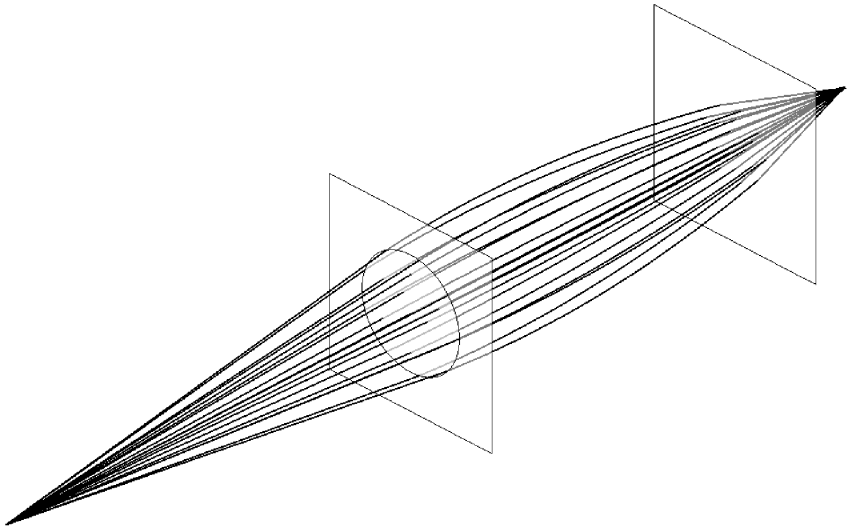
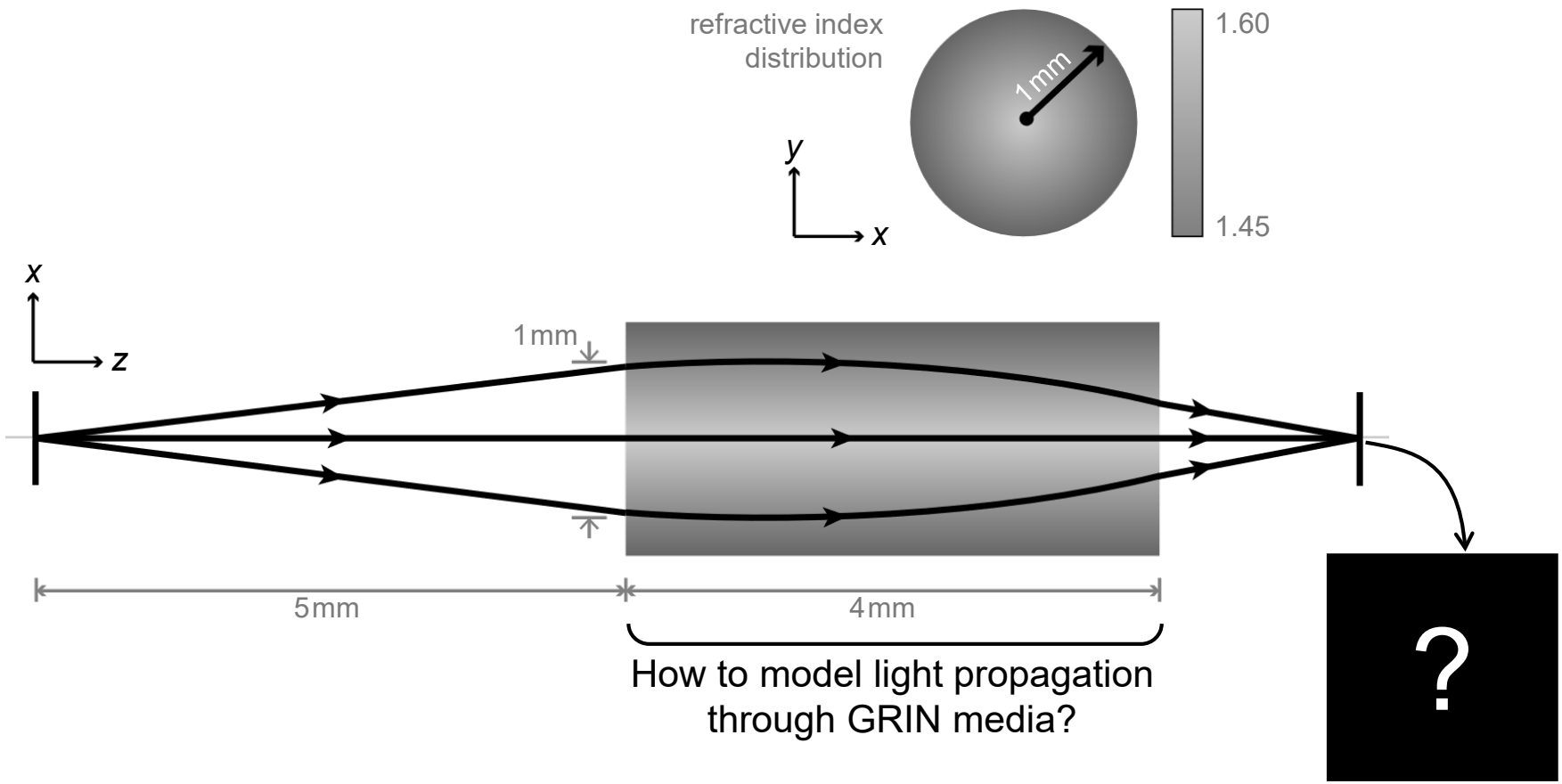
Modeling of Graded-Index (GRIN) Lens

