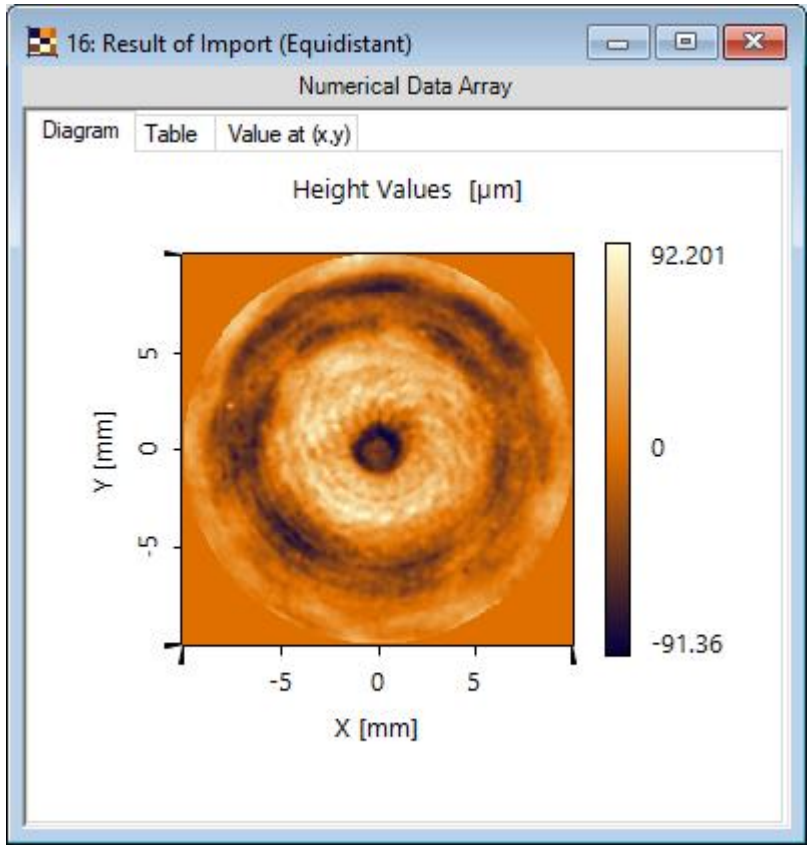
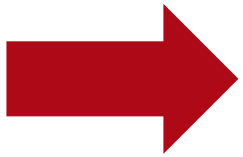
Import of Measured Lens Surface Data

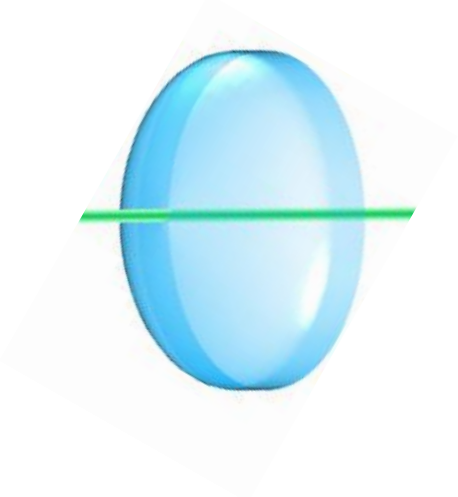
Abstract

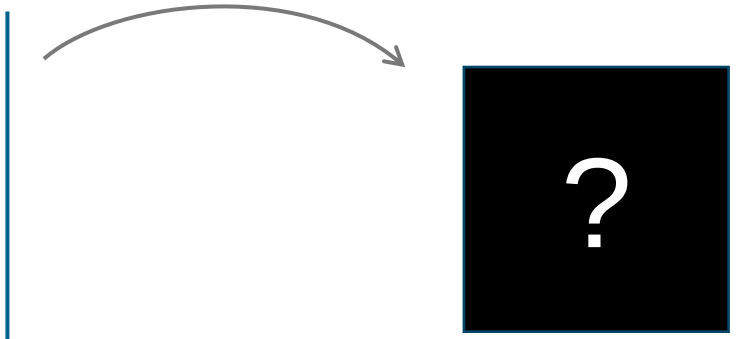


Even for Lenses that are manufactured with high precision, the shape of the lens will differ from the ideal desired shape. This deviation has an influence on the performance of an optical system and the effect should be evaluated. The real difference can be obtained by a non-contact measurement e.g. with a 3D optical profiler instrument. The measured data has to be imported to the simulation software, what is shown in this demonstration.

