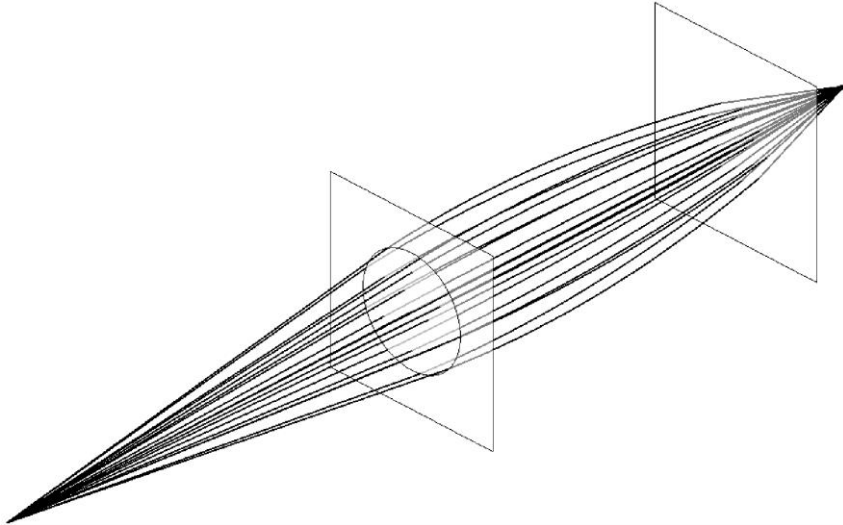


# Modeling of Graded-Index (GRIN) Lens

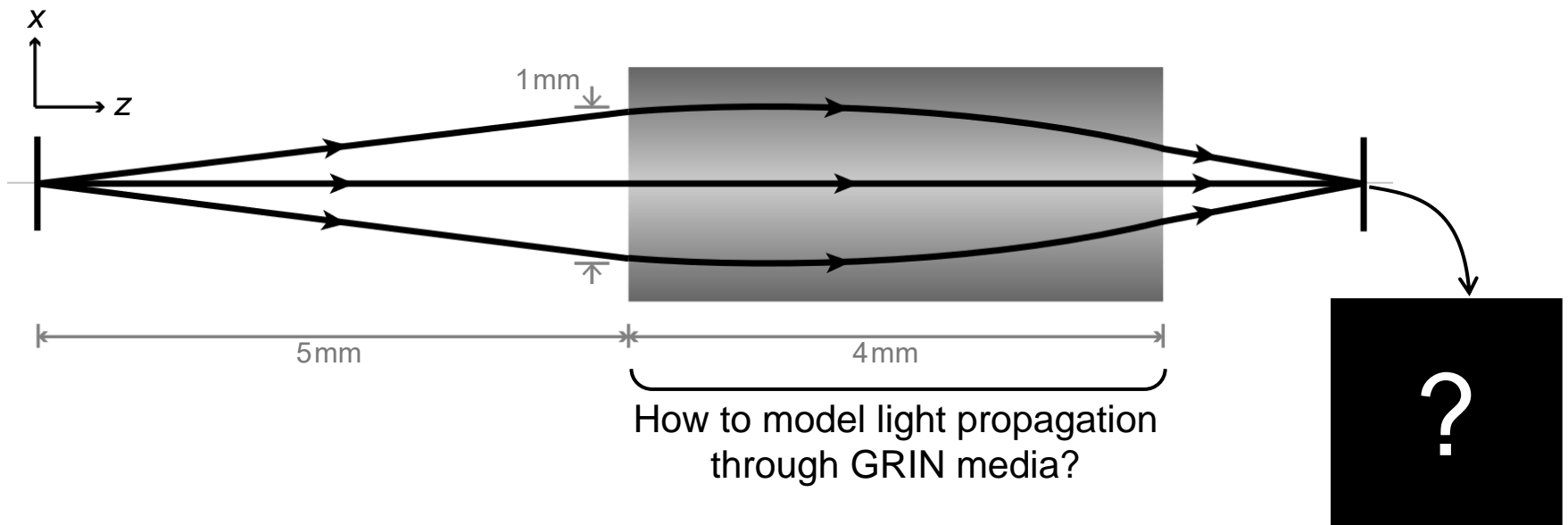
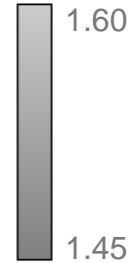
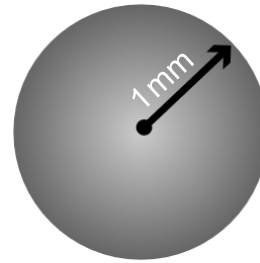
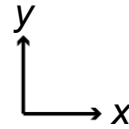
# Abstract



