



Adaptive optics: to sharpen the telescopes view

WITHOUT A.O.



Sharpening the view of the world's largest telescopes

The atmospheric turbulence is a "mortal enemy" of Astronomy because it degrades and makes blurred the images acquired by any ground based telescope

In order to get through this problem, researchers developed adaptive optics techniques

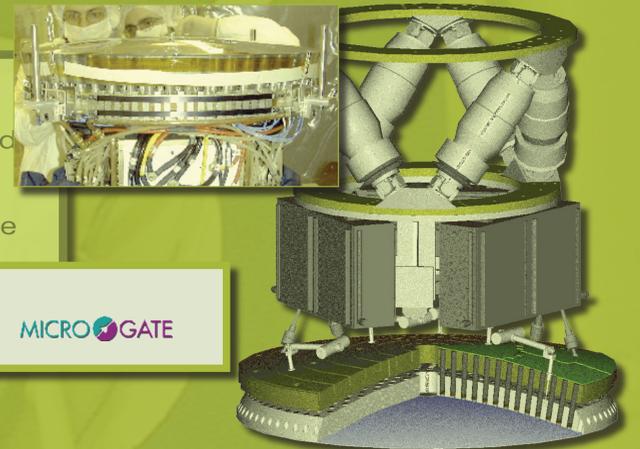
The sophisticated sensing systems is able to "understand" how much the atmospheric turbulence is going to distort the true image. The information got by the sensors is elaborated on the fly by control systems that steer deformable mirrors. These take the image back to its original sharpness, modifying its form in a equal and opposite way as regards the defects of the image.

Like through a quiet and restless atmosphere

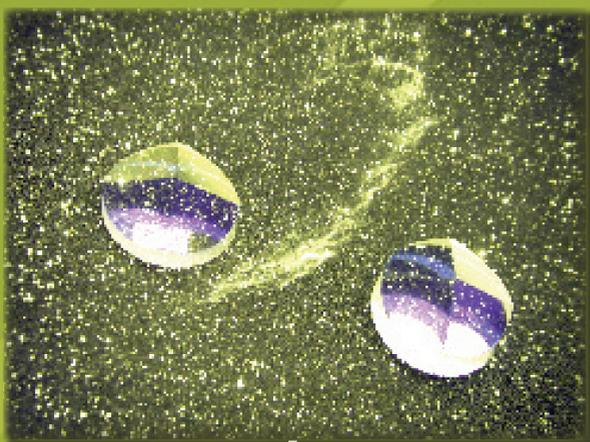
Secondary adaptive mirrors

The INAF-Arcetri Observatory researchers are the first ones who planned, manufactured and integrated the secondary adaptive mirrors: nobody had never produced them before.

The first secondary adaptive mirror has been installed in 2002 in the Multiple Mirror Telescope (Mt. Hopkins, Arizona)



Our partners:



Pyramidal Wave-Front Sensing

The idea of employing pyramidal optic elements for the Wave-Front Sensing is due to the Italian astrophysical research.

The corresponding technology is so good that it has set up two ambitious international projects to which Italy takes part too

Our partners:



Multi-conjugate
Layer-oriented
adaptive
optics



Adaptive optics for LBT
"first light"

Our partners: TOMELLERI

... AND WITH A.O.!



LBT: the Large Binocular Telescope

