QUADOA® WAVE OPTICS TOOLBOX

Quadoa®'s Wave Optics Toolbox enables coherent beam propagation to simulate optical effects such as interference and diffraction. The algorithm is based on well proven Gaussian beamlet propagation methods.

Each beamlet is defined by a series of rays, therefore the method can be applied to any system that can be simulated via ray tracing.

The propagation method is not limited to single sequences and is perfectly integrated within QUADOA®'s Multi-Sequential Ray Tracing.

It is also suitable for sequences where the rays pass through a faceted mirror or other type of compound surface, enabling simulation of beam interference and diffraction effects.

This method also makes it easier to use compared to other algorithms, where it is often difficult to find suitable beam sampling settings to obtain an accurate result.

Point Spread Function (PSF)

A plot of the irradiance, phase, or complex amplitude distribution of a single ray sequence at any surface in the system.

Through Focus PSF

A through focus (YZ) plot of irradiance, phase, or complex amplitude distribution of a single ray sequence at any surface in the system.

Interferogram

Coherent summation of the fields from two separate ray sequences

Fiber Coupling Efficiency

Calculated using the mode-matching overlap-integral of the beam propagation PSF with a single mode fiber

API Access via the Scripting Toolbox

All beamlet propagation analyses are available directly via Python, MATLAB®, or C++