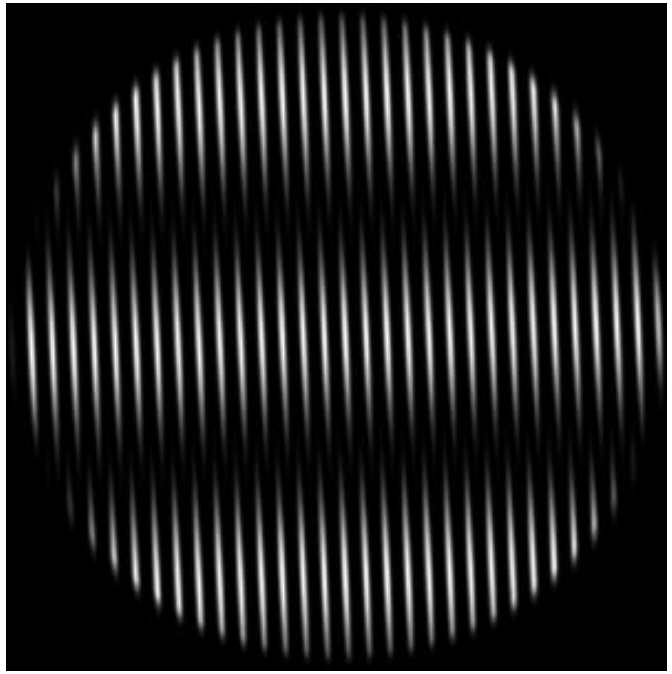
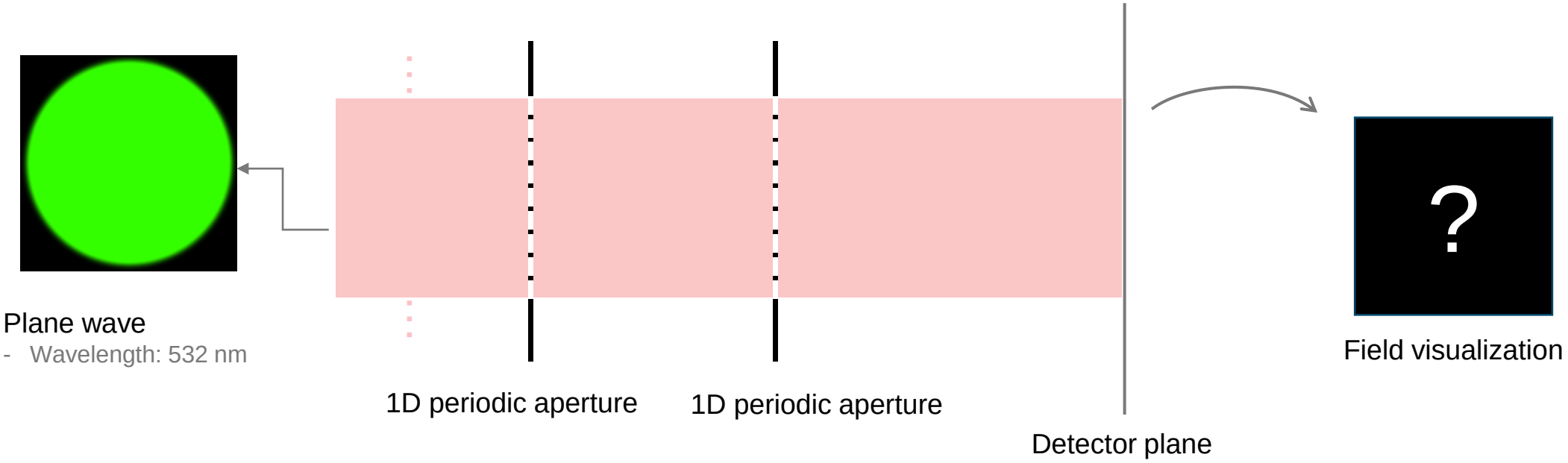
Moiré Fringes Generation

