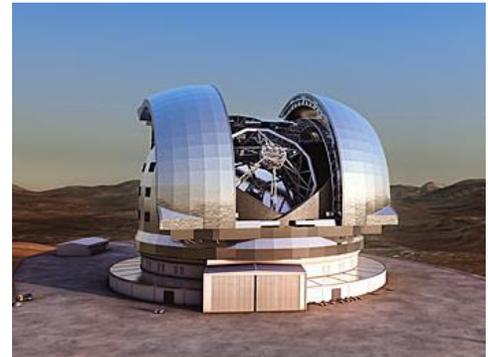


## Observatoire de Paris and ALPAO sign a major contract to supply a state-of-the-art high order deformable mirror

Paris & Grenoble (France) – March 23<sup>th</sup>, 2017 – ALPAO will supply a state-of-the-art high order deformable mirror to Observatoire de Paris. This mirror will have more than 3000 actuators that could move at a rate higher than 1000 times per second. This procurement is done in the scope of the instrumentation of the European Extremely Large Telescope (E-ELT), the largest telescope in the world with its 39m diameter primary mirror.

Observatoire de Paris is a world-leading institute in instrumentation, in particular in ground-based and high angular resolution instrumentation. Hence, LESIA and GEPI, the two laboratories involved in this project, have lead or have been major contributors to several instruments for the Very Large Telescope of the European Southern Observatory, such as FLAMES, NAOS, MIDI, SPHERE, and Gravity.

LESIA and GEPI are now involved in the instrumentation of the coming E-ELT. LESIA is leading the French contribution to MICADO (1), the E-ELT first light imager, and GEPI is the PI institute of MOSAIC (2), the E-ELT multi-object spectrograph.



*Artist view of the E-ELT,  
first light planned for 2024*

The contract signed between ALPAO and Observatoire de Paris aims at procuring to LESIA and GEPI a state-of-the-art deformable mirror, enabling Observatoire de Paris to strengthen its expertise in high angular resolution instrumentation and providing Observatoire de Paris with an essential equipment for the MOSAIC and MICADO projects.

This procurement has been made possible thanks to the support of the Region Ile de France and its program DIM ACAV as well as the support of the CNRS National Institute of Earth Sciences and Astronomy (INSU).

“This high order deformable mirror is a crucial equipment for us since it will bring us important information for the choice of the deformable mirrors for MOSAIC and it will allow us to validate, in France, the performance of the first-light adaptive optics of MICADO”, said Yann Clénet, Researcher at LESIA - Observatoire de Paris

“ALPAO deformable mirrors, thanks to its large deformation and high optical quality, are already in lead position in medical applications (ophthalmology and microcopy). With this new contract, we are delighted to consolidate ALPAO leadership for astronomical applications. We are also proud to cooperate and supply with a renowned historical observatory” said Vincent Hardy, General Manager of ALPAO.

- (1) The first-light imager MICADO, or the Multi-Adaptive Optics Imaging Camera for Deep Observations, is one of the two first-light instruments for the European Extremely Large Telescope. Taking the Adaptive Optics technique to the next level, it will be the first dedicated imaging camera for the E-ELT. The instrument will work with a multi-conjugate laser guide star adaptive optics system (MCAO, developed by the MAORY consortium) as well as a single-conjugate natural guide star adaptive optics system (SCAO, developed jointly by the MICADO and MAORY consortia under MICADO's responsibility). LESIA, in collaboration with GEPI, is responsible for the development of this single conjugate adaptive optics (SCAO) mode of the instrument, as well as the high contrast imaging mode of the instrument.

- (2) The multi-object spectrograph (MOSAIC) will be the workhorse instrument for the E-ELT. MOSAIC will be the world-leading MOS facility, contributing to all fields of contemporary astronomy, from extra-solar planets, to the study of the halo of the Milky Way and its satellites, and from resolved stellar populations in nearby galaxies out to observations of the earliest 'first-light' structures in the Universe. GEPI is the principal investigator institute leading the development of the instrument and LESIA is responsible for the development of its AO system.

**About Observatoire de Paris**

Founded in 1667, Observatoire de Paris is the largest national research center for astronomy. 30 % of all French astronomers are working in its five laboratories and its institute. Situated on the Paris, Meudon and Nançay campuses, they are all Joint Research Units associated with the CNRS and, in many cases, with the major scientific universities in the Paris area. The work of Observatoire de Paris is also carried out in two major scientific services. Observatoire de Paris is an academic centre (*Grand établissement*) under the aegis of the French Ministry of Higher Education and Research.

**For more information:** [www.obspm.fr](http://www.obspm.fr)

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**About ALPAO**

ALPAO designs and manufactures a complete range of adaptive optics products for use in research and industry from 2005. ALPAO provides deformable mirrors, wavefront sensors and software. With a background in astronomy, ALPAO's products are tailor-made for various applications, such as ophthalmology, microscopy, astronomy, wireless optical communications and laser applications.

Thanks to breakthrough technologies, ALPAO has introduced several products over the years, such as its first deformable mirror (DM) in 2006, its own wavefront sensor for closed loop operations in 2007, a new technology DM in 2008, new drive electronics in 2009, the DM97-08 dedicated to vision science application in 2013 and the DM468 and DM820 for astronomy application in 2015.

With more than 10 years of experience in adaptive optics, ALPAO's deformable mirrors allow large stroke, fast deformation, high resolution images and very good optical quality.

ALPAO is an international company with customers on four continents in over 20 countries. More than 90 percent of its turnover comes from exports.

**For more information:** [www.alpao.com](http://www.alpao.com)

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