About IMS CHIPS

IMS CHIPS, Institut für Mikroelektronik Stuttgart, conducts business-oriented research in the field of microelectronics in the areas of silicon photonics, integrated circuits and systems, nanostructuring and MEMS. It is a recognized non-profit foundation under civil law and is located on the Stuttgart-Vaihingen research campus.

The institute is a member of the Innovationsallianz Baden-Württemberg (innBW), a cooperation of ten contract research organizations in Baden-Württemberg comprising a total of twelve institutes.

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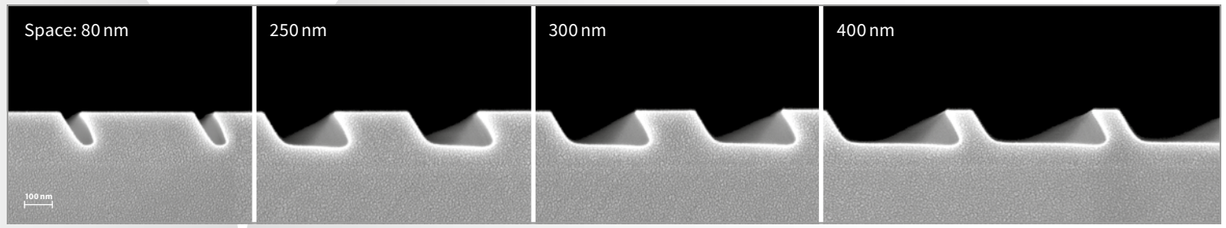
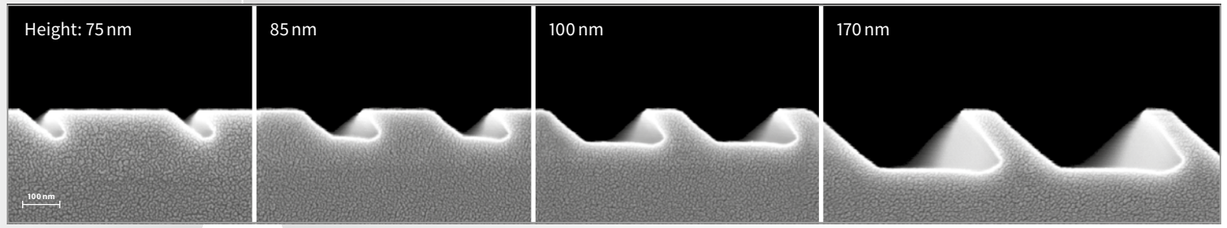
495/F/04_25

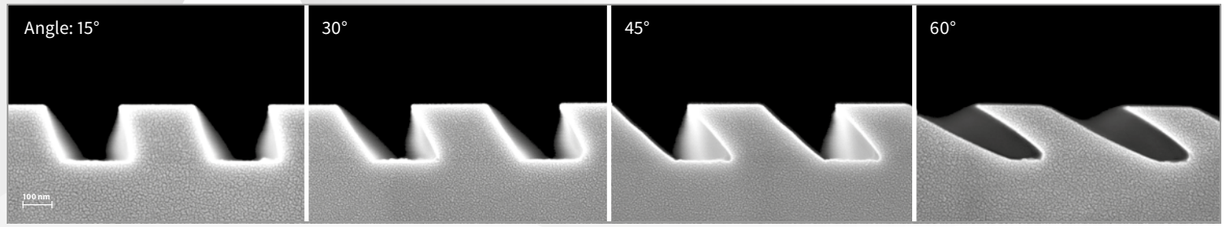
Slanted and Blazed Gratings



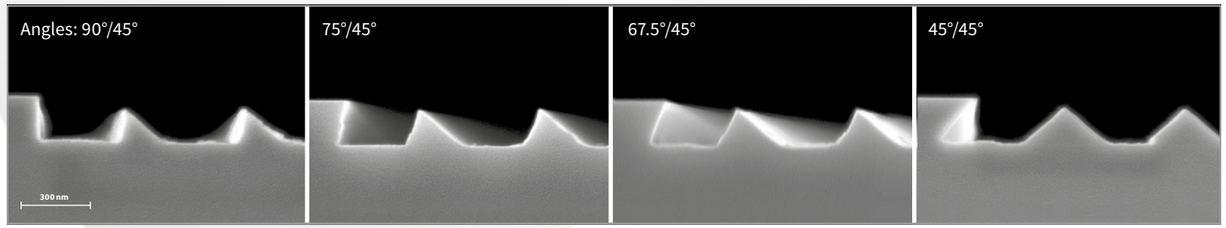
Varying duty cycle (0.2 - 0.8), constant height (125 nm) and pitch (500 nm)



Continuous height (40 nm/mm), varying pitch (400 - 500 nm) and duty cycle (0.2 - 0.8)



Varying slant angle (15° - 60°), defined height (200 nm) and bottom shape by etch stop layer, pitch (500 nm)



Varying blazed angle (45° - 90°), constant anti-blazed angle (45°)