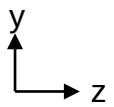
Abstract



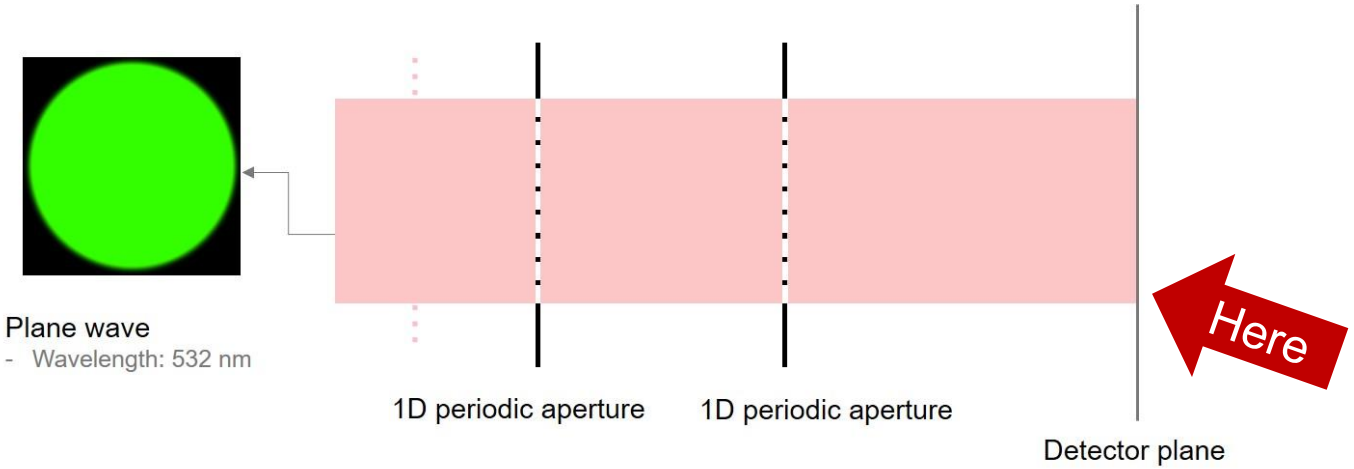
In this Demo we seek to model Moiré pattern generated by periodic apertures and gratings. Moiré fringes are one of the interference effects which occur due to overlaying of a periodic pattern with another periodic pattern containing displacement, tilt or even different pitch size. Physical optics provides fast analysis of interference pattern.

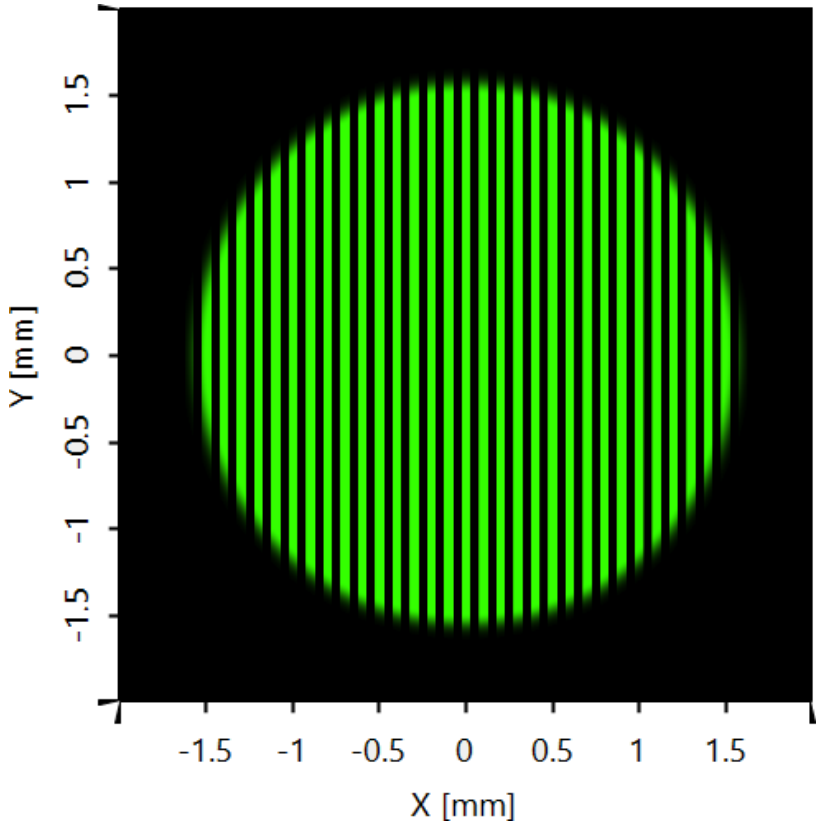
Task: Simulation of Interference Using Periodic Apertures



