support R&D projects, and deliver custom designed structures.

Our mission is to make high-end microstructuring accessible to every modern laboratory.

ADVANCED LASER INTERFERENCE LITHOGRAPHY

Nanostructures for
Materials science & Photonics



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We offer



Custom fabrication



We use our own developed lithography technology, enabling flexible design and a high level of customization. Feature sizes, symmetry, and structural complexity can be tailored to meet specific research or application requirements.



Analysis

We provide comprehensive structure analysis using SEM, AFM, CLSM, and optical microscopy. Diffraction-based characterization, near-field and far-field measurements, as well as custom evaluation workflows can be performed to support advanced research needs.

Design & Simulations



Each fabrication is preceded by simulations of morphology and Fourier response, enabling refinement and optimization before the first prototype is produced.



Replication

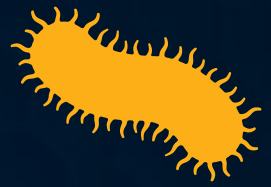
Rapidly fabricated prototypes can be replicated into polymer materials such as PDMS, epoxy, OrmoComp, or transferred into metal layers through standard electroplating processes.

Applications



Our unique structures support a broad spectrum of scientific and technological applications across photonics, materials research, sensing, and advanced surface engineering. Their geometry, symmetry, and optical response make them suitable for both fundamental studies and highly specialized functional surfaces. Below are several representative application areas enabled by our fabrication technology.

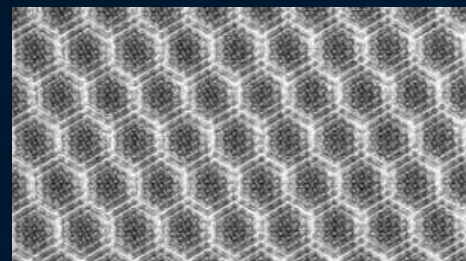
- | | | |
|--------------------|-------------------------|--------------------------|
| Materials research | Antibacterial surfaces | Biomimetics |
| Photonic crystals | Photovoltaics | Multifunctional surfaces |
| Integrated optics | Spectroscopy | Plasmonic devices |
| Astronomy | Optical filters | Waveguides |
| Optical encoders | Authentication patterns | Add your own |



Structures we fabricate

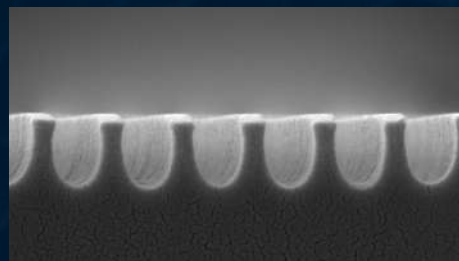
One device... countless possibilities.

At holoGT, we design, simulate and fabricate a wide range of periodic, quasi-periodic and multi-exposure micro- and nanostructures with exceptional flexibility. Our system enables rapid iteration and precise control over symmetry, period, and optical response, making fast prototyping and structure optimization straightforward. From simple gratings to complex hierarchical patterns, every structure can be tailored to the user's specifications and reliably reproduced across large areas.



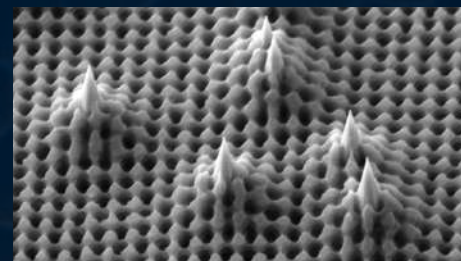
MOIRÉ PATTERNS

Multi-layered advanced interference patterns that unlock higher-order structural complexity and optical responses.



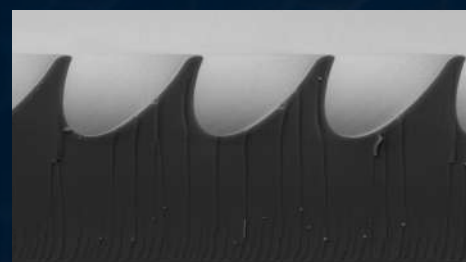
UNIFORM 1D GRATINGS

High quality uniform gratings with high aspect ratio. Periods ranging from 250 nanometers to tens of micrometers.



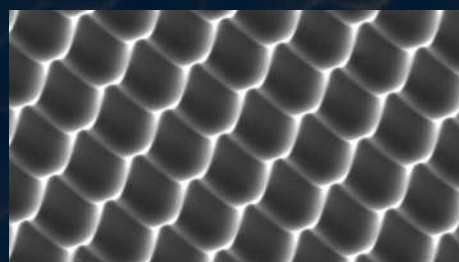
UNEVEN SURFACES

Our optical system enables precise patterning even on non-planar or uneven substrates.



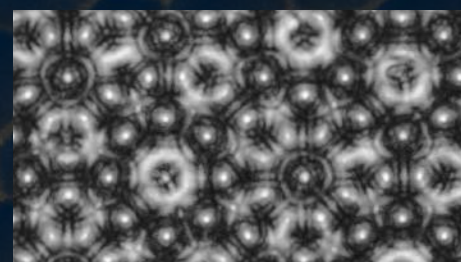
BLAZED GRATINGS

Custom blaze angles and depths for efficient diffraction shaping and optical performance.



2D PATTERNS

A broad variety of symmetric and asymmetric lattices for rapid design and prototyping.



QUASI-PERIODIC

Quasi-periodic structures providing unique optical responses beyond standard periodic lattices.

Fyeld .ONE

Fyeld.one is a compact, fully automated laser interference lithography system built for fast prototyping and reliable fabrication of periodic, quasi-periodic, and moiré nanostructures. Its intuitive workflow delivers patterned samples within minutes, supporting rapid iteration and consistent results. The system offers large-area uniform exposures, a standard period range of 250–1600 nm, and optional customization of both period range and system configuration. With broad applicability across photonics, materials science, sensing, and advanced surface engineering, Fyeld.one provides a powerful yet easy-to-use platform adaptable to the user's environment and research needs.



Fully automated

Controlled via PC application.



Tabletop system

Compact design
600 x 900 x 1100 (mm).



Large areas

Up to 50 mm x 50 mm
or 2 inches.



Multi-exposure

Countless possibilities
with multi-exposures.



User-friendly

Intuitive setup with
seamless performance.



Plug and play

Insert sample,
the rest is automatic.



Wide period range

250 nm to 1600 nm
in a single exposure.



Pattern simulation

Simulation software
included in the app.