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 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

refractive index  
distribution

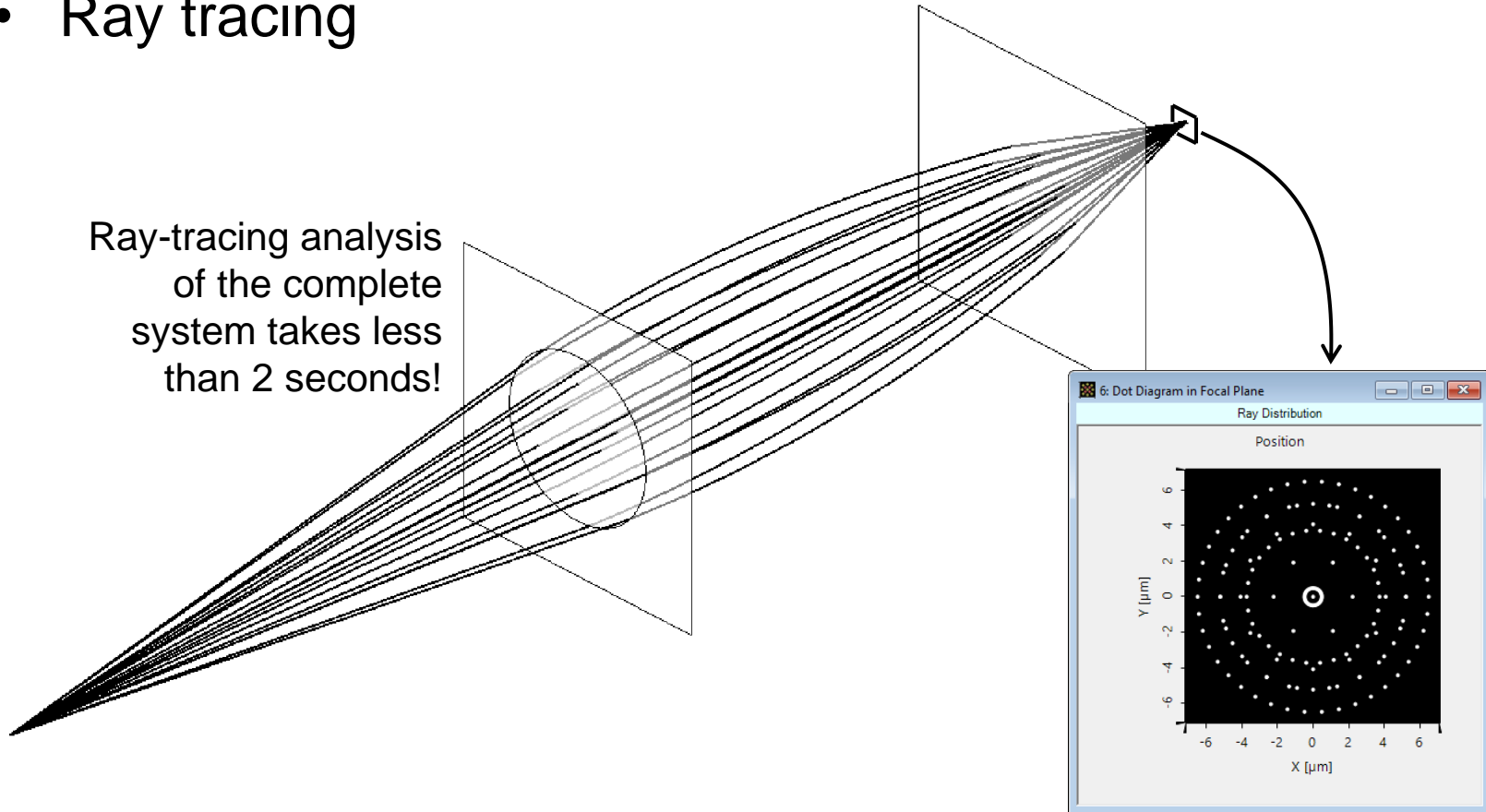


How to calculate field on focal plane behind a GRIN lens?