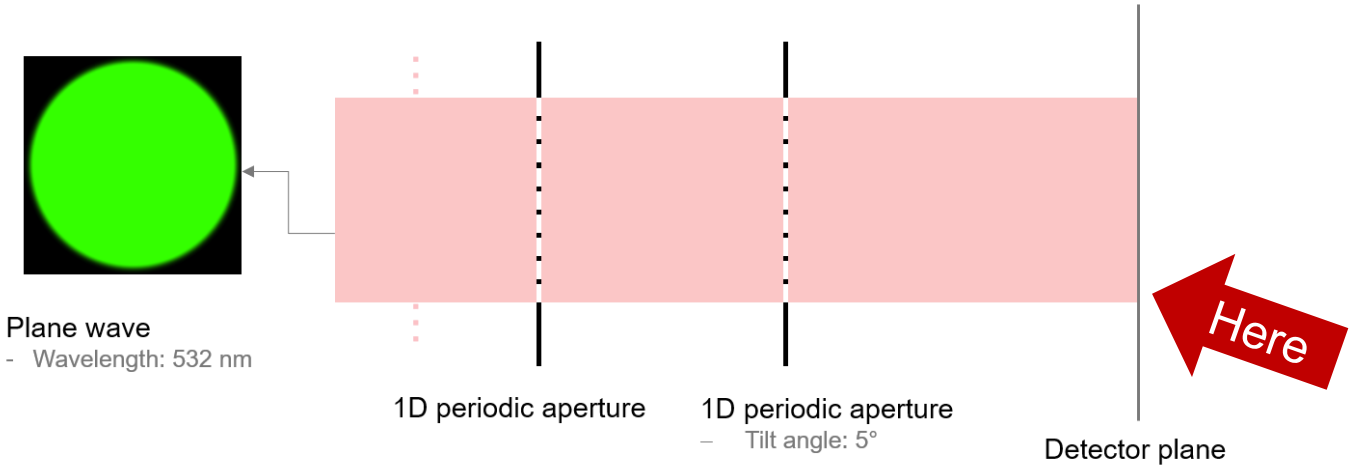


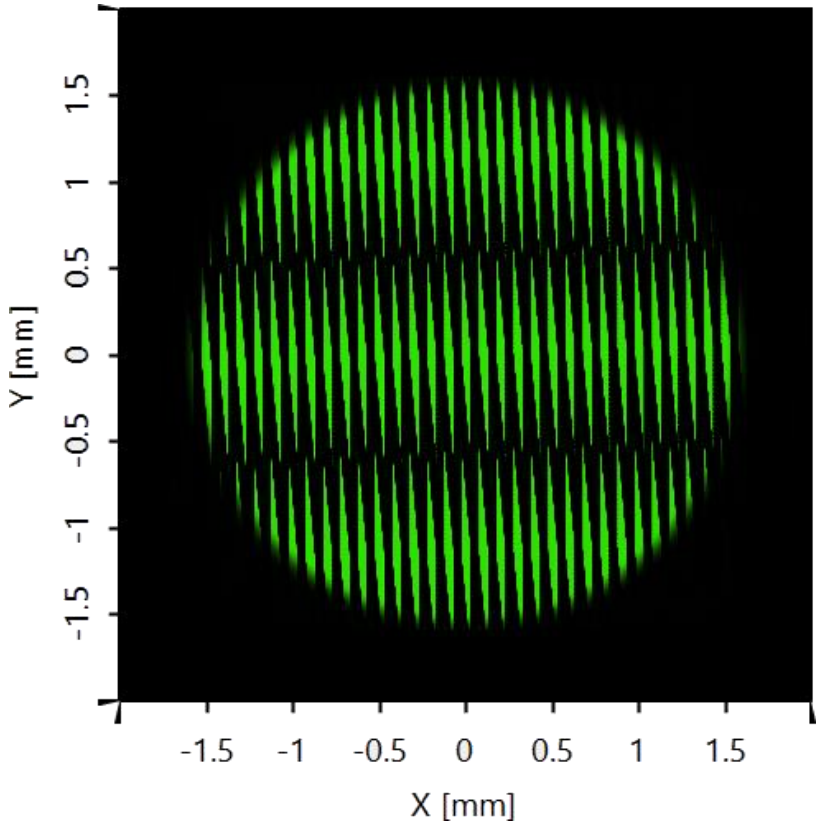
Simulation Result Without Tilt



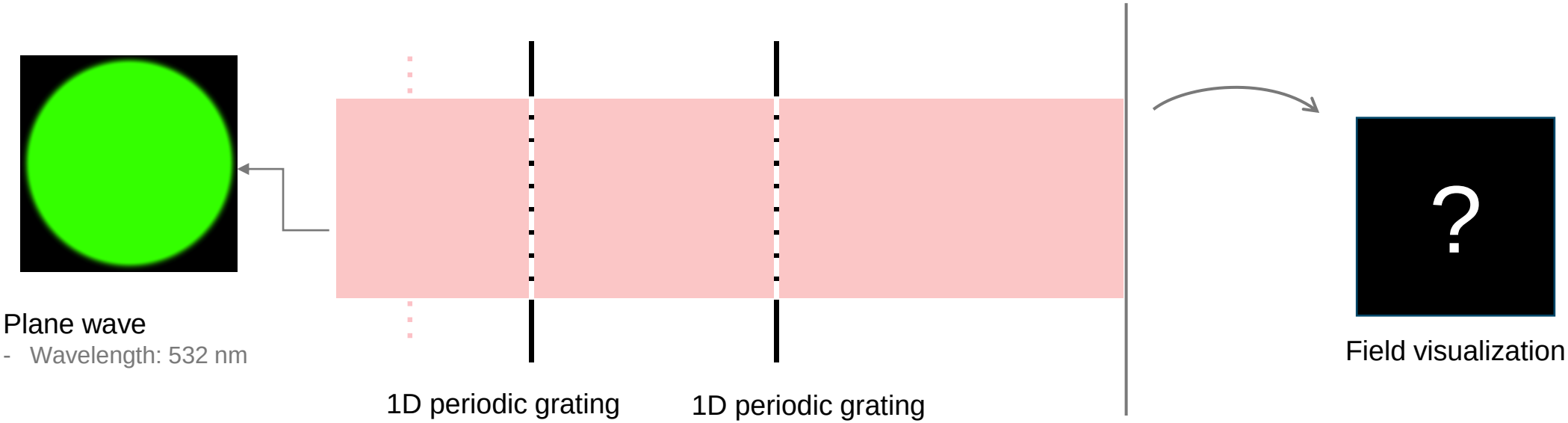


Simulation Result with Tilted Periodic Aperture





