

Technical range of SHSLab systems (see product datasheets for detailed information)

Sensor area	Small ROIs for kHz speed, up to 36 × 24 mm ²
Lateral resolution	Up to 160 × 240 sample points on standard systems
Wavelength range	DUV, VIS, IR – optimization for broadband or single wavelength
Wavefront dynamics	Local radius of wavefront curvature down below 10 mm Measurement of large wavefront tilts above 10° without extra aperture stop
Camera	Gigabit Ethernet bus, others depending on application or customization External/internal trigger function (TTL/software trigger)
Advanced features	Pass/fail analysis, access restriction for simple user mode Auto functions for shutter time, spotfind, mask, ... Referencing for dark image, spot field, polynomial, ... Configurable reports, automatic saving of results
Data Access	Via TCP/IP or DLL for remote control and automation Import and export of spot positions (e.g. for stitching) CodeV® INT-file export

Application range

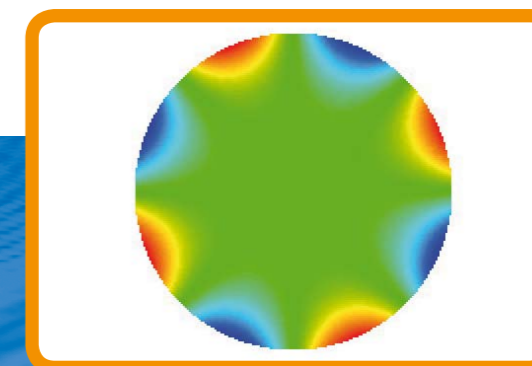
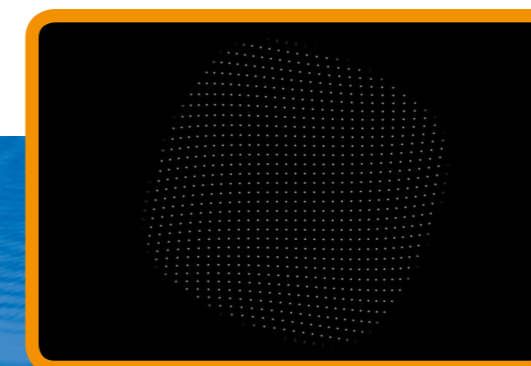
Optical function testing	Wavefront, PSF, MTF, Strehl, Zernike analysis (ISO, Born & Wolf, ...) Focal length, centering, ... Sphere, cylinder, prism, axis, power map
Laser beam diagnostics	Beam quality M ² , relative intensity, pointing
Surface shape testing	ROC, shape deviation, thickness

SHSLab

High performance wavefront sensor system



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SHSLab

High performance wavefront sensor system

SHSLab = SHSCam + SHSWorks

The SHSLab Shack-Hartmann wavefront sensor system is a flexible metrology tool for

- Testing optics and aligning system
- Characterizing lasers
- Adaptive optics applications

SHSLab delivers fast and accurate wavefront measurements and features several unique properties based on finest hardware components and thorough software engineering. Its sensor head SHSCam provides the technical basis for highest dynamics and accuracy. The comprehensive software SHSWorks directly covers all standard evaluations and is nevertheless highly customizable.



Optics performance testing

SHSLab allows for reproducible measurements of a large range of optical elements. This also works with atypical light sources. Test setups using SHSLab can be widely adapted for

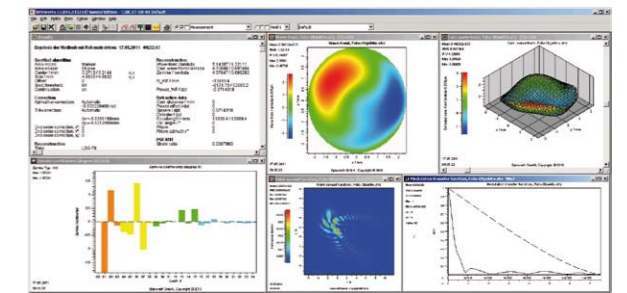
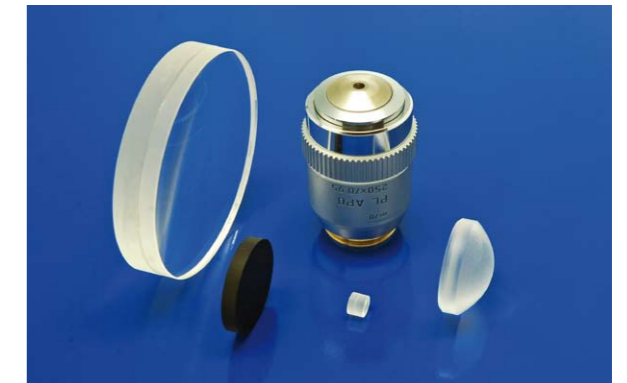
- Micro to macro optics
- Various optical quantities
- Multi color behavior

The software SHSWorks directly outputs

- Wavefront, relative intensity
- PSF, MFT, Stehl
- Zernike decomposition

with high evaluation speed also in live-mode during alignment. Using motorization and dimensional measurement, other derived optical quantities are obtained:

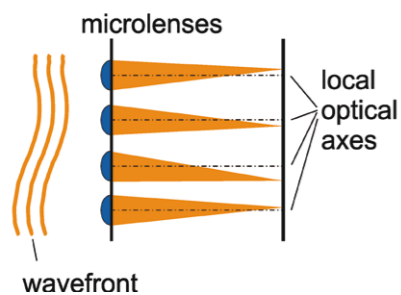
- Focal length
- Centering
- Field curvature



Application benefits

The principle of SHSLab comprises advantages useful for a wide range of applications:

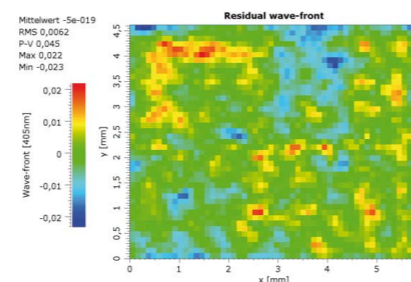
- Inherent stability by single-shot
- Broad spectral range from UV to IR
- Automation-ready by high speed



Unique system features

Optocraft's SHSLab technology provides outstanding Shack-Hartmann wavefront sensor with:

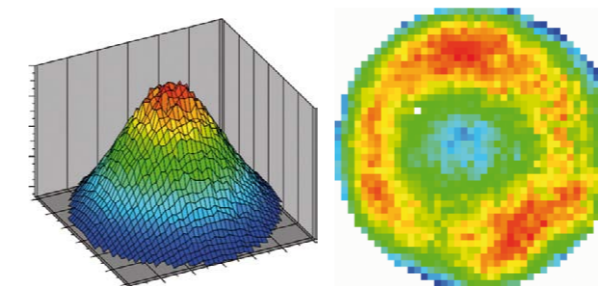
- Highest dynamics for wavefront curvature
- Direct measurement of large tilts
- Excellent accuracy and repeatability



Testing lasers, aligning systems

The single shot measurement of a laser beam or system provides

- Phase information and intensity profile
- M² and diameter (ISO 11146) for coherent beam
- Beam quality of laser system



Surface Testing

High speed, stability and dynamic range of the measurement process qualifies SHSLab for

- Automated surface measurement
- Non-null test of aspheres
- Thermally difficult conditions

