

Modeling of a Metalens Singlet Based on Half-Wave Plate Model

Abstract



Well designed rectangular nanofin structures, with proper geometry and material, can be used to modulate the phase of the transmitted field. By rotating the orientation of each nanofin, the phase modulation changes accordingly. Based on this principle, one can assemble a complete metalens using nanofins with spatially varying orientations. Such a metalens is sensitive to the polarization of the input field and in this example, we demonstrate the polarization behavior.

Modeling Task



Simulation Results on Whole Detector Plane



Focal Area Analysis



Focal Area Analysis



Peek into VirtualLab Fusion

polarization definition via pre-defined or customized Jones vectors

Edit Plane Wave				×
Basic Parameters Polarization Mode	Spectral Para Selection	meters Sampling	Spatial Parameters Ray Selection	
Global Polarization Polarization Input	0	Local Polariz	zation	
Type of Polarization	Circularly Pola	rized	\sim	
Direction of Rotation	Linearly Polari Circularly Pola Elliptically Pola General Input	zed rized arized via Jones Vec	tor	
Normalized Jones Vector				
$\begin{pmatrix} J_X \\ J_Y \end{pmatrix} = \begin{pmatrix} I \\ I \end{pmatrix}$			0.70711 i0.70711	
			7	



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further reading	