Task: Simulation of Interference Using Periodic Gratings



Plane wave
- Wavelength: 532 nm

1D periodic grating
– Sinosoidal grating

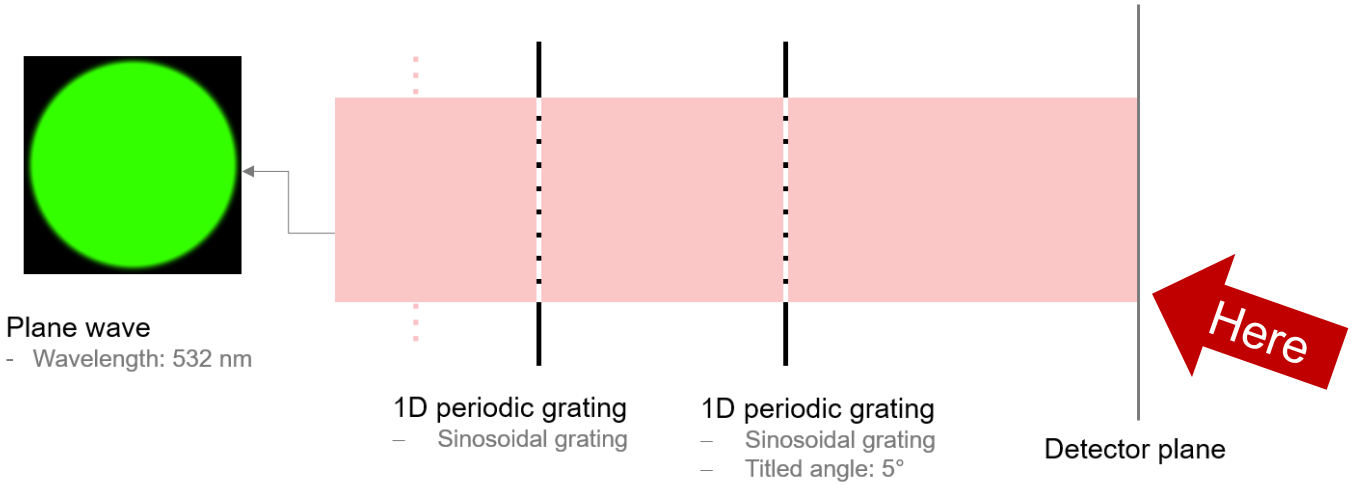
1D periodic grating
– Sinosoidal grating
– Tilt angle: 5°

