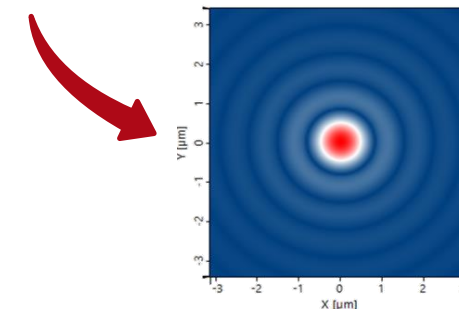
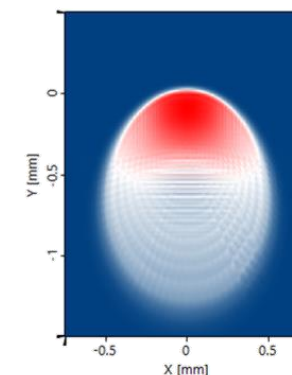
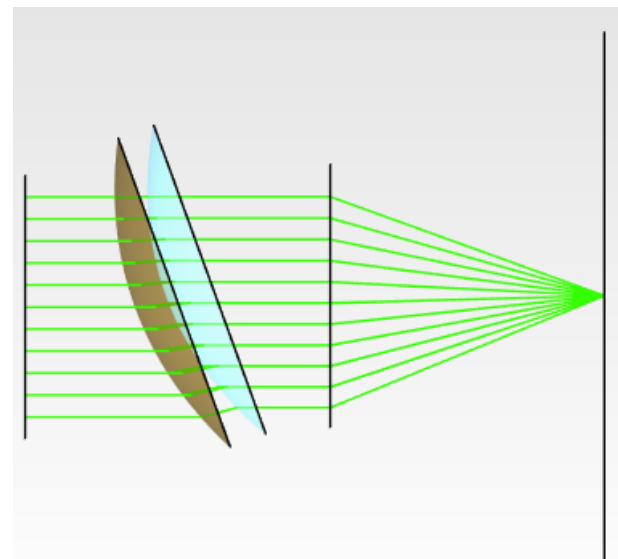


Wavefront Phase Correction On The Curved Surface Of A Rocket Window

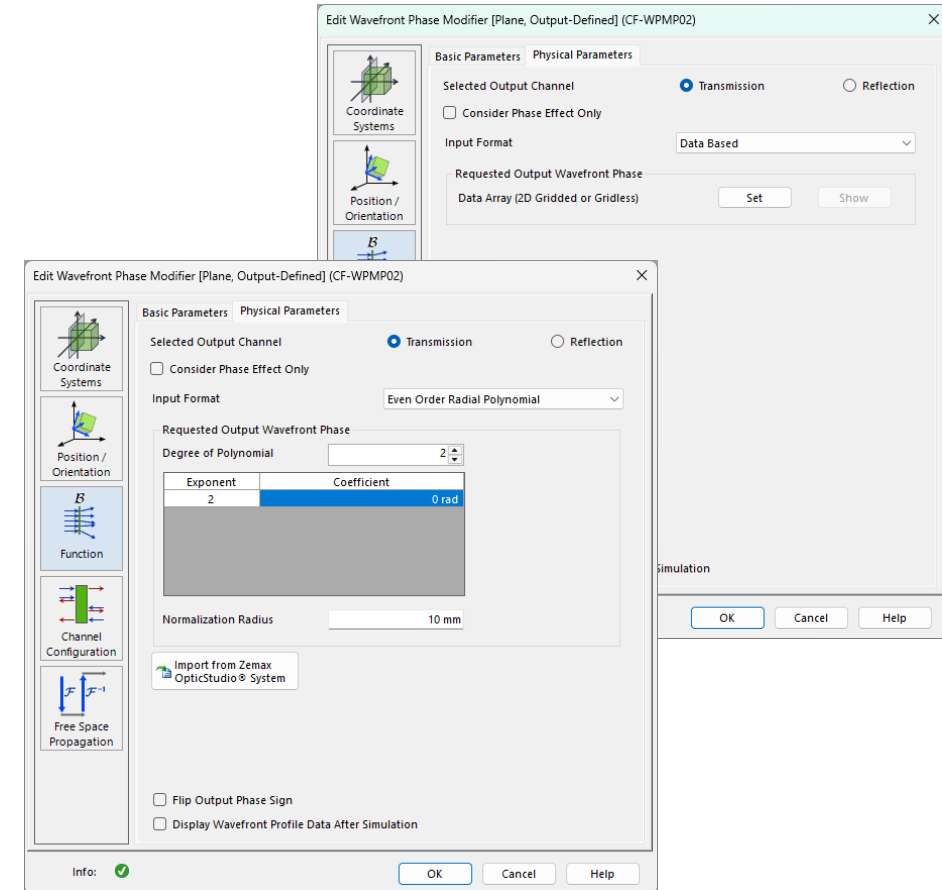
Document ID:	FD-WPM-ROCKET
Version:	1.1
Date:	August 21, 2026
Author:	LightTrans International GmbH
Version:	2026.2
Package:	Platform