Abstract



Graded-index (GRIN) media, with smooth variation of refractive indices, can be used to e.g. make a lens with flat surface, or reduce the aberrations. VirtualLab Fusion provides a physical-optics modeling technique for light propagation through GRIN media. With the same speed but far beyond ray, the physical-optics modeling takes fully electromagnetic fields into consideration, which includes the polarization crosstalk effects.

Modeling Task



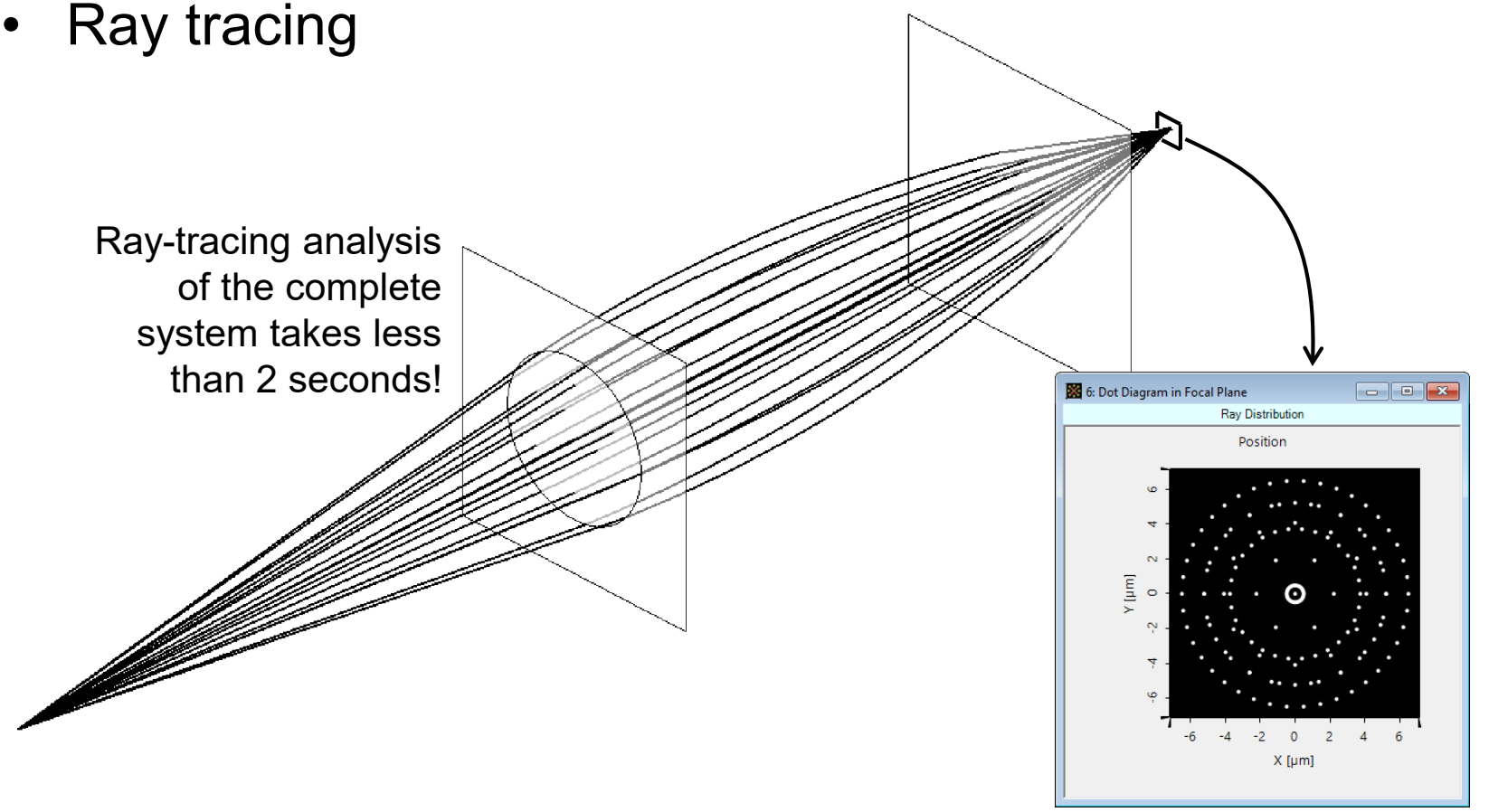
How to model light propagation through GRIN media?

