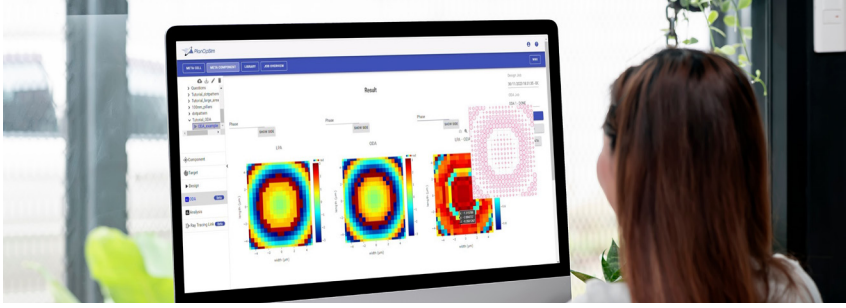
PlanOpSim

MetaStack™



Multi-surface metaoptics modelling and design

MetaStack™ is the system-level design module in the PlanOpSim™ Metaoptics Software Suite, used for modelling and designing optical systems containing multiple metaoptical surfaces in cascade. It enables designers to account for the interaction and optical propagation between successive metasurfaces within a single workflow.

Today's multi-metaoptics design methods are proven by measurements to be inaccurate, leading to poor MTF and unexpected stray light, leaving designers to rely on experimentation which is expensive and slow. Designers use one design software tool to create individual metaoptical surfaces, and a ray-tracer to model the performance of multiple metaoptical surfaces in cascade, but ray-tracers are not designed to model the interactions between metaoptical surfaces.

The PlanOpSim™ Metaoptics Design Software Suite including MetaStack™ accurately models the interactions between metaoptical surfaces: phase sampling, unwanted diffraction, zero and higher order diffraction, and light scattering, down to the nanostructure of the meta-atoms.

Key capabilities

- Model interaction between multiple metaoptical surfaces down to the nanostructure / meta-atom level
- Explore complex designs that cannot be achieved with a single metasurface
- Cloud-based computation for demanding multi-scale simulations (on-premises licences also available)

Typical applications

MetaStack enables the exploration and optimisation of multi-surface metaoptical architectures, including compound metaoptics, stacked metasurfaces, multi-element imaging systems and other systems in which the optical response of one metasurface influences subsequent surfaces.

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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