What Can Wavefront Phase Modifiers Be Used For?

Wavefront Phase Modifier Twins

- **CF-WPMP01: Wavefront Phase Modifier [Plane, Profile-Defined]** — Applies a prescribed phase profile on a plane.
- **CF-WPMP02: Wavefront Phase Modifier [Plane, Output-Defined]** — Derives the phase correction on a plane from the desired output.
- **CF-WPMS01: Wavefront Phase Modifier [Surface, Profile-Defined]** — Applies a prescribed phase profile on a surface.
- **CF-WPMS02: Wavefront Phase Modifier [Surface, Output-Defined]** — Derives the phase correction on a surface from the desired output.



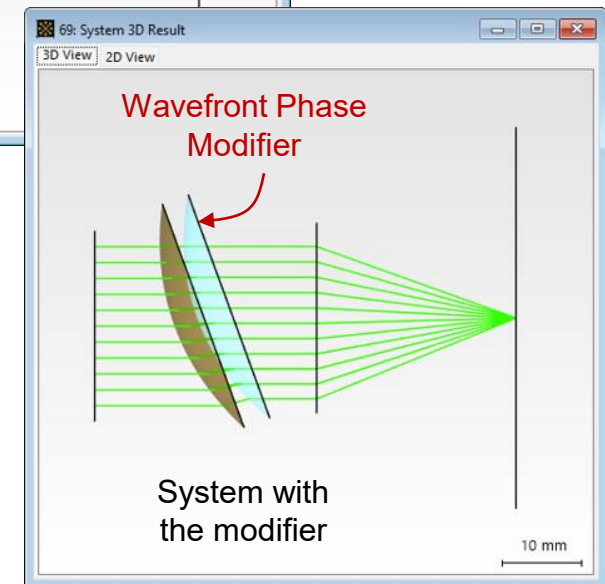
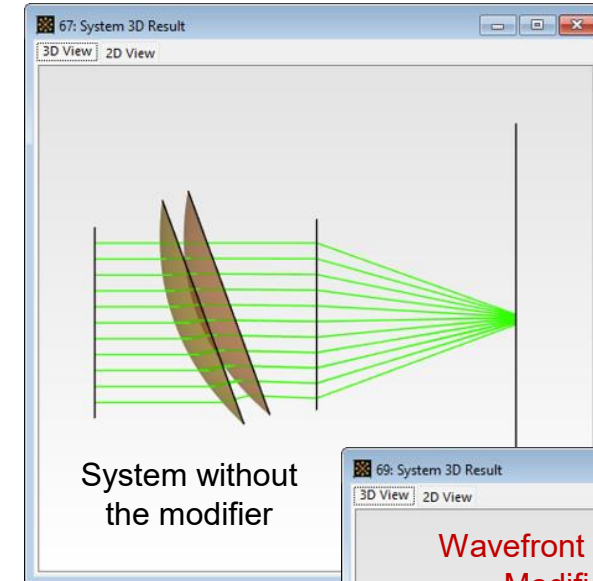
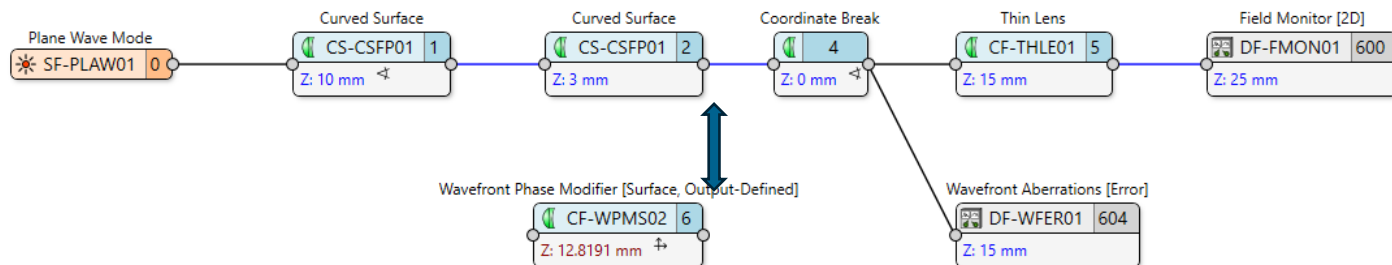
Configuring a Wavefront Phase Modifier Twin

