

Deformable mirror with embedded tip/tilt stage

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Partnership:

Officina Stellare spa Italian space factory

and

Stefano Bonora

Expert in adaptive optics and its applications.

Dynamic Optics started in June 2017, it is a spin off of CNR-IFN research activity.

www.dynamic-optics.eu

Location: Padua, Italy







Our technologies



Flexible glass membranes

Adaptive Lenses



Deformable mirrors





Applications:

- Microscopy
- Ophthalmic imaging
- Vision science

Adaptive lens



Adaptive Lenses

AO off





Zebra Fish brain with light sheet microscope (credit: CNR of Padova and Politecnico of Milan).





Perseus cluster. Omicron telescope 1m, Plateu de Calern. 120sec exposure time



Deformable mirrors:



Converse piezoelectric effect PZT radially expands and bends the glass substrate.

IDEAL FOR:

High power laser control, Ideal for femto, pico, CW lasers Laser beam shaping, Astronomy Free space optical comm





What's new: Embedded tip/tilt stage





Compact additional integrated Tip tilt stage Resp. Time: ms



What's new: Embedded tip/tilt stage



Compact additional integrated Tip tilt stage





Laser beam shaping





Examples of laser marking with elliptical spot with Deformable Mirror

40W, 1030nm, fs laser beam





0 0











Conclusions:

Technical specifications:

- High stroke stroke >20um
- Damage Threshold > 20J/cm² (ns), > 5J/cm² (fs)
- Broad bandwidth and Low GDD (fs)
- Actuators 32 144
- DM response time: about 1ms
- Vacuum compatible (10⁻⁴mbar)
- Embedded tip/tilt stage: +/-20mrad adjustment

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