Task: Import of Measured Surface Data of a Lens

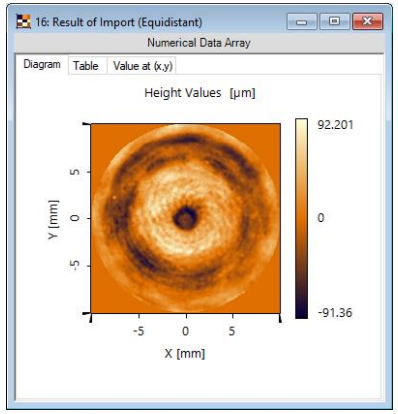






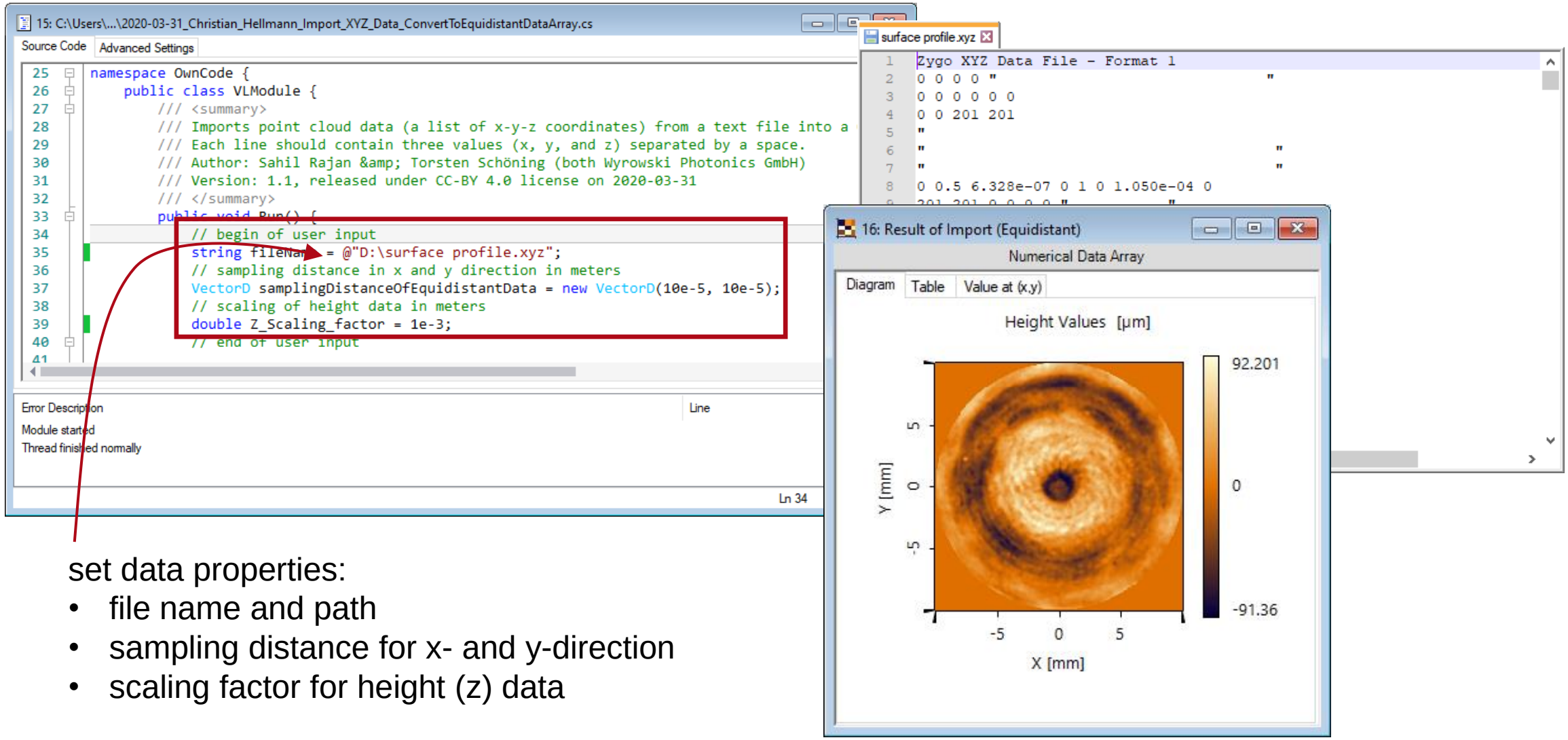
plane wave
wavelength: 532nm

lens