# Results

- Ray tracing

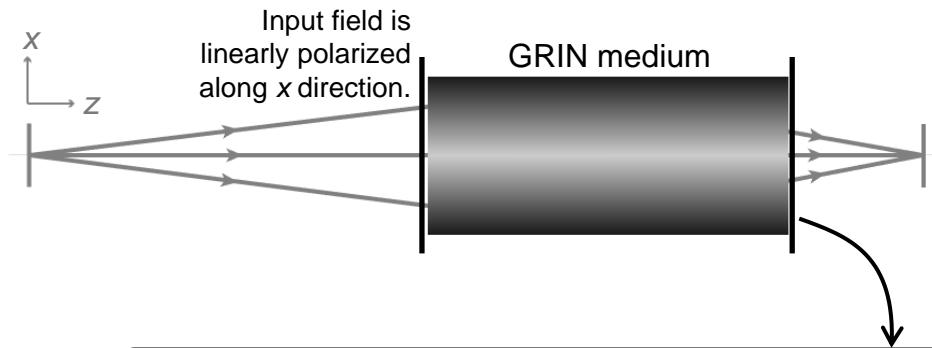
Ray-tracing analysis  
of the complete  
system takes less  
than 2 seconds!



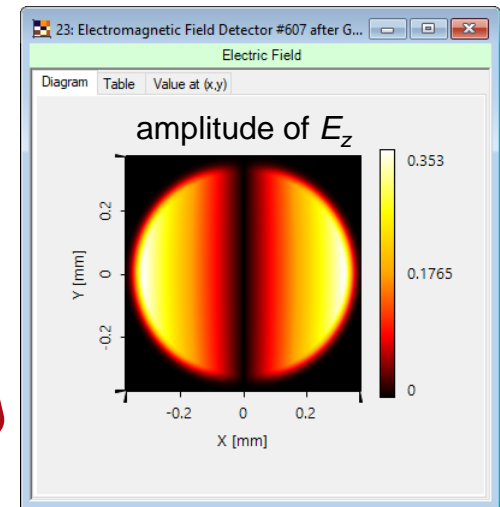
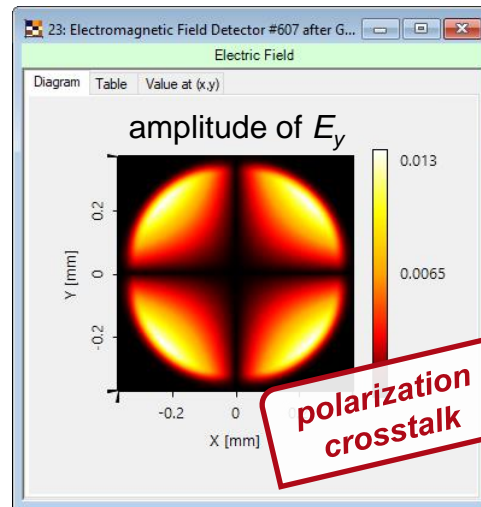
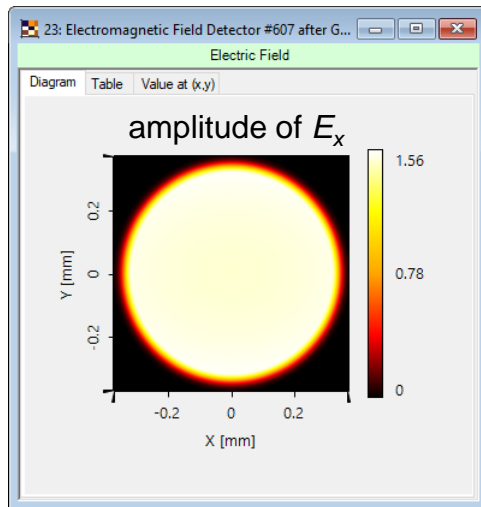
dot diagram on focal plane

