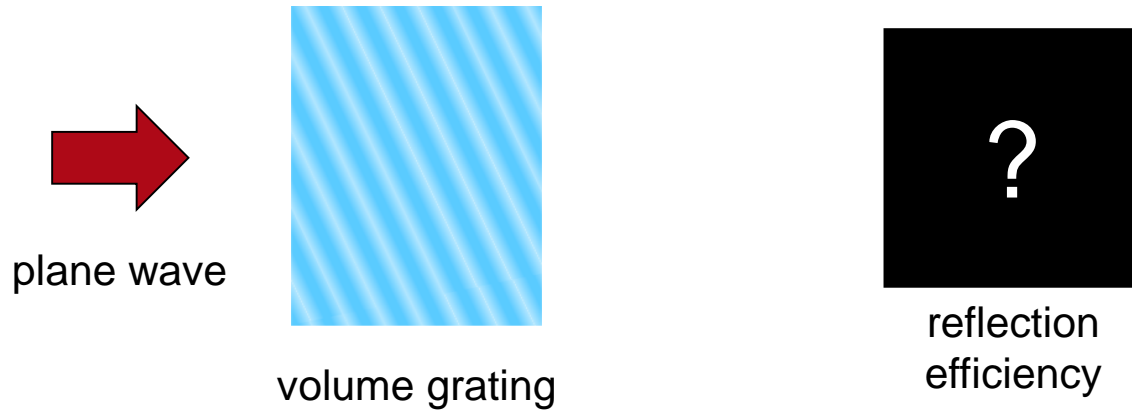


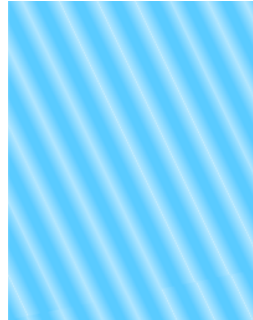
Imaging Systems > Inclusion of Gratings

Rigorous Simulation of Holographic generated Volume Grating

Task/System Illustration

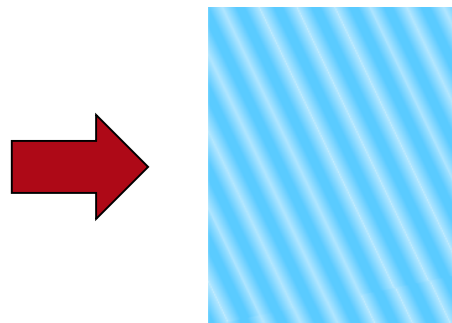


Highlights



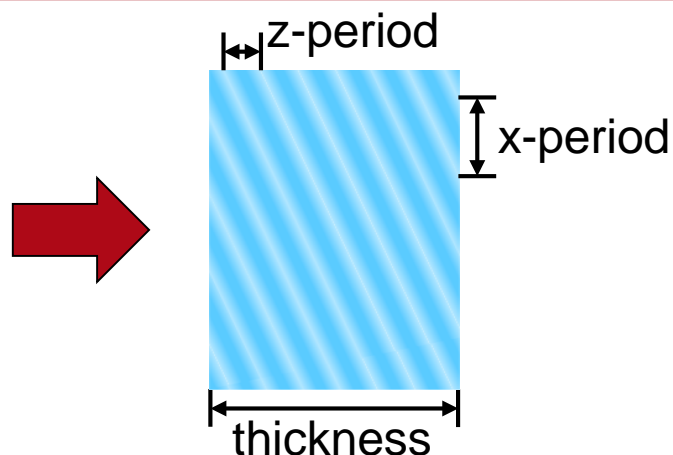
- generation of volume gratings by simulating an exposure process
- rigorous analysis of the grating's diffraction efficiency

