PlanOpSim

Looking ahead to 2026

For metasurfaces to reach their full potential, design tools need to improve in three main areas:

- **Faster and more accurate design of larger area metasurfaces:** As one of our customers put it recently: "the dream is to get rid of the local periodic approximation altogether". PlanOpSim released LFA in 2025, and we are now validating a method that can **simulate billions of metaatoms in minutes** while maintaining the accuracy customers need.
- **Integration into ever more complex optical systems:** Designers need tools to exploit the unique effects of metasurfaces during the system design, as well as to **mitigate** drawbacks like **higher order diffraction and chromatic effects**.
- **Translating metaatom fabrication into application performance:** Our goal is "Measured = Simulated." We are expanding our PDK partnerships to r**educe prototyping iterations** and **improve yields**.

As the main obstacles to metasurface design today, these are PlanOpSim's focus, and users can expect to see improvements in these areas in future releases.

CHECK OUT OUR LATEST RELEASES

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PlanOpSim

New features in 2025

We have delivered exceptional customer value through our unbroken cadence of 12 monthly releases **with new capabilities released every month**.

Here are our favorites from 2025:

- Interfacing with external ray-tracers was improved by:
  - the new **TracePro DLL**
  - an **upgraded API** enabling customers to quickly and easily
    - develop / outsource the development of **Zemax or CODE V DLLs**
    - interface to their in-house custom workflows
- **Accurately calculating large area meta-surfaces** remains a key challenge for the industry. This year we introduced local field approximation **(LFA) to provide fast analysis** on large areas that is **more accurate** than the widely used local periodic approximation.
- **Export and import** of GDS and other **masks files** was much expanded in MetaCell and MetaComponent. This makes it **much easier to exchange data between PlanOpSim and other programs**.
- **Calculation of far fields and optical performance** has a **series of new methods** expanding their speed, range and maximum sizes for including off-axis, and long propagation distances as well as reporting additional metrics like MTF.
- There is increased **flexibility in design methods** by the 'upload map feature' which **allows user to customize the meta-surface design.**
- Defining metacomponents has become much easier **with parameterized and predefined sample components** as well as import of PSRT targets from ray-tracing calculations. With idealized metaatoms the performance limits of components can be tested directly without long metaatom optimizations.