How to calculate field on focal plane behind a GRIN lens?

Results

- Ray tracing

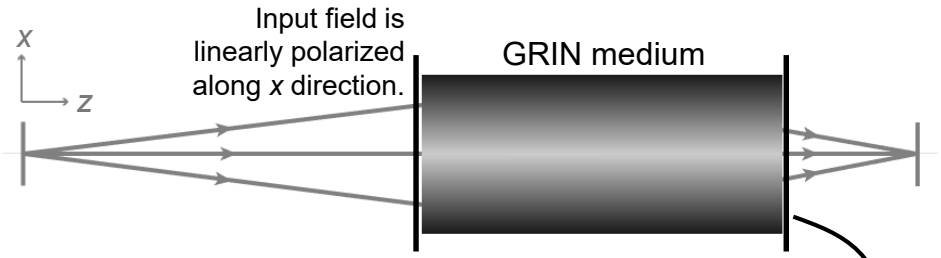
Ray-tracing analysis of the complete system takes less than 2 seconds!



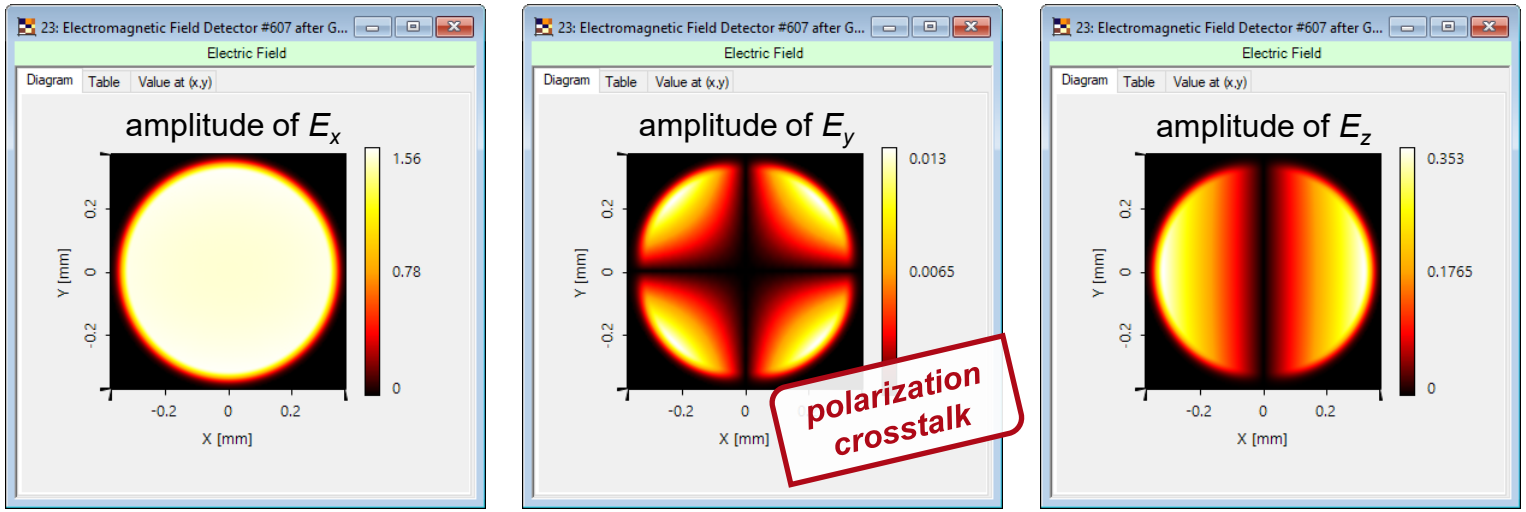
dot diagram on focal plane

Results

- Field tracing

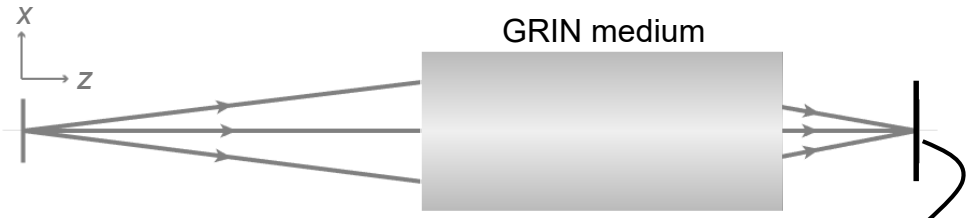


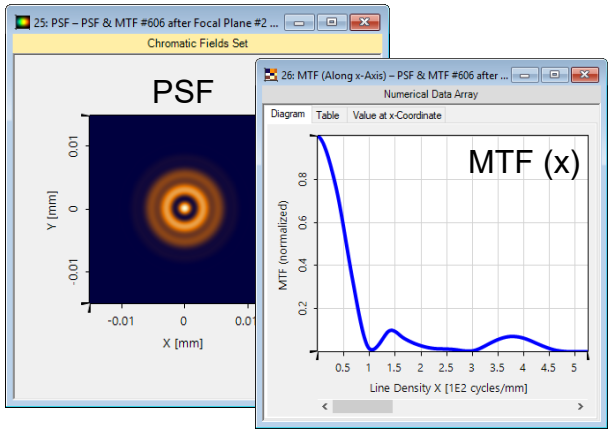