with measured height profile



effect of real profile on focal spot

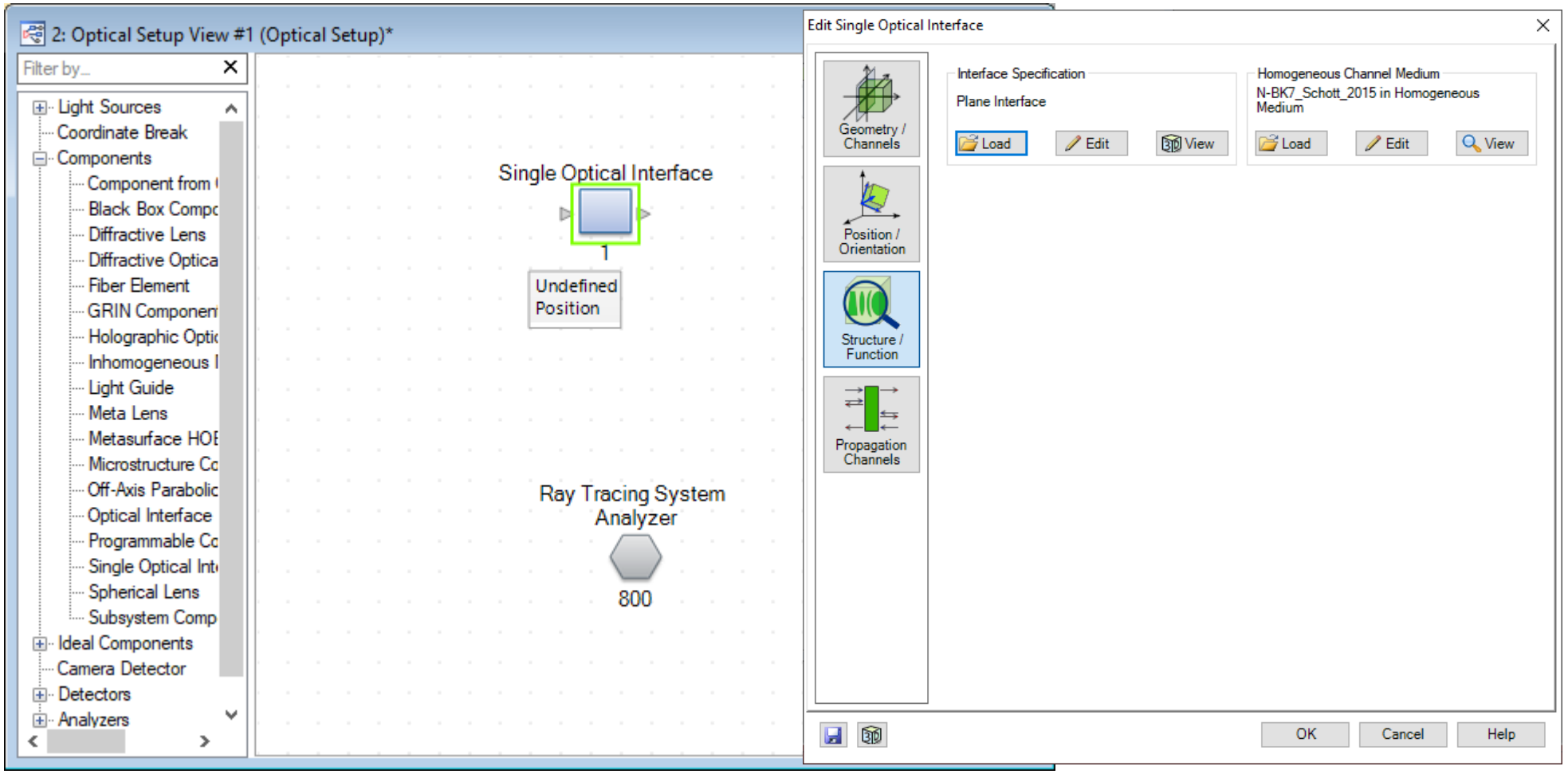
Import of Data (e.g. XYZ point cloud from ZYGO profiler)