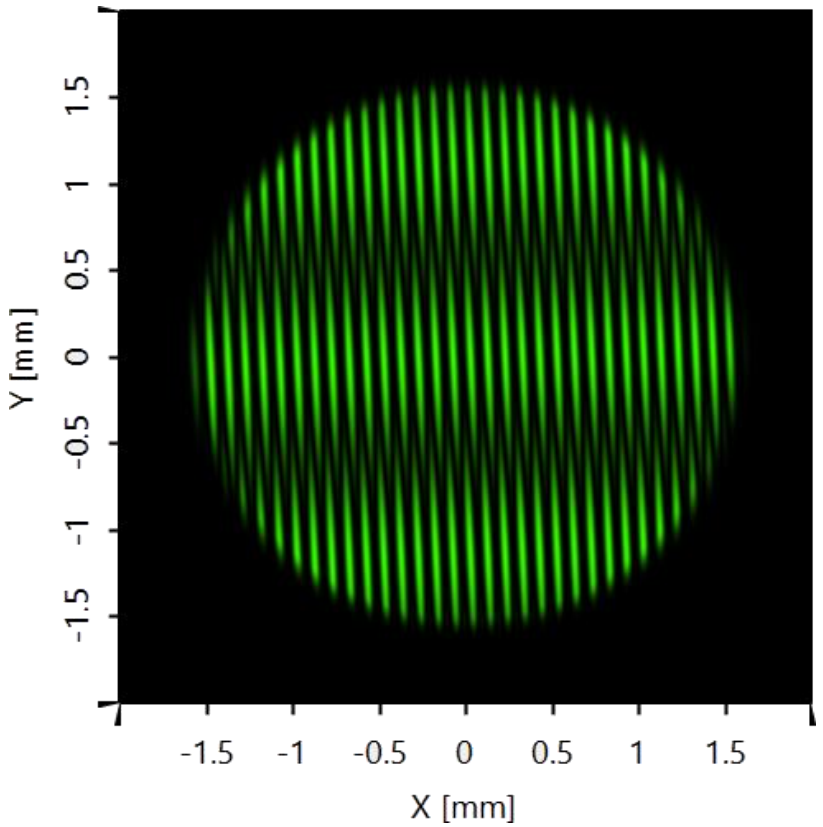
Detector plane

Field visualization

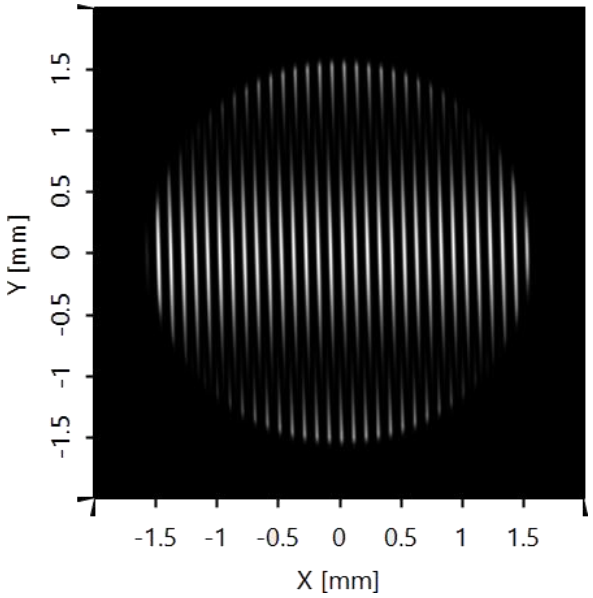
y
z

Simulation Result with Tilted Periodic Grating

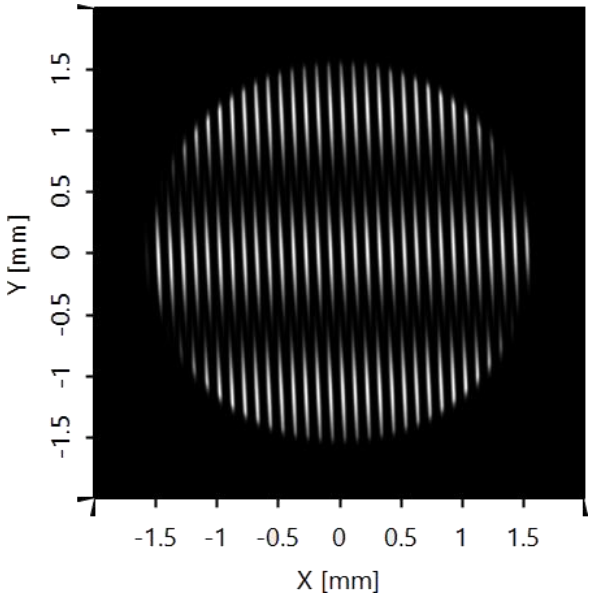




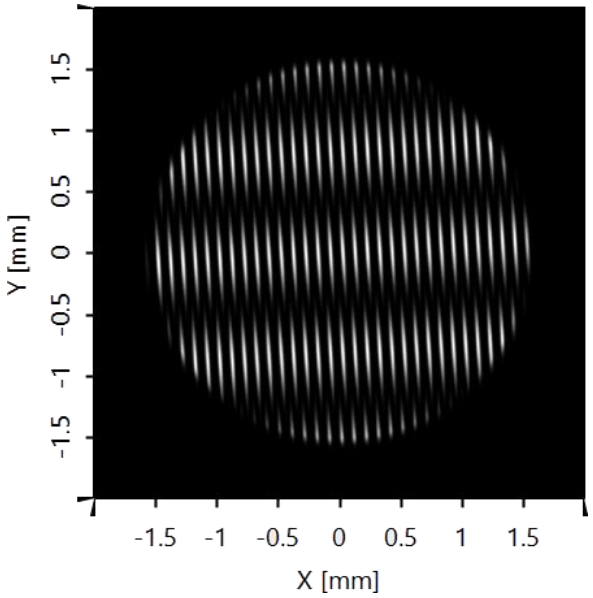