Fully vectorial modeling of field propagation through the GRIN medium takes less than 3 seconds!

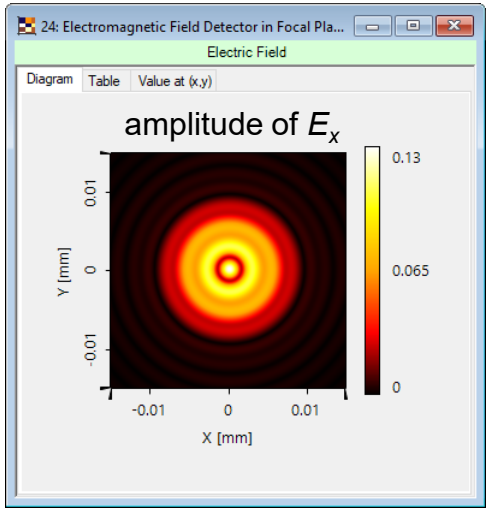


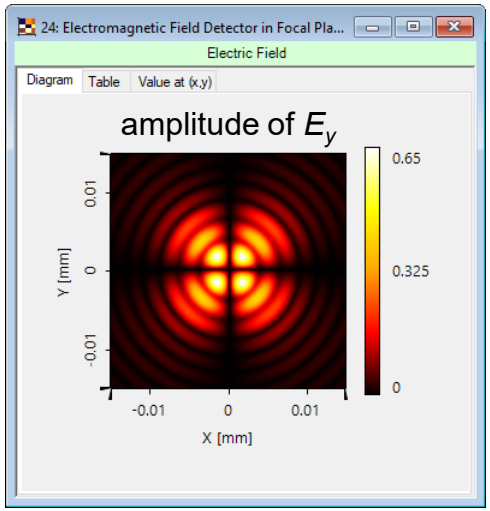
Results

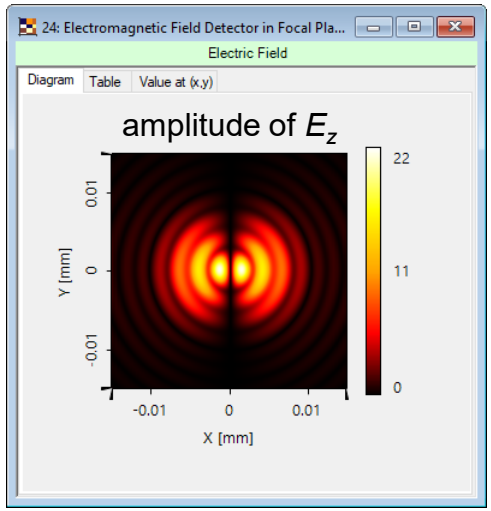
- Field tracing











Document Information

title	Modeling of Graded-Index (GRIN) Lens
version	1.0
VL version used for simulations	7.0.3.4
category	Technology Use Case