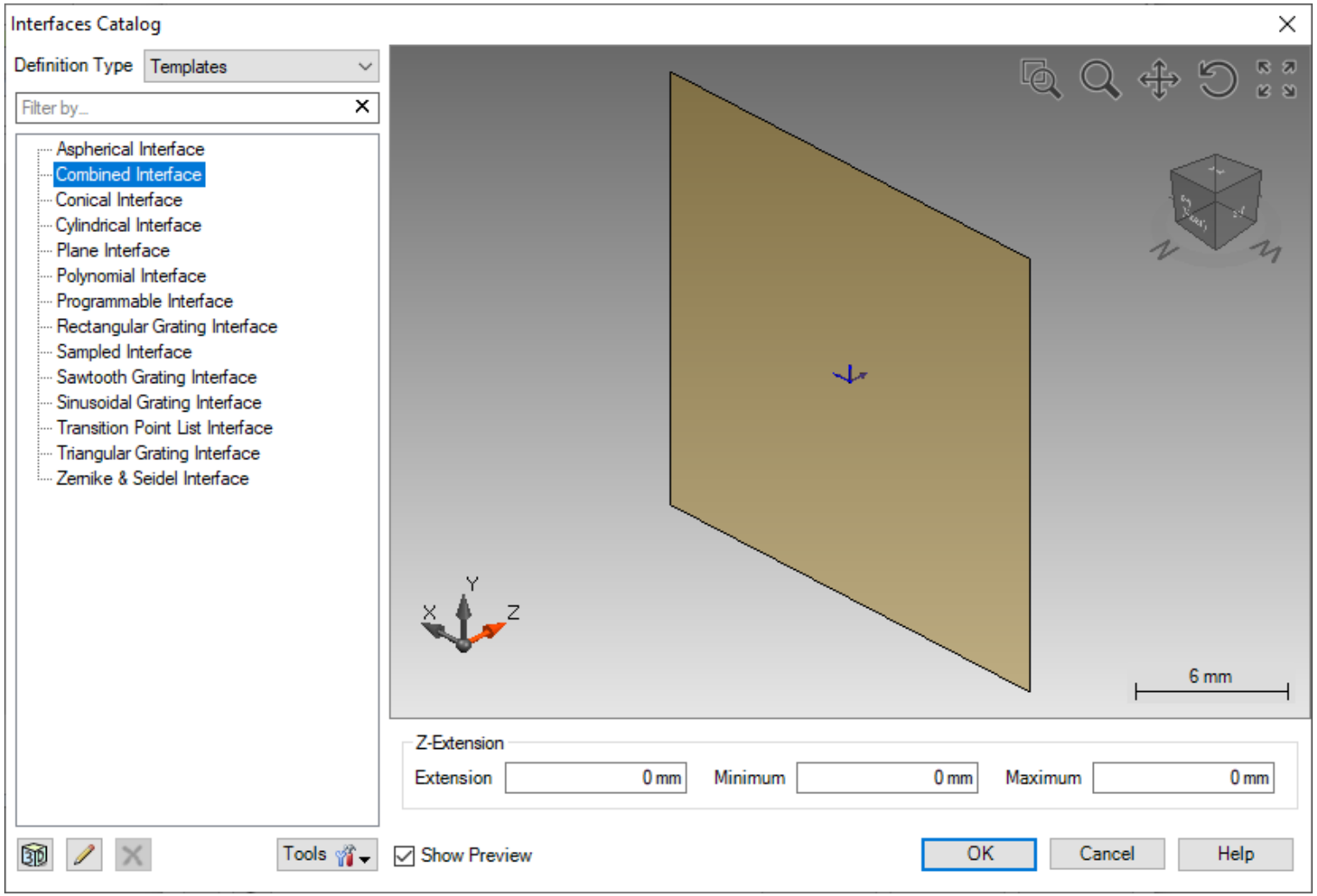
set data properties:

- file name and path
- sampling distance for x- and y-direction
- scaling factor for height (z) data