* Find the specification sheets in the Documentation Ecosystem using the twin codes.

Example: Wavefront Phase Modifier [Surface, Output-Defined]

Demonstrated Optical Setup

Component	Specification
Source	Plane Wave, 532 nm, 20 mm waist radius
Aspherical Window	ROC: 30 mm, Thickness: 3 mm, Tilt: 20°
Medium	Fused Silica
Detector	EM-field & Wavefront

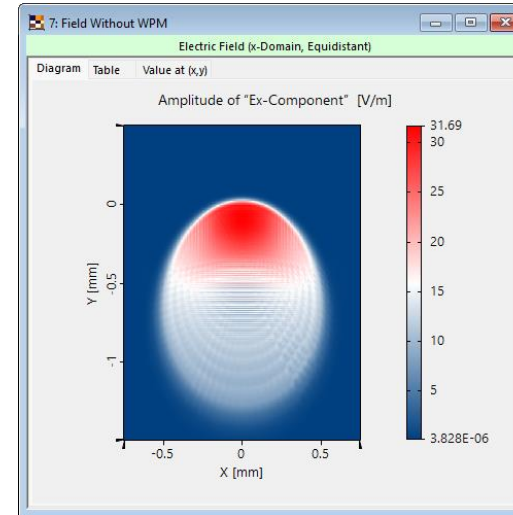


Results

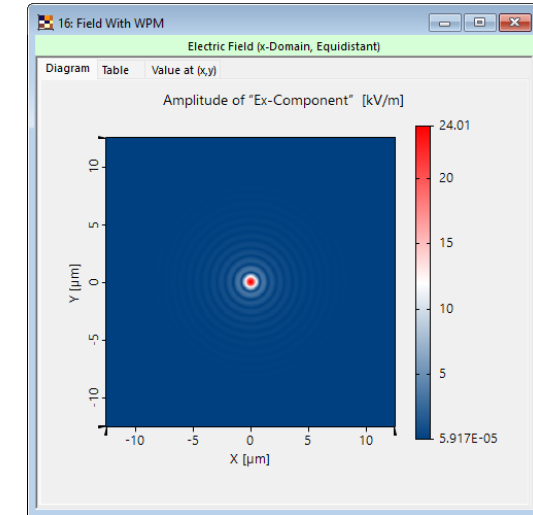
💡 Main Observation

- Without the modifier, the output beam has significant wavefront error relative to a planar phase, resulting in an aberrated and expanded focus.
- With correction, the beam is re-collimated and has a planar wavefront phase, resulting in an airy like focus.
- The extracted $\Delta\psi$ describes the required phase correction. It can then be implemented as an HOE or metasurface on the curved surface.

