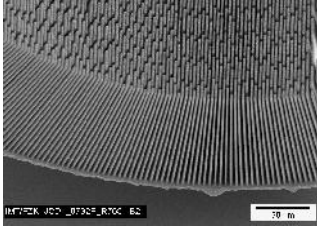
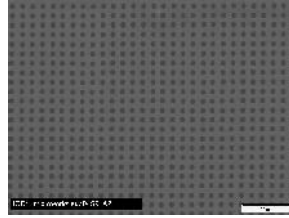


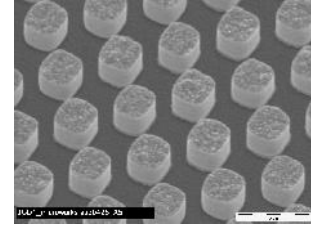
## Gratings for X-Ray Differential Phase-Contrast-Imaging



LIGA intensity grating after stripping of resist (2.4µm period, 50µm gold height)



2D-intensity grating, gold height >30µm, period 4µm in x- and y-directions



2D-phase grating in Nickel

### General Aspects

<b>Material of grating</b>	Source and Intensity Grating: Electroplated gold Phase Shifting Grating Electroplated Nickel
<b>Substrate Options</b>	Thin membranes for design energies 5 to 15 keV mounted to a ring 200µm thin silicon wafers (4 inch) for 15 to 30keV 525µm standard silicon (4 inch) for energies above 30keV
<b>Patterned area</b>	70mm round maximum, 100mm round in preparation
<b>Duty Cycle Control</b>	0.5 (+0.03 -0.03) for Phase Gratings
<b>Height variation</b>	+/-10% over patterned area
<b>Bending radius</b>	Minimum radius 8cm (small area source grating)

### Examples of Set-Ups

	<b>8keV Design energy</b>	<b>25keV Design Energy</b>	<b>40keV Design Energy</b>	<b>100keV Design Energy (still experimental)</b>
<b>Intensity Grating (Period/Gold-Height)</b>	2.4 µm / 30µm	2.4 µm / 50µm	2.4 µm / 80µm	4.8 µm / 220 µm
<b>Pi-Shift Phase Grating (Period/Nickel-Height)</b>	4.65 µm / 2.8µm	4.39µm / 8,8 µm	4.20 µm / 14.1 µm	6.35 µm / 35.3 µm
<b>Talbot Order</b>	3	3	3	1
<b>Total Length/cm</b>	175	186	194	181

Contact: Dr. Joachim Schulz  
 Managing Director  
 microworks GmbH, Karlsruhe, Germany  
 Tel. +49 721 608 24438  
 joachim.schulz@micro-works.de