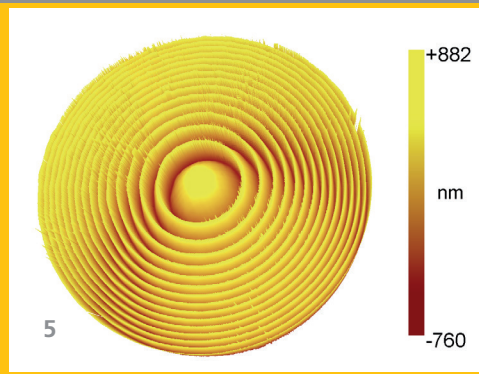
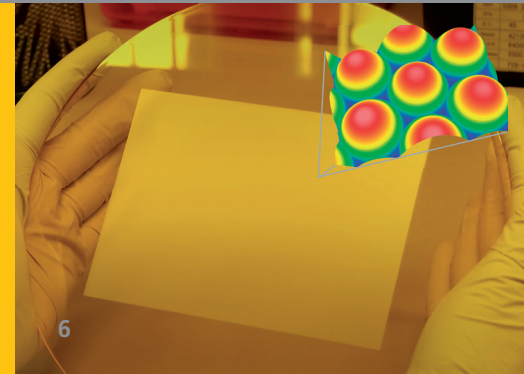


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4 200 mm master wafer carrying Fresnel lenses.

5 Diffraction optical element for chromatic aberration control.

6 Large-area hexagonal dense-packed micro-lens array.

## GRAYSCALE LITHOGRAPHY ON PLANAR AND NONPLANAR SURFACES

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### High precision microstructures on various substrates

With outstanding flexibility, direct writing grayscale photo-lithography enables the generation of high precision microstructures for the implementation into optical systems. Thus, individual solutions for micro refractive and diffractive optical elements, even on non-standard or non-flat surfaces, can be realized in close collaboration with design and integration.

### Technical data

- Lithography system specially designed for generation of micro optical elements
- High dynamic dosage control at 405 nm exposure wavelength
- Resolution down to  $\leq 1 \mu\text{m}$
- Maximum writing field size:  $0.5 \times 0.5 \text{ m}^2$

### Realization of micro optical elements

- Layout data and generation of exposure data for various applications
- Fabrication of micro structures in photo resist:
  - Master for replication processes
  - Masks for RIE proportional transfer into diverse materials
  - Masks for structuring functional layers

### Typical applications

- (A)spherical lenses and lens arrays in regular or chirped arrangement
- Micro-prism, Fresnel lenses, kinoforms
- Beam shaping elements
- Efficient (blazed) gratings und CGHs
- Diffractive correcting elements for spherical and chromatic aberrations
- Lithography (also multilayer) on almost every substrate geometry