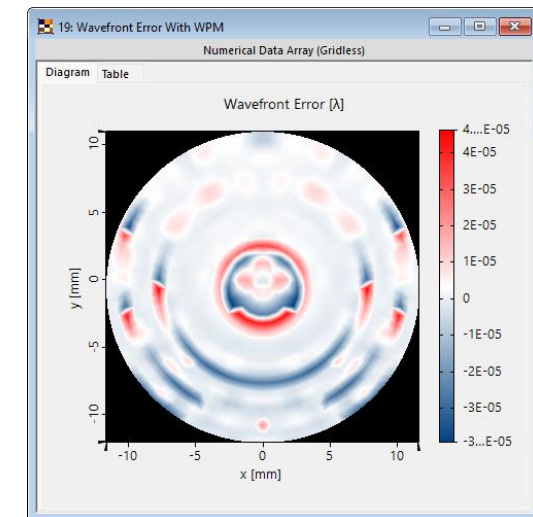
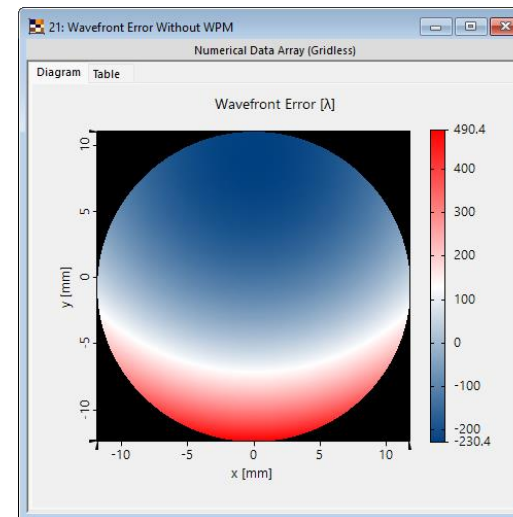
Without WPM



With WPM



Field Amplitude

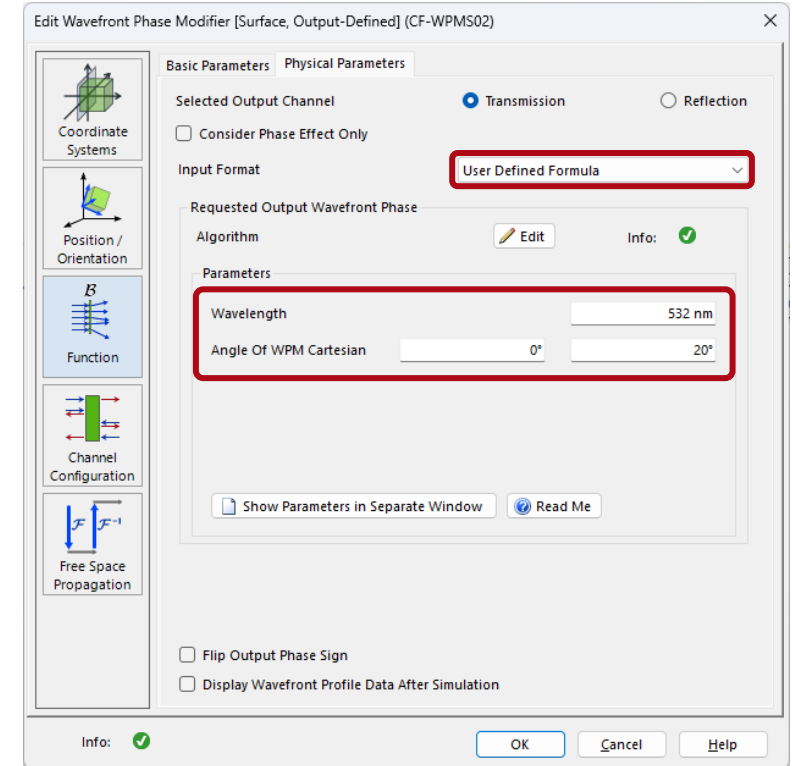


Wavefront Phase Error

Workflow

What the User Does

1. Open and run the optical system without the wavefront phase modifier.
2. Inspect the focal spot and the wavefront error introduced by the window.
3. Open the optical system with the wavefront phase modifier.
4. Observe the wavefront phase input format as Formula Defined, and the pre-selected default values for the system.
5. Run the system and inspect the now corrected focal spot and the wavefront error.



Related Documents

Use Cases and Feature Demos

- [Collimation with a Metalens Based on Nanopillars](#)
- [Aberration Control via Metalens](#)
- [Wavefront Modifier Twins \(Aberration Correction\)](#)
- [Transfer Wavefront Phase Profile to a Metalens](#)

Tutorials

- [Wavefront Phase Modifiers](#)

→ Suggested Next Steps

- Apply Wavefront Phase Modifier twins on planar surfaces.
- Transfer Wavefront Phase Profile to an HOE on a curved surface.