

Active and Adaptive Optics

A full active optics solution for wavefront correction

APPLICATIONS

Aberrations

Focus Point

Beam Shaping

PRINCIPLE

Active Loop

HASO

Deformable Mirror

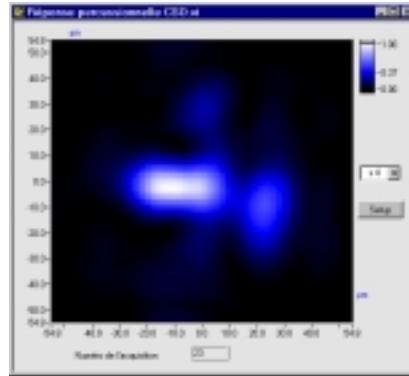
Software

ADVANTAGES

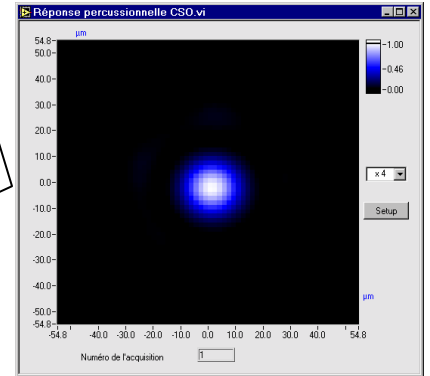
Compactness

Performances

PC Control



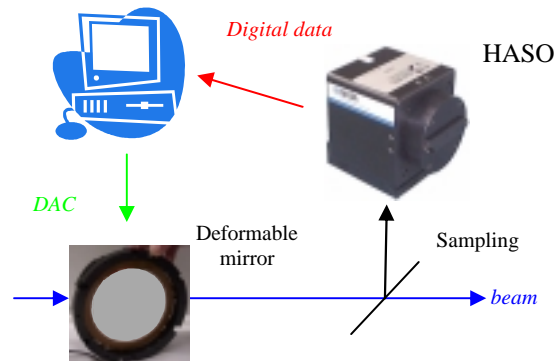
Focus Point before ...



... and after optimisation by active loop

➤ Principle :

On-line analyse of the beam wavefront and software controls of the mirror deformations in order to compensate aberrations and so to tend towards the user-defined wavefront settings.



➤ Applications :

➤ Wafefront correction

- Aberrations, non linear effects
- Thermic effects, mechanical structures restraints, ...
- Atmospheric perturbations, till $f=100$ Hz

➤ Beam shaping

- Industrial lasers,
- Biophotonics,
- PSF customisation

➤ Resolution increase

- High resolution imaging,
- PSF optimisation

➤ $\lambda/200$ rms accuracy on the corrected wavefront

➤ Working frequency till 1 kHz with a PC

➤ High dynamic on the measurement

➤ Dimensions

Integration in a 50 x 80 cm bench.

SPECIFICATIONS

HASO

The active loop from Imagine Optic can be realised with several versions of HASO, depending on the resolution / rapidity ratio needed. HASO II specifications are detailed on a specific data sheet, as HASO OEM ones are too. Actually HASO OEM can be integrated in this kind of active loop.

MIRRORS AND DRIVERS

Manufacturer	Mirror			Windows Drivers
	Name	Actuators	Useful Diameter	
CILAS	BIM 31	31	55 mm	Available
	BIM 36	36	62 mm	Available
	BIM 60	60	60 mm	Available
	SAM 48			Available
IPLIT		19	40 mm	Available
XINETICS		37	50 mm	Available

Any other driver can be developed on request (Hamamatsu, OKO, ...).

LOOP

HASO Version	Standard configuration (Windows interface)	Fast loop (DOS interface)
HASO 64	2 Hz *	20 - 40 Hz *
HASO 32	7 Hz *	77 Hz *
HASO 16	10 Hz *	900 Hz *

*PC dependant

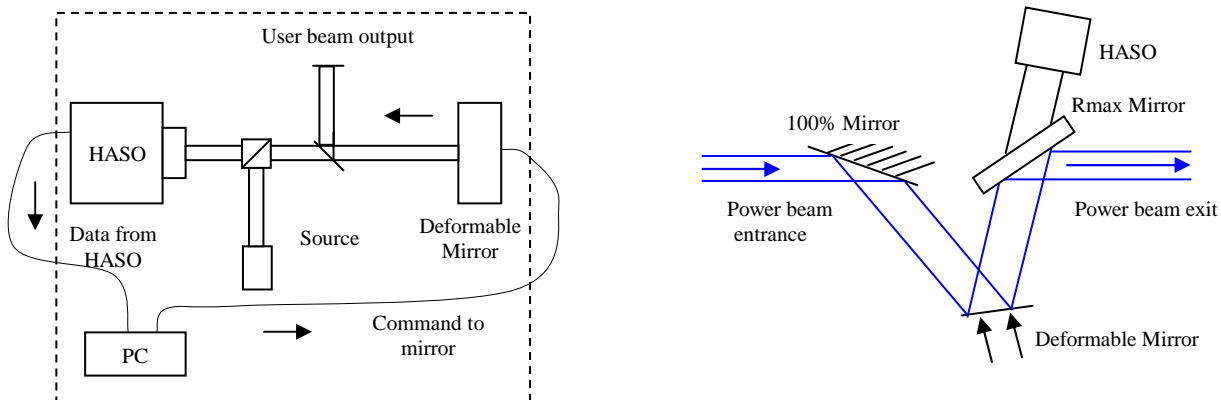


The wavefront correction accuracy reaches $\lambda/200$ rms.

REMIND

A $\lambda/10$ rms perturbation on the wavefront decreases the maximum energy at the focal point by 3 and a $\lambda/2$ rms one by 600, so the active loop advantage is obvious !

Examples of close loop settings :



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