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MASTER STAMPS

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Master Stamps

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- **Material:** silicon, quartz, resist
- **Substrate type:** Si-/Qz wafer 150, 200, 300 mm and Quartz Blanks 6", 9"
- **Stamp size:** from a few mm^2 up to substrate size
- **Feature types:** binary, multi-level 3D, analog 3D, slanted gratings, blazed gratings
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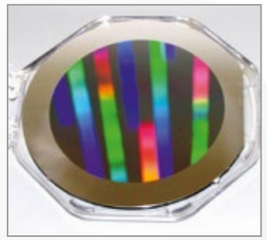
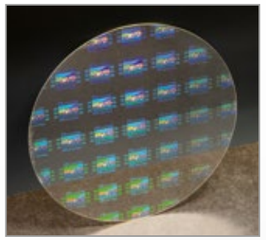
Substrates

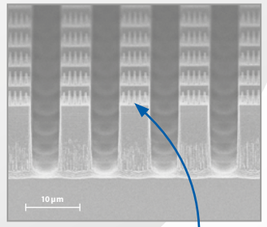


Si wafer: 150 / 200 / 300 mm

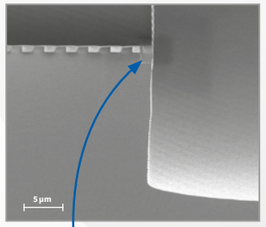


Qz wafer: 150 / 200 / 300 mm

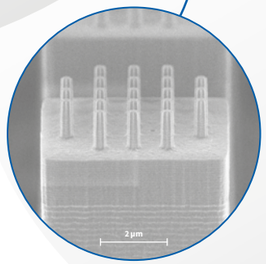
Mesa: Patterning on Pedestal



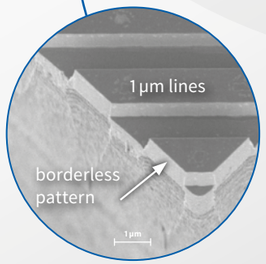
15 µm pedestal



20 µm pedestal

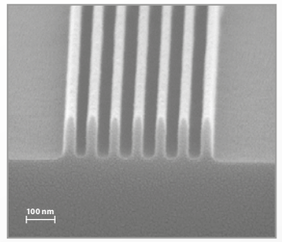


500 nm pillars, 1.5 µm height

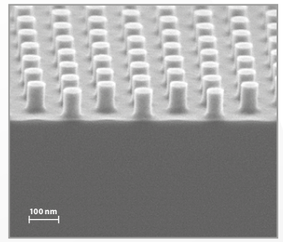


Borderless patterning on a pedestal

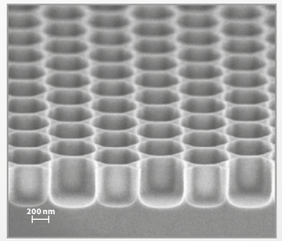
Binary



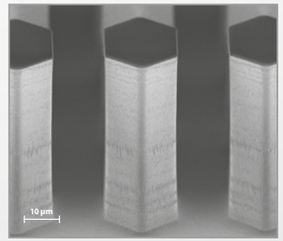
40 nm half pitch



50 nm half pitch

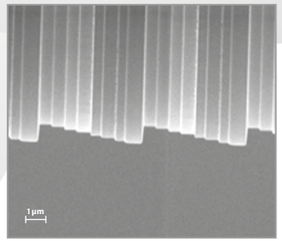


500 nm diameter

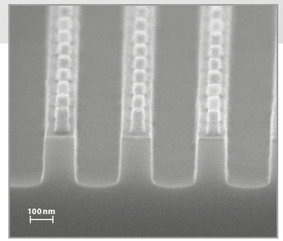


50 µm height

Multi-layer 3D



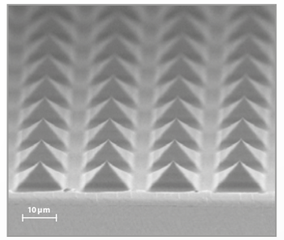
3 layer exposures, 8 steps, 5 µm pitch



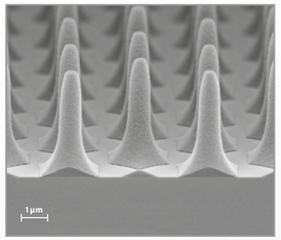
60 nm pillars on 120 nm lines

Analog 3D

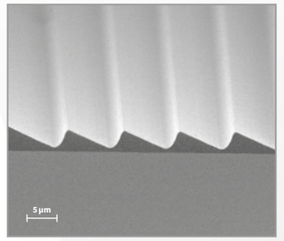
Laser / e-Beam Grayscale



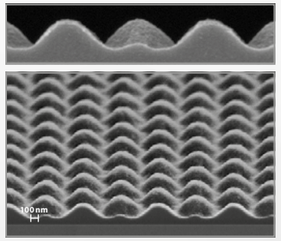
20 µm pitch, 10 µm height



3 µm pitch, 4 µm height

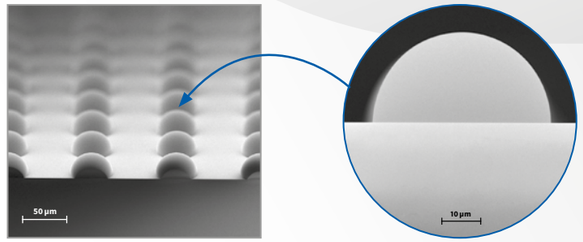


10 µm pitch, 4 µm height



Nano lenses, 270 nm height

Thermal Reflow



Micro lense array, 46 µm diameter, 23 µm height