# Results

- Field tracing

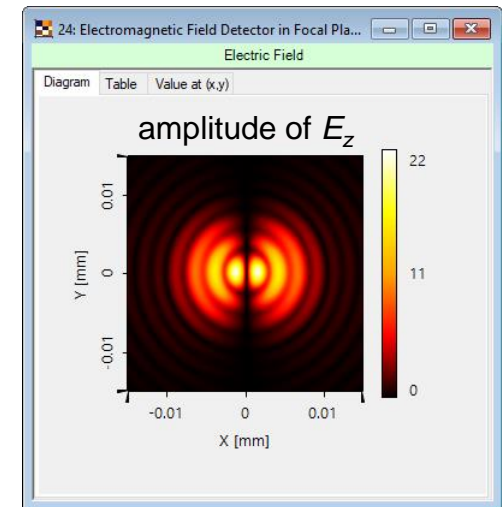
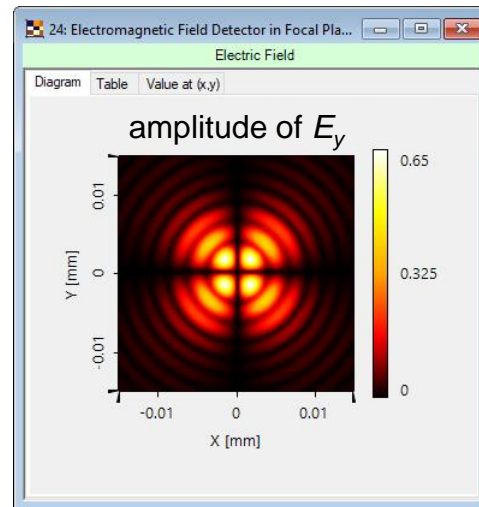
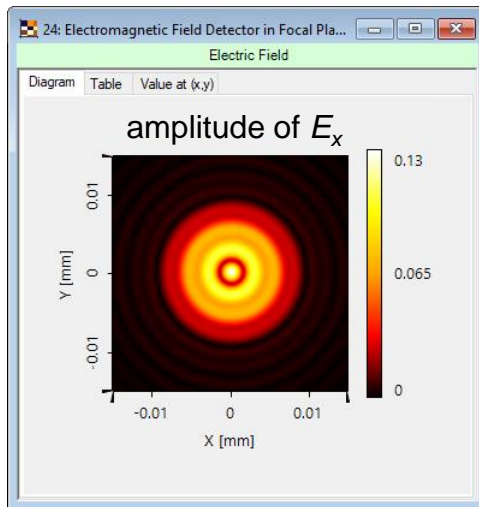
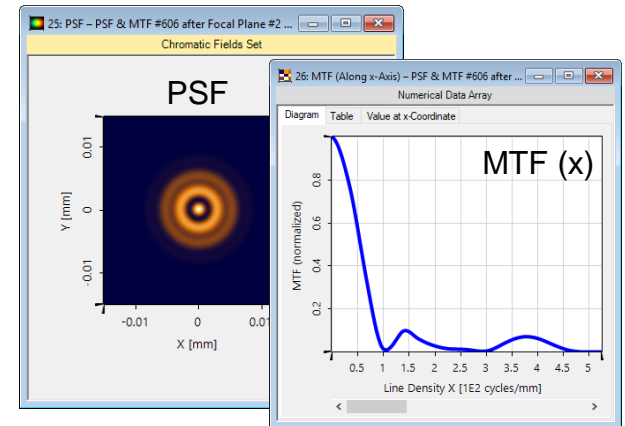
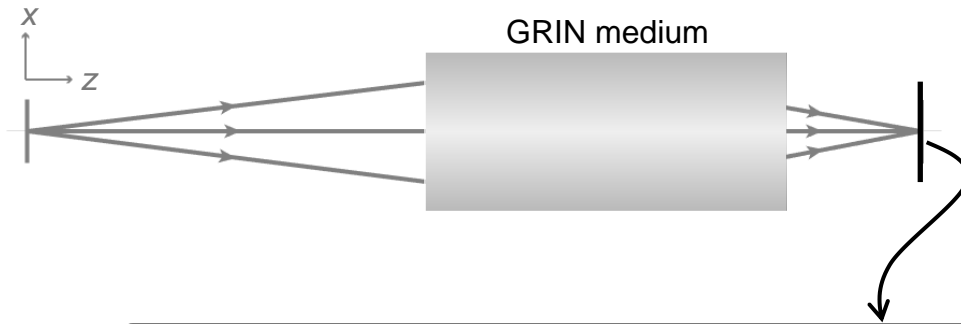


Fully vectorial modeling of field propagation through the GRIN medium takes less than 3 seconds!



# Results

- Field tracing



# Document Information

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

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