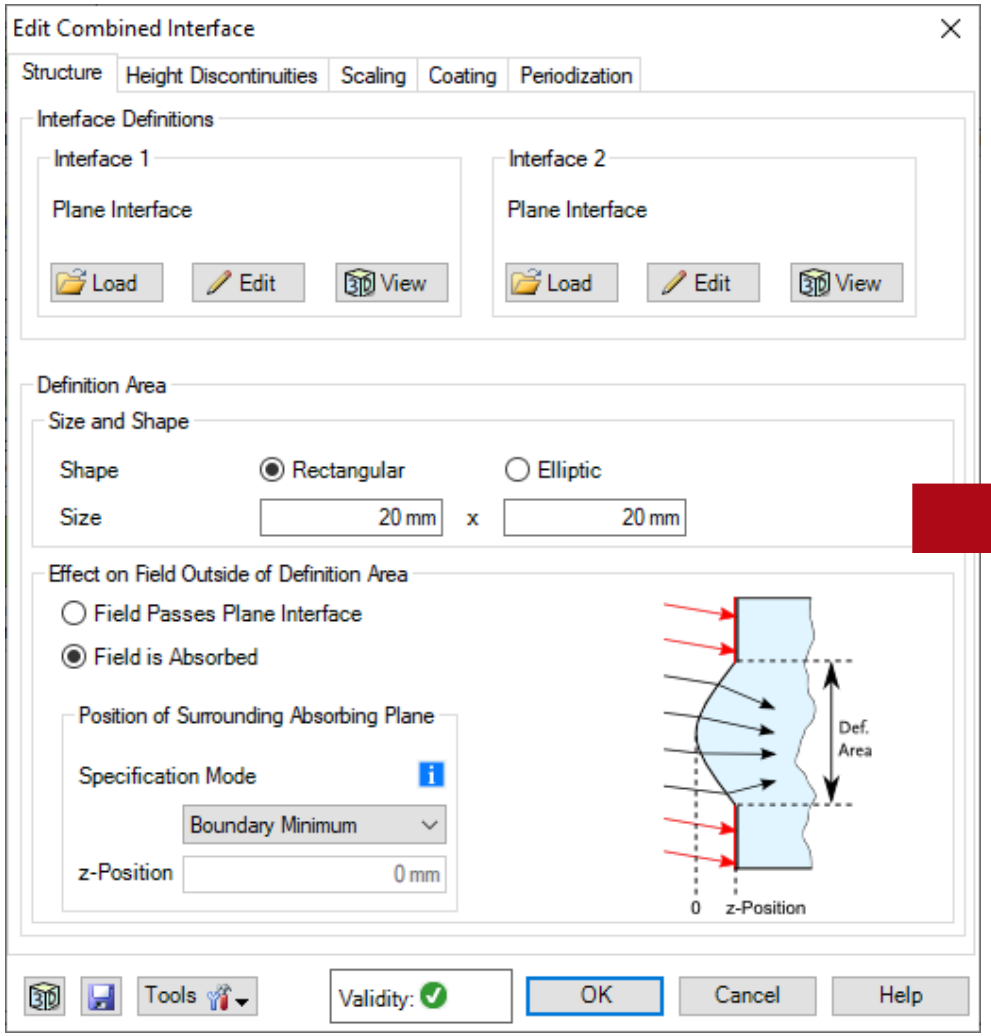
Configuration of Lens Surface

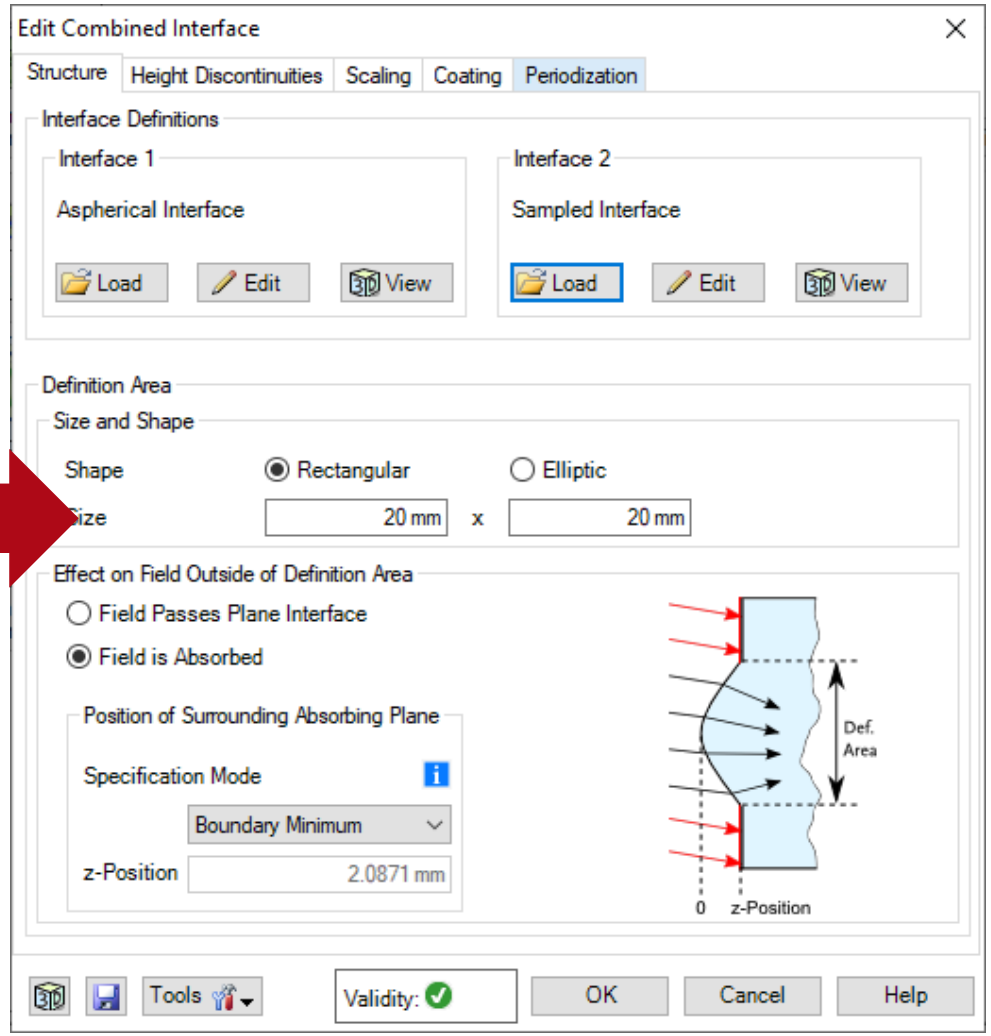


Using a Combined Interface