Specification: Light Source



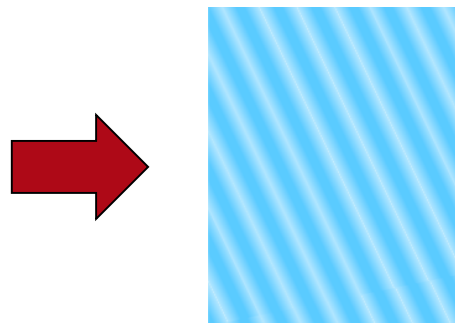
Parameter	Description / Value & Unit
type	plane wave
wavelengths	640nm, varied
polarization	linear in x-direction (0°)
tilt angle	60°

Specification: Volume Grating



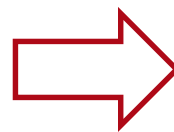
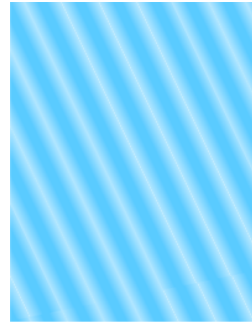
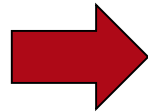
Parameter	Description / Value & Unit
type	holographic generated
index modulation	0.01 (increased due to exposure)
thickness	70 μ m
period in x-direction	507.6nm
period in z-direction	292.5nm
tilt of modulation	59.9°

Specification: Detector



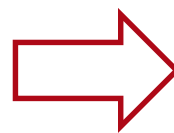
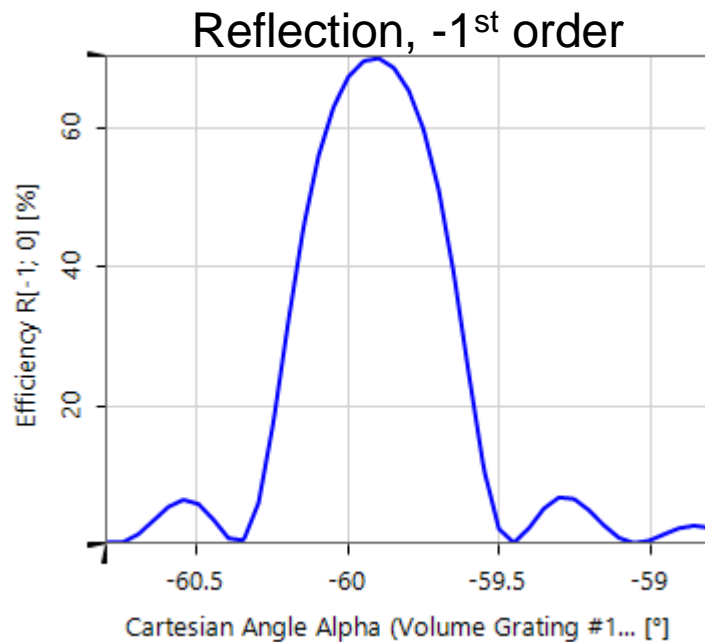
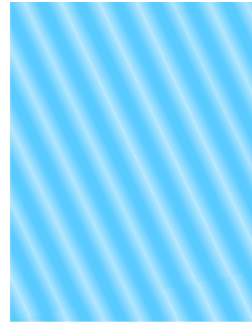
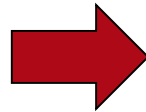
Position	Modeling Engine	Detector/Analyzer
full system	Fourier modal method (FMM)	rigorous grating diffraction efficiency calculation

Result: Wavelength Dependency of Reflection



shift of wavelength dependent reflection due to locally increased effective refraction index

Result: Angular Dependency of Reflection



shift of angular dependent reflection due to holographic interference angle of 59.9°

Document & Technical Info

code	I0G.0002
version of document	1.0
title	Rigorous Simulation of Holographic generated Volume Grating
category	Imaging Systems > Inclusion of Gratings
created by	Stefan Steiner (LightTrans)
VL version used for simulations	7.0.0.29

Specifications of PC Used for Simulation

Processor	i7-49010MQ (4 CPU cores)
RAM	32 GB
Operating System	Windows 10