Moiré Fringes Generation
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

Plane wave
- Wavelength: 532 nm

1D periodic aperture
1D periodic aperture

Detector plane

Field visualization
Simulation Result Without Tilt

Plane wave
- Wavelength: 532 nm

1D periodic aperture 1D periodic aperture

Detector plane

Here

Graph showing the simulation result with a plane wave passing through two 1D periodic apertures and a detector plane.
Simulation Result with Tilted Periodic Aperture

Plane wave
- Wavelength: 532 nm

1D periodic aperture
- Tilt angle: 5°

Detector plane
Task: Simulation of Interference Using Periodic Gratings

Plane wave
- Wavelength: 532 nm

1D periodic grating
- Sinusoidal grating

1D periodic grating
- Sinusoidal grating
- Tilt angle: 5°

Detector plane

Field visualization
Simulation Result with Tilted Periodic Grating

Plane wave
- Wavelength: 532 nm

1D periodic grating
- Sinusoidal grating
1D periodic grating
- Sinusoidal grating
- Tilted angle: 5°

Detector plane
Simulation Results For Various Tilt Angles

Tilt angle: 3°  Tilt angle: 5°  Tilt angle: 7°  Tilt angle: 9°
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