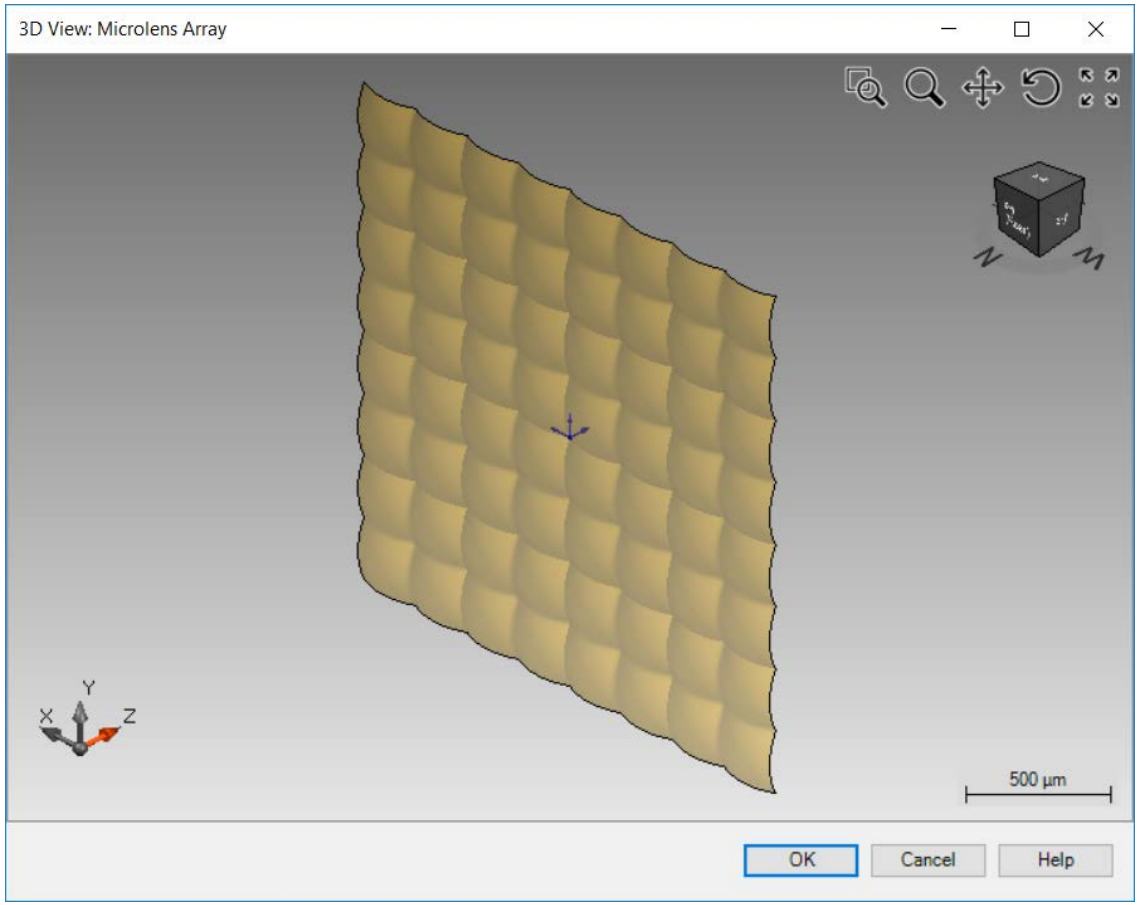
Programming a Micro-Lens Array

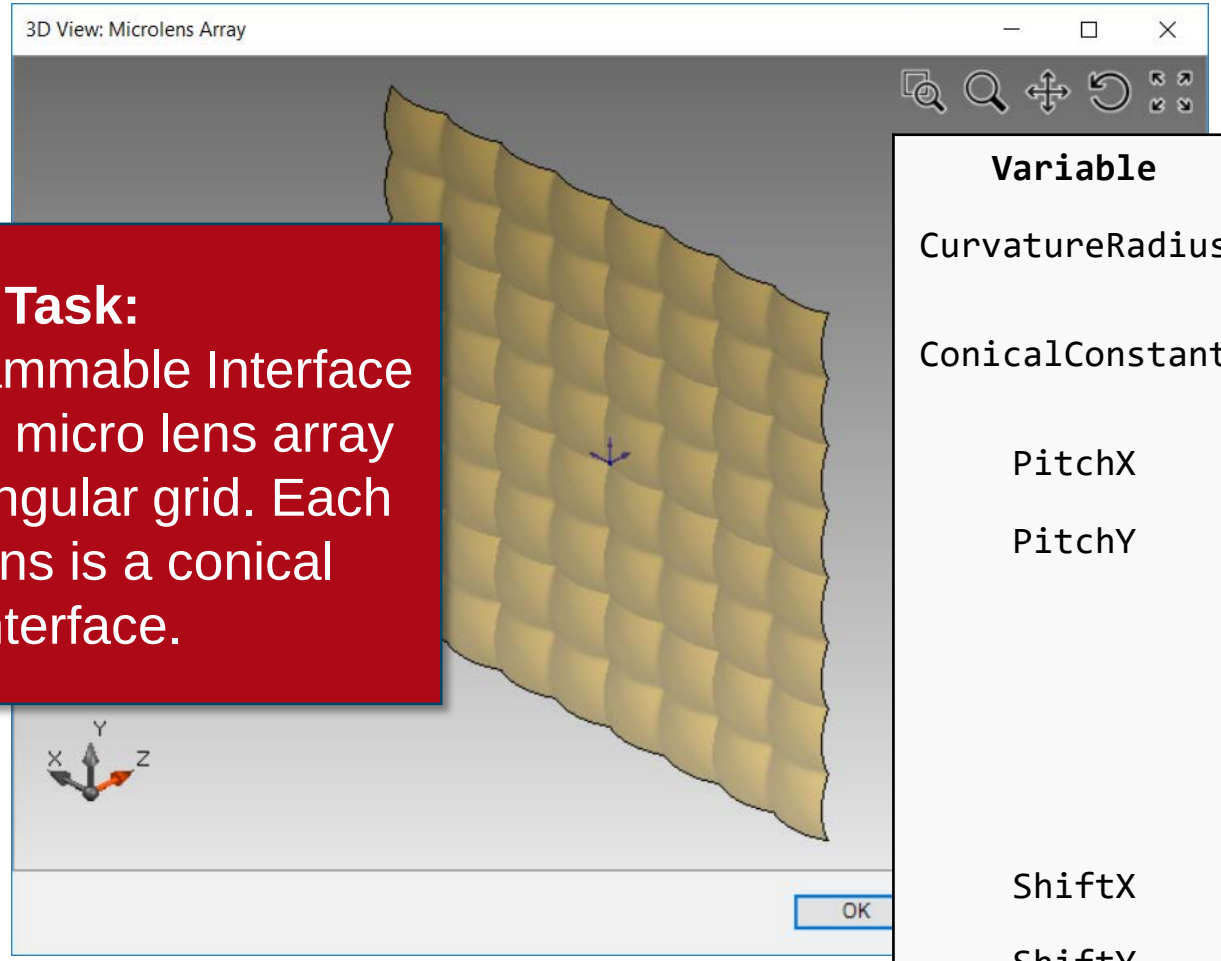
Abstract



In this document, an example is shown on how to generate an array of micro-lenses by using the Programmable Interface in VirtualLab Fusion. In this example, the micro-lenses are distributed on a rectangular grid, and each lens is constructed by using a conical surface, with the radius of curvature and the conical constant as variables that can be defined by the user.

Task Description

Task:
Use Programmable Interface to define a micro lens array on a rectangular grid. Each micro lens is a conical interface.



Variable	Description
CurvatureRadius	The radius of curvature of a single micro lens.
ConicalConstant	The conical constant of a single micro lens.
PitchX PitchY	The distance between the individual micro lenses in x- and y-direction, respectively. It is possible to make the pitch larger than the actual size of the micro lens. If you set the pitch for one direction to a very small value (let's say 1 pm) you obtain an array of cylindrical lenses.
ShiftX ShiftY	The whole micro lens array can be shifted away from the optical axis.

