

Next generation Wide Field Adaptive Optics correction systems for ESO telescopes

Tuesday 4 June 2024 16:35 (20 minutes)

INAF is playing a major role in the next generation wide field Adaptive Optics systems for ESO telescopes. This includes, in particular, two instruments, dedicated to wavefront compensation: MAVIS, for the VLT UT4, and MORFEO, for the ELT. The two systems face different challenges: short wavelength on one side and huge size on the other.

MAVIS will be part of the next generation of VLT instrumentation and it will include a visible imager and a spectrograph, both fed by a common MCAO module (AOM), whose challenge is to provide a 30" AO-corrected FoV in the visible domain, with a 50% sky coverage at the Galactic Pole. The current AOM scheme includes the use of 8 LGSs + 3 NGSs, to drive more than 5000 actuators, divided into 3 deformable mirrors (one of them being UT4 secondary mirror).

MORFEO will be the first generation MCAO system for the ELT, feeding the MICADO infrared camera. The instrument will provide spatially uniform AO compensation over a 1 arcmin² FoV with with a Strehl Ratio greater than 35% at 2.2 microns with 50% of sky coverage. Wavefront sensing is performed using 6 LGSs + 3 NGSs and the wavefront compensation is performed by two adaptive post focal DMs, which work together with the telescope's adaptive and tip-tilt mirrors M4 and M5.

I'll introduce the main expected performance of the systems and present the current status of the projects on behalf of the two big teams working on them, especially focusing on OAPD involvement.

sessioni congresso

Tecnologie avanzate e strumentazione

Primary author: VIOTTO, Valentina (Istituto Nazionale di Astrofisica (INAF))

Co-authors: BERGOMI, Maria (Istituto Nazionale di Astrofisica (INAF)); BUSONI, Lorenzo (Istituto Nazionale di Astrofisica (INAF)); Dr CILIEGI, Paolo (Istituto Nazionale di Astrofisica (INAF)); FARINATO, Jacopo (Istituto Nazionale di Astrofisica (INAF)); MAGRIN, Demetrio (Istituto Nazionale di Astrofisica (INAF)); PINNA, Enrico (Istituto Nazionale di Astrofisica (INAF)); Dr RIVA, Marco (Istituto Nazionale di Astrofisica (INAF))

Presenter: VIOTTO, Valentina (Istituto Nazionale di Astrofisica (INAF))

Session Classification: Tecnologie Avanzate e Strumentazione