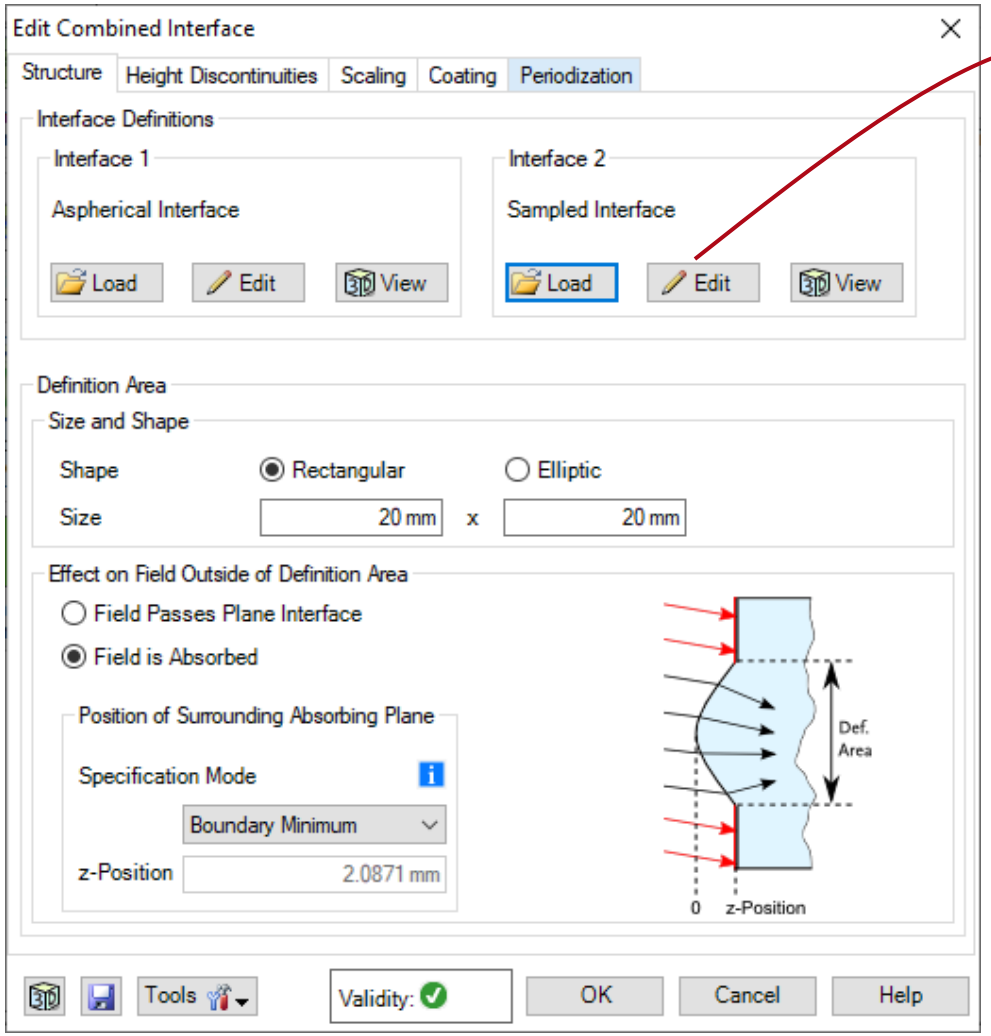


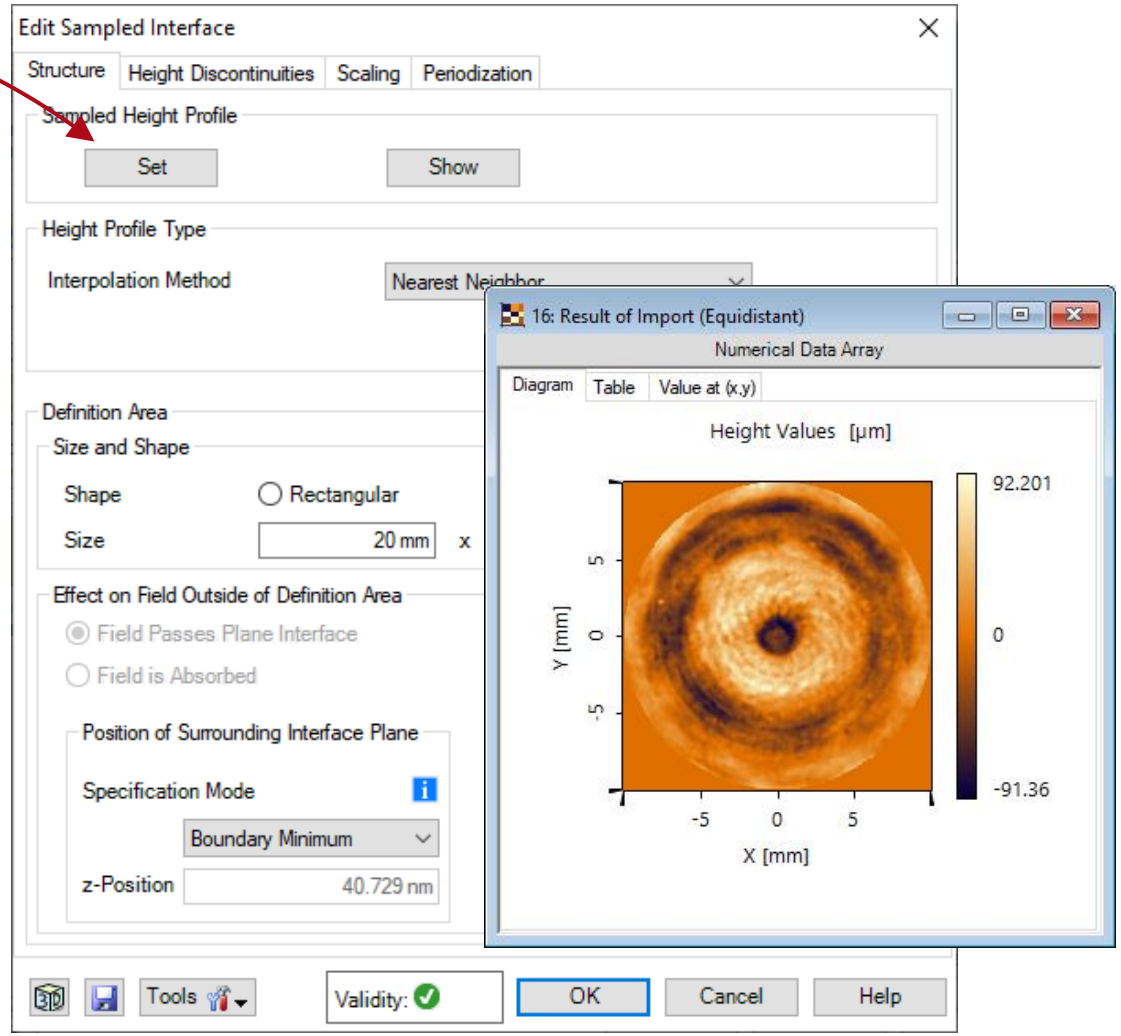
Setting up the Combined Interface