Simulation Results For Various Tilt Angles



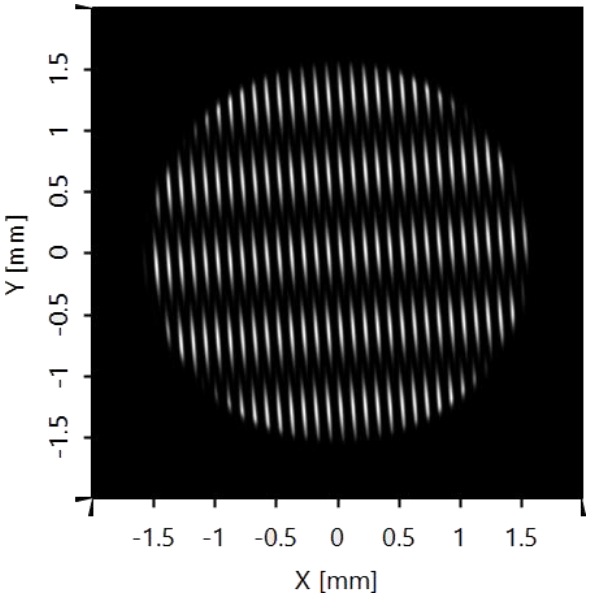
Tilt angle: 3°



Tilt angle: 5°



Tilt angle: 7°



Tilt angle: 9°

Document Information

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further reading	