

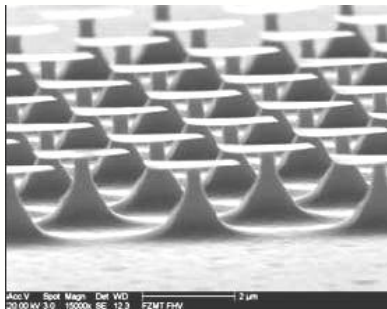


Photolithography

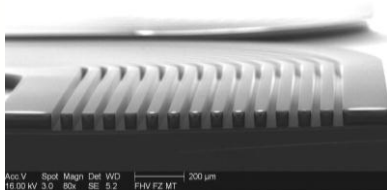
Research Centre for Microtechnology

tiny structures for big ideas

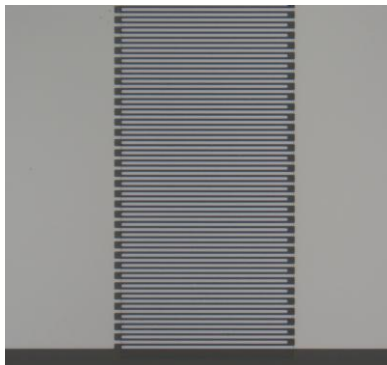
Information Sheet



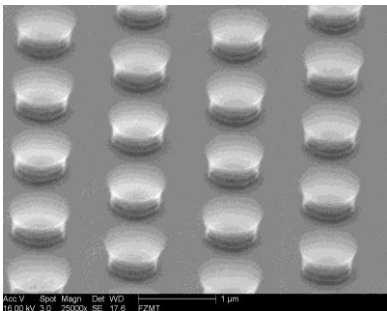
2 µm chromium tables etched in Silicon



Cross section of RFID device



Platinum finger structure on Pyrex (2 µm IDA structure, 1 µm gap)



600 nm dots in 440 nm photoresist

Optical lithography is a technique to transfer a copy of a master pattern (microstructure) onto the surface of a solid material. A thin light sensitive film (photoresist) is spin coated on a substrate (in most cases silicon) and exposed to UV light through a mask which provides the desired pattern. The incident light causes a chemical change in the photoresist and allows a selective removal in a special solution (developer). Photoresists can have different characteristics (high chemical stability, easy removal,...) and offer thicknesses from less than 100 nm to more than several millimetres. The fabrication of multilayer structured photoresists is also possible.

Services

- Mask design and coordination with mask shop
- Structurable resist thicknesses from 100 nm up to 200 µm
- Aspect ratio up to 35
- Maximum achievable resolution of 300 nm l/s (depending on resist thickness)
- Fabrication of multilayer structures
- Photoresist calibration

Fields of Application

- Structuring of UV-LIGA masks for electroplating
- Structuring for thin film technology
- Masks for dry etching and wet chemical etching
- Direct fabrication of micro-parts
- Photoresist calibration for lithography simulation

Lithography Equipment

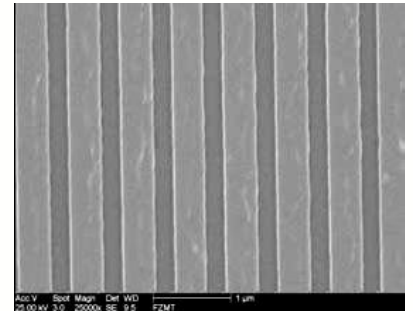
- Spin-coating system EVG 101
- Mask aligner SÜSS MA6, Deep-UV unit (193 nm)
- Spray developer EVG 101
- Drying systems: precision hotplates, convection ovens

Contact

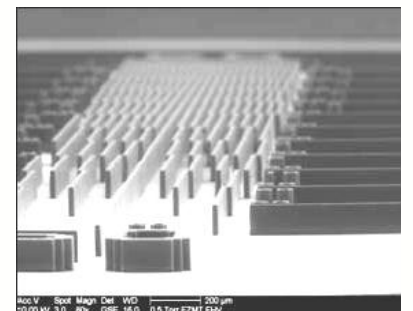
Fachhochschule Vorarlberg
(Vorarlberg University of Applied Sciences)
Dipl.-Ing. (FH) Stefan Partel, M.Sc.
Hochschulstrasse 1
6850 Dornbirn, Austria
Tel: +43 (0)5572 792 7204

stefan.partel@fhv.at

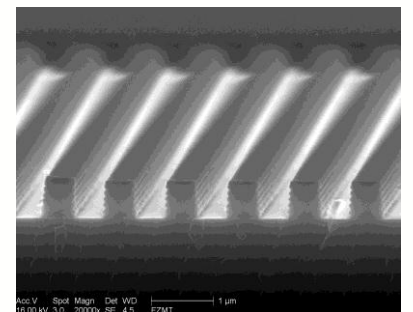
<http://www.fhv.at/fhv-science/microtechnology>



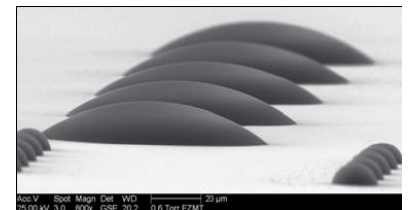
300 nm (space) pattern in PMMA



SU8 structures (125 µm high) for monitoring



600 nm line/space structure (Photoresist 700 nm)



Micro-lenses 60 µm in diameter