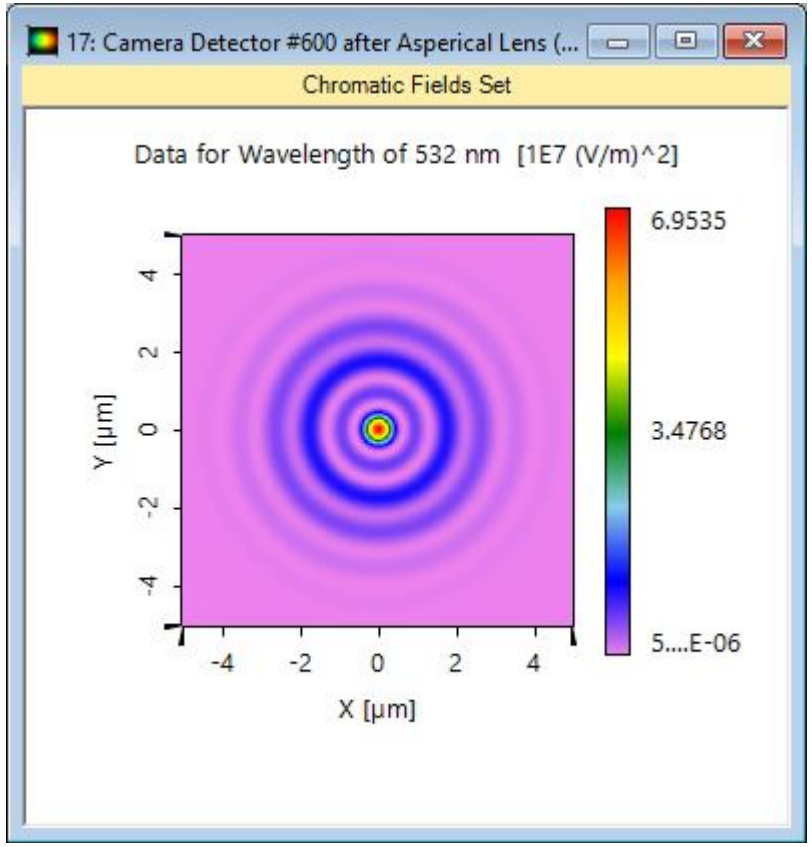
Load the Imported Data to the Sampled Interface



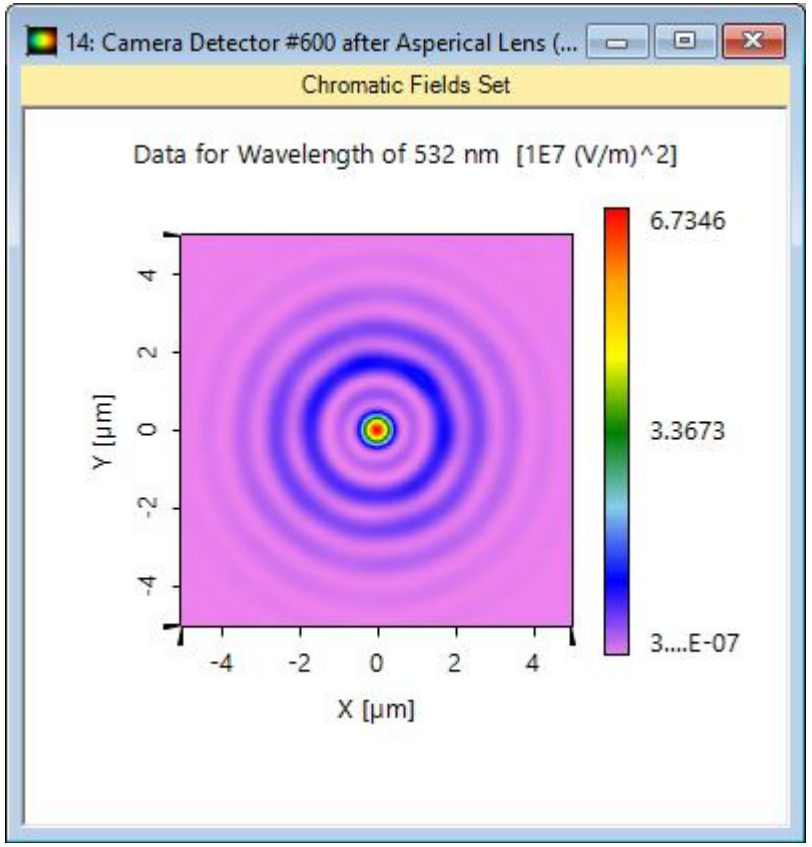


Result

focal spot



focal spot (real profile)



Document Information

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further reading	