



Contribution ID: 103

Type: **not specified**

Stelle guida da satellite: nuove frontiere per l'Ottica Adattiva con la missione ORCAS

Thursday 5 June 2025 10:10 (20 minutes)

“While significant progress has been made in compensating for atmospheric turbulence through adaptive optics systems at large ground-based telescopes, several key limitations still need to be addressed. Recent advancements and new concepts in Laser Guide Star wavefront sensing will significantly reduce the sky coverage problem, however, fully exploiting the potential of 8-10 meter class telescopes and the upcoming ELTs remains a major challenge. The use of the Satellite Guide Stars, first proposed in the 1990s, now presents a viable solution for fully realizing the capabilities of adaptive optics systems with the technologies that are already available. The NASA ORCAS mission aims to deliver the first SGS at Mag 0 brightness, designed to assist ground-based telescopes by enabling diffraction-limited observations from the far Infrared to the visible wavelengths and offering extraordinary performance everywhere in the sky. This approach will unlock transformative science across a range of astrophysical fields such as Active Galactic Nuclei, Dark Matter, Flux Calibration, High Redshift Universe, Exoplanets, and Solar System, utilizing existing instrumentation and enhancing the scientific output of future ground-based facilities. In this paper, we present an overview of the ORCAS mission, its technical objectives, and the INAF involvement with the potential implication for future collaboration with the Large Binocular Telescope, the Keck telescopes and the ELT.”

sessioni congresso

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Session Classification: Osservazioni da terra in ottico e infrarosso, presente e futuro: da VLT a ELT (chair: M. Dolci)