Zemax Exercises (10 p.)

Attached to the exercise, a readymade Zemax-file contains one light source, one object (a reflective checkerboard), one ideal lens (d=10mm) and one detector, with 500 \* 500 pixels. When the ray trace is run, the output image can be found from Documents\Zemax\IMAFiles\checkerboard.png

The task is to replace the ideal lens with a “standard lens” whose material is “N-BK7” and whose parameters (thickness, R1, R2) are manually adjusted such that the image is focused onto the detector plane. The resulting image is then compared to the ”ideal” image (no in-depth analysis, just “how good can the image become when the lens is not ideal?”). Comment briefly your result and add images from both ‘ideal’ and ‘not ideal’ cases.

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| Ideal lens result here | BK-47 Lens result here |
| Brief discussion about results | |

*Hint. First you change the component type from “paraxial lens” to “standard lens”. Then, in the material slot, you specify “N-BK7”, after that, you will have to change the size as well as the radius 1, radius 2 and thickness parameters.*

*Suggestions for the lens parameters:*

*Clear1 = Clear2 = Edge1 = Edge2 = 3.5 mm (which means that the lens diameter is 7 mm)*

*Radius1 = -Radius2 = 4mm*

*Thickness = 5 mm*

*Z Position = -3 mm (moved back to compensate for the thickness)*