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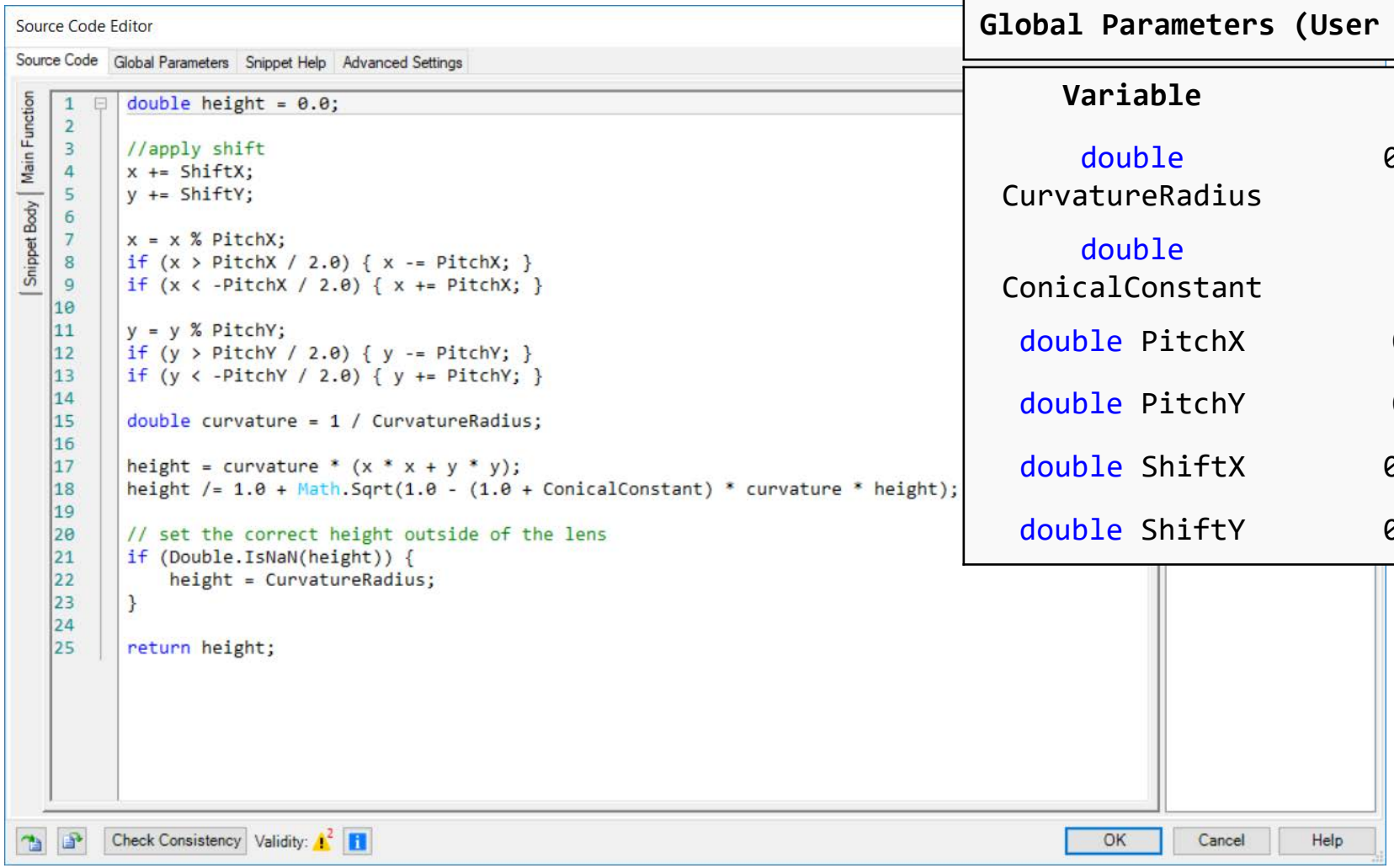

Global Parameters (User Defined)

Variable	Value	Allowed range
double CurvatureRadius	0.000305 m	0 mm – 1 m
double ConicalConstant	0	-1000 – 1000
double PitchX	0.00025 m	0 mm – 1 m
double PitchY	0.00025 m	0 mm – 1 m
double ShiftX	0.000125 m	-1 m – 1 m
double ShiftY	0.000125 m	-1 m – 1 m

Document Information

title	Programming a Micro-Lens Array
document code	CZT.0037
version	1.0
toolbox(es)	Starter Toolbox
VL version used for simulations	7.4.0.49
category	Feature Use Case
further reading	- How to Work with the Programmable Interface & Example (Spherical Surface) - Programming a Sinusoidal Surface - Programming an Anamorphic Surface