

Scenario 20.01 : Modeling of single mode fiber coupling system.

Demonstrates the simulation of a spherical lens used for coupling of light into a single mode fiber and shows the optimization of the fiber position by the parameter run.

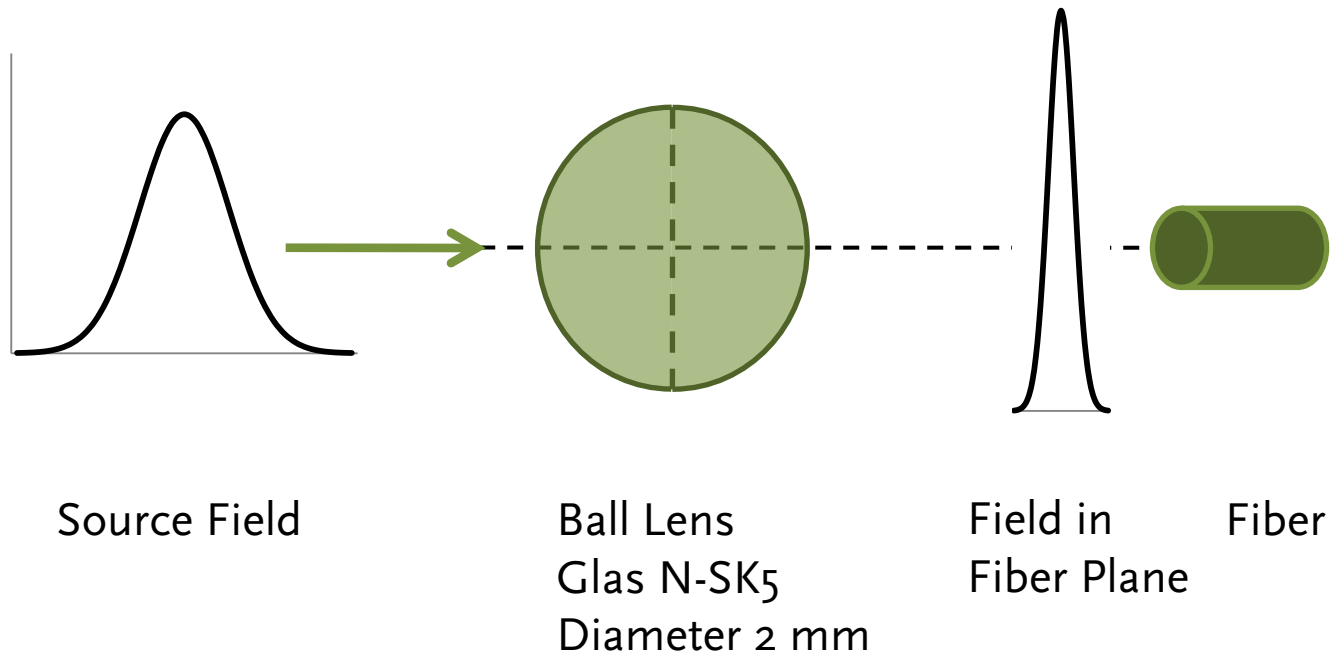
Keywords: Fiber Coupling, Fiber Coupling Efficiency, Single Mode Fiber, Parameter Run, Ball Lens

Required Toolboxes: Starter Toolbox

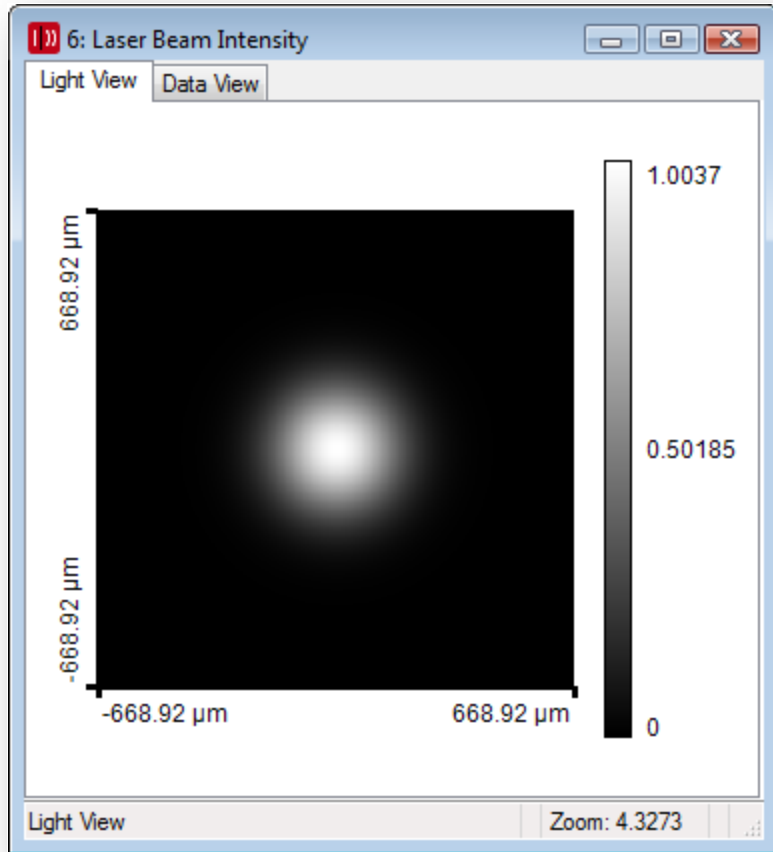
Related Tutorials:



Modeling Task

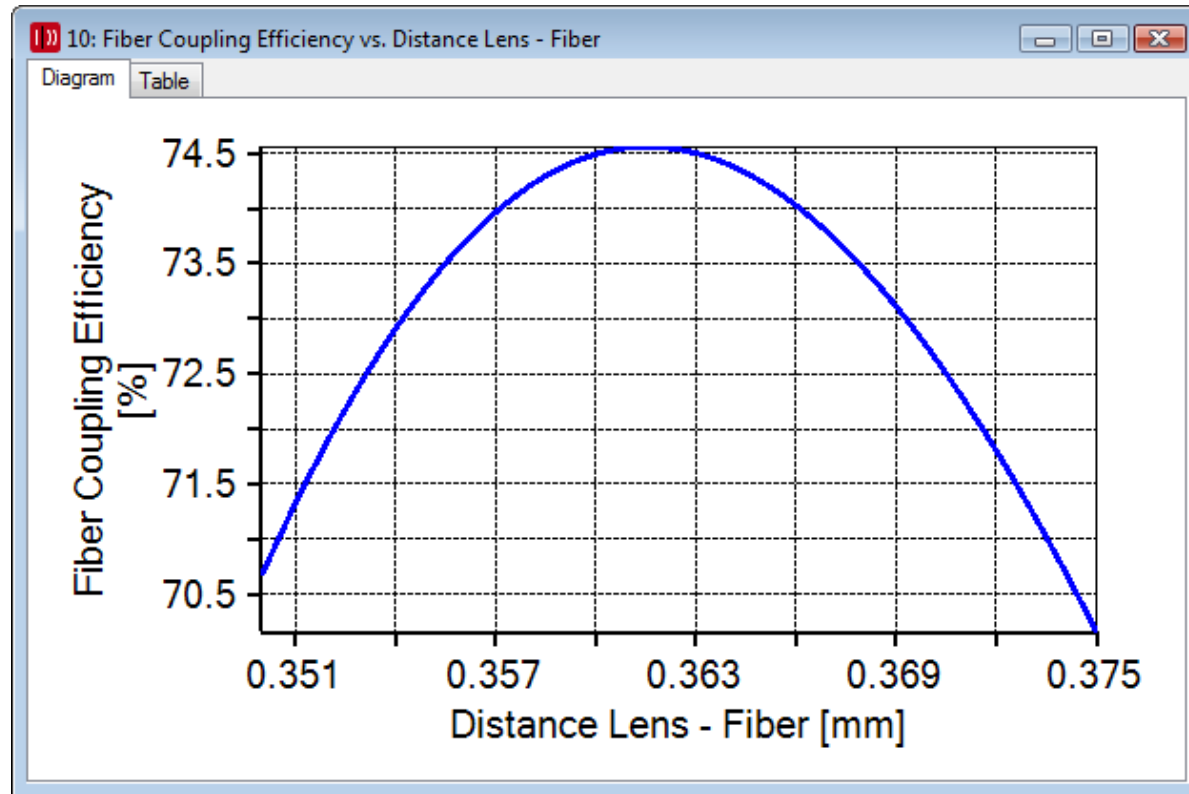


Modeling Task



- Laser parameters:
 - Wavelength $\lambda=1,3 \mu\text{m}$
 - Diameter ($1/e^2$) $500\mu\text{m}$
- Fiber parameters:
 - $\text{NA}=0.11$

Simulation Result



Coupling efficiency depending on distance between lens and fiber.

Conclusion

- VIRTUALLAB™ allows the simulation of single mode fiber coupling efficiency including lens aberrations, diffraction and interference.
- Fiber modes can be specified by numerical aperture of fiber or by user defined modes.
- Parameter Run allows to optimize the fiber position and to maximize the coupling efficiency.