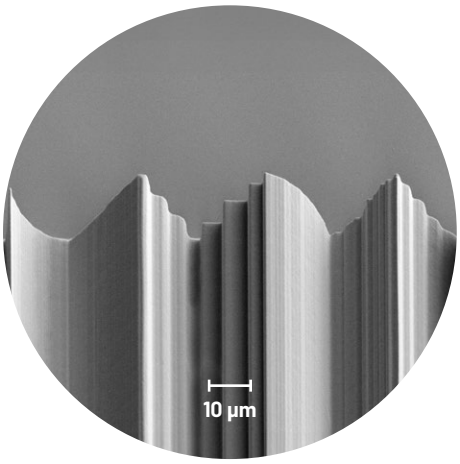
IQnano3D Applications in OPTICS



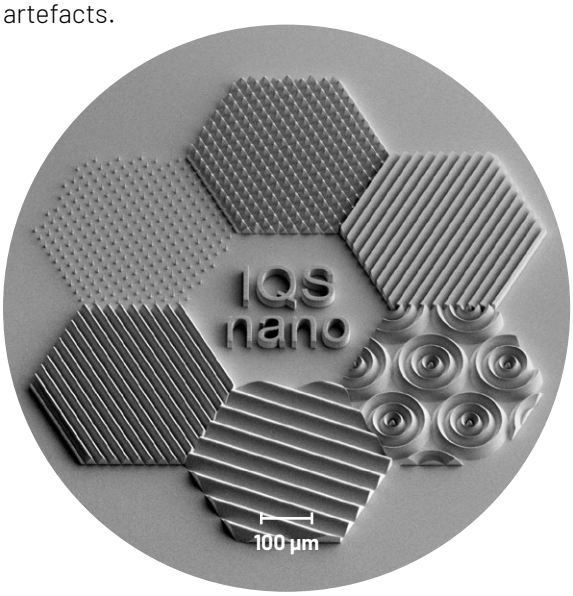
Profile Shape

Optical microstructures with various profiles are build layer by layer. Virtually any profile shape can be achieved with a high level of control.

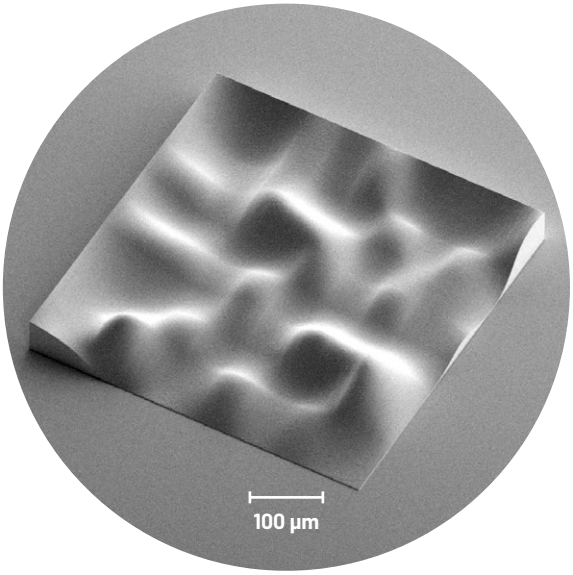
Linear structures with a variable profile shape

Flexibility in Topology

Multiple writing modes enable the fabrication of optical microstructures with a complex topology with minimal stitching artefacts.



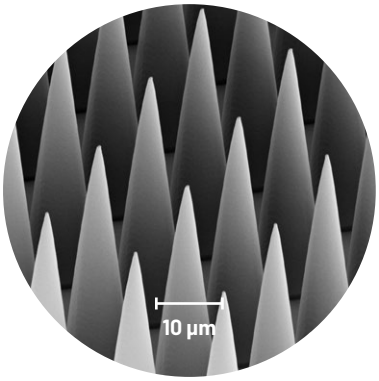
Various microstructure patterns



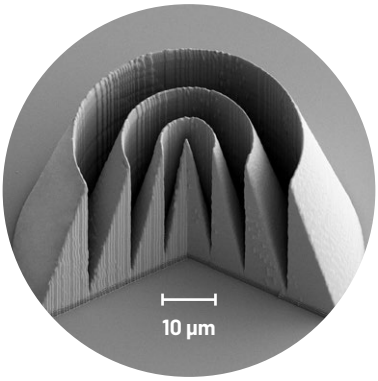
Freeform surface

High Aspect Ratio

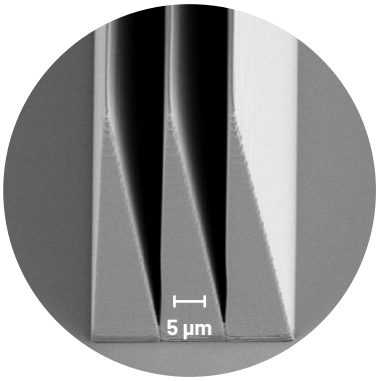
Two-photon polymerization is a perfect process for the fabrication of high aspect ratio structures which would be otherwise very difficult, or even impossible, to fabricate with other microlithography techniques.



