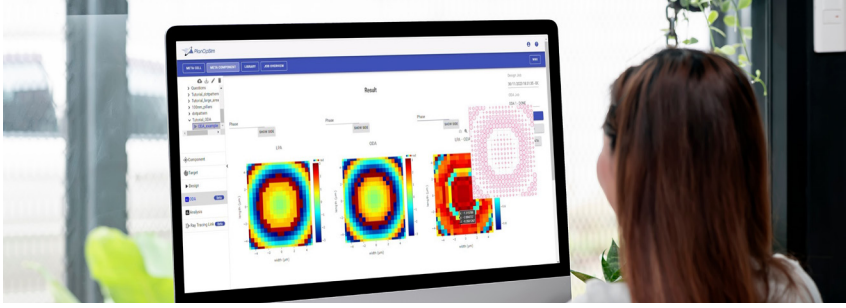
PlanOpSim

MetaComponent™



Design and analyse complete metaoptical components

MetaComponent™ is the component-level design module in the PlanOpSim™ Metaoptics Design Software Suite. It combines libraries of meta-atoms into functional metaoptical components by matching their optical response to a target wavefront. Design lenses, beam shapers, gratings and other metaoptical elements, then simulate their near- and far-field performance and generate fabrication-ready layouts.

Key capabilities

- Design complete metaoptical components from meta-atom libraries
- Use predefined optical functions or create custom far-field wavefronts using IFTA, or multi-target or dispersion-engineered optimisations
- Access foundry-ready structures with built-in Process Design Kits (PDKs)
- Feasibility/Sanity check your optical component design using ideal meta-atoms
- "Split-area ASM" enables modelling of bigger metaoptics without requiring design symmetry
- Evaluate focal spots, PSF, MTF and focusing efficiency
- Choose between multiple simulation methods to balance speed and accuracy (LPA, LFA, ODA)
- Generate fabrication-ready GDS and OASIS layouts
- Interface with ray-tracing software and external design tools (Ansys Zemax OpticStudio, Lambda Research Corporation TracePro)

Typical applications

MetaComponent supports the design of metalenses, beam shapers, gratings, structured-light elements, polarisation optics, diffractive optical elements and other freeform metaoptics. Multiple optical functions can be combined within a single component, including focusing, beam shaping, polarisation control and wavelength-dependent functionality.

PlanOpSim Metaoptics Design Software Suite

Software modules for all levels of metaoptics design: nanostructure to optical system.

MetaCell™ - design meta-atoms (nanostructure level)
Design and model the individual optical nanostructures and determine their optical response.

MetaComponent™ - design metaoptical elements (component level)
Design and model complete metaoptical elements, connecting meta-atom behaviour to the performance of the full metasurface.

MetaStack™ - design interacting metaoptical elements (system level)
Combine multiple metaoptical surfaces and model their interaction to design complete cascaded metaoptical systems.

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