

WaveTune is an easy-to-use adaptive optics control software with an intuitive user-oriented interface. It is perfectly adapted to HASO™ sensors as well as a wide variety of active optics including ILAO Star™, Mirao™ and Spatial Light Modulator (SLM).

WaveTune controls active optics and HASO™ wavefront sensor in a feedback loop. It computes commands to be sent to the deformable element according to the measurement supplied by the wavefront analyzer. WaveTune is optimized for high-power laser applications.



WITH WAVETUNE, YOU CAN

- CONTROL HASO™ AND ACTIVE COMPONENTS BASED ON MEASUREMENTS
- MEASURE AND ANALYZE INFLUENCE MATRIX
- CORRECT THE WAVEFRONT IN OPEN-LOOP OR CLOSED-LOOP PROCESS
- INTEGRATE SECURITY CHECK FUNCTIONS WITH DIFFERENT CONFIGURATION OF SETTINGS
- MODIFY THE TARGET WAVEFRONT IN REAL-TIME USING ZERNIKE POLYNOMIALS
- CREATE SESSIONS TO CONTROL DIFFERENT OPTICAL SET-UPS WITH A SINGLE SOFTWARE
- CONNECT WITH WAVEVIEW TO EMPLOY ITS ADVANCED WAVEFRONT ANALYSIS FEATURES
- CONTROL A FULL-PUPIL WAVEFRONT EVEN WITH RANDOM OBSTRUCTIONS

WAVEFRONT CORRECTION

The screenshot displays the WaveTune interface with the following elements:

- WaveTune Logo:** Top left corner.
- Session Info:** Session: demo21122015, Wavelength (nm): 655, AO calibration: OK 1/27/2016 4:07 PM.
- Control Panel:**
 - AD:** Correction mode (Custom), Additional aberrations (None), Closed loop (off/on).
 - AD calib:** BEAM SHAPER, 3D POINTING.
- Continuous loop:** Amplitude (%) 12, Frequency (Hz) 5.0.
- BEFORE CORRECTION AT THE FOCAL PLANE:** A blurry, elongated spot image.
- Wavefront Map:** A 2D color-coded map of the wavefront error.
- RMS (um):** 0.030.
- AFTER CORRECTION AT THE FOCAL PLANE:** A sharp, circular spot image.
- Parameters:** Saturation (%) 100.0, Frequency (Hz) 11.8.

SOFTWARE OPTION

Pharao, a "Phase Retrieval" software

Diagnosis camera for correcting residual aberrations at the end of the laser chain

Focal spot optimization module for WaveTune software

PHARAO DIAGNOSIS

The image shows a comparison of two image sets:

- PRE-PROCESSED IMAGES:** Shows a blurry, elongated spot labeled "On focus", a blurry spot labeled "Defocus +", and a blurry spot labeled "Defocus -".
- RECONSTRUCTED IMAGES:** Shows a sharp, circular spot labeled "On focus", a sharp spot labeled "Defocus +", and a sharp spot labeled "Defocus -".