Micro-cone array



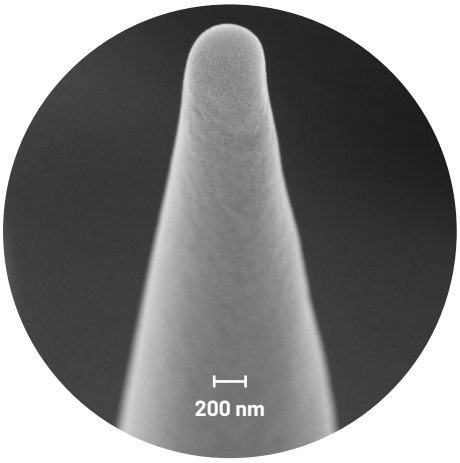
Fresnel structure



Saw tooth profile grating

Resolution

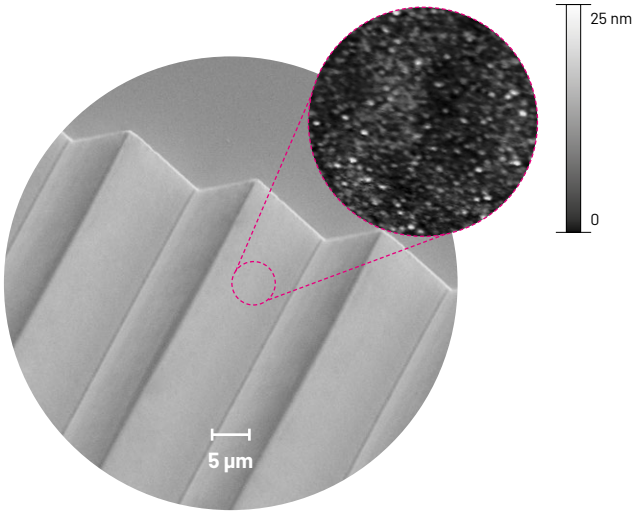
The minimum critical dimension of recorded structures is determined by beam spot and the polymerization response of the recording medium (typically down to 300 nm or less). Beam positioning is controlled in a finer address grid with a maximum resolution of 150 nm.



Single voxel exposure at the cone tip

Surface Roughness

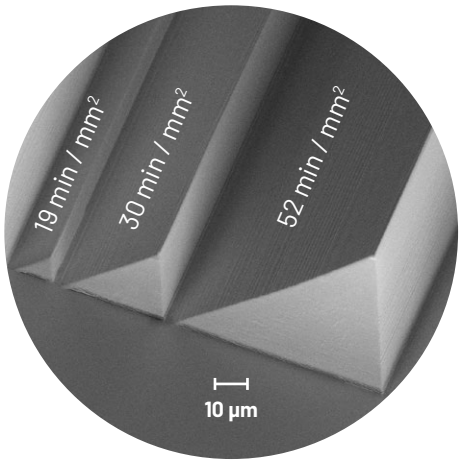
One of the important parameters determining the quality of optical surfaces is roughness. The surface roughness on the order of nanometers can be achieved by proper selection of the writing strategy and recording medium.



Detail view of a blazed grating facet

Writing Speed

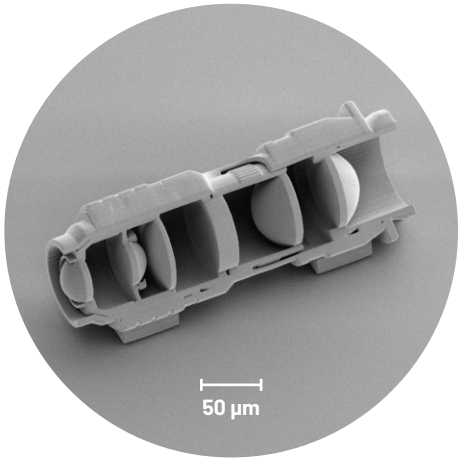
High writing speed of IQnano3D is achieved by the use of high speed acousto-optic deflectors, piezo actuators and flying stage.



Writing time of periodic structures with various feature size

Micro-building in 3D

Two-photon polymerization builds objects from 3D voxels placed in space. Written structures can be freely formed in all three dimensions.



Micro-model of optical system

info@iqsnano.cz www.iqsnano.com