Guido Agapito

Sex	male
Date of birth	1982.12.06
Nationality	Italy
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Affiliation	INAF (National Institute for Astrophysics) - Arcetri Observatory, Italy

Work Experience

INAF - Arcetri Observatory, Largo E. Fermi 5, 50125 Firenze (Italy)

2024.01 – now	Senior research scientist
2018.12-2023.12	Research scientist
2007.06-2018.11	Engineer

Education

2005.09-2008.04	Master's Degree in Automation Engineering at Università degli studi di Firenze
2001.09-2005.07	Degree in Mechanical Engineering at Università degli studi di Firenze

Research Projects

- **Large Binocular Telescope (LBT)**
  - Single conjugate adaptive Optics Upgrade for LBT (**SOUL**) (2014 - 2023)
    upgrade of First Light Adaptive Optics (FLAO)
    - detector selection (**work package leader**) and characterization
    - numerical simulations and data analysis
    - temporal control design
    - laboratory and commissioning activity
- **Very Large Telescope (VLT)**
  - Enhanced Resolution Imaging Spectrograph (**ERIS**) (2012 – 2023)
    adaptive optics system for VLT
    - numerical simulations and data analysis
    - temporal control design (**work package leader**)
    - laboratory and commissioning activity
  - MCAO-Assisted Visible Imager and Spectrograph (**MAVIS**)
    adaptive optics system for VLTs
    - numerical simulations
    - temporal control design (**work package leader**)
- **Extremely Large Telescope (ELT)**
  - Multiconjugate Adaptive Optics Relay for ELT Observations (**MORFEO**, formerly known as MAORY)
    adaptive optics system for ELT
    - numerical simulations (**work package leader**)
    - temporal control design
  - ArmazoNes High Dispersion Echelle Spectrograph (**ANDES**, formerly known as

HIRES)
adaptive optics system for ELT
- numerical simulations

- **CaNaPy**
  ESO's uplink-corrected sodium laser launch system (2021 – 2023)
- **Advanced Laser Guide Star Adaptive Optics for Satellite Communication Assessments (ALASCA)**
  satellite communication system with adaptive optics correction for ESA (2022 – 2023)
- **Consortium for Adaptive Space Tracking of Objects 'Round the Earth (CASTORE)**
  (2024 – now)

Grants

Machine Learning for Adaptive Optics (**ML4AO**): INAF data analysis grant on machine learning techniques applied to adaptive optics for astronomy (from 2023). **Principal Investigator**.

Selected Publications

(h-index 22, Documents 175 – Scopus)

- D. Liu et al., "Detailed study of a rare hyperluminous rotating disk in an Einstein ring 10 billion years ago", Nature Astronomy (September 2024). 10.1038/s41550-024-02296-7
- G. Agapito et al. "Non-modulated pyramid wavefront sensor - Use in sensing and correcting atmospheric turbulence" Astronomy & Astrophysics, Volume 677, id. A168, 11 pp. (September 2023). 10.1051/0004-6361/202346359
- R. Davies et al. "The Enhanced Resolution Imager and Spectrograph for the VLT" Astronomy & Astrophysics, Volume 674, id.A207, 19 pp. (June 2023). 10.1051/0004-6361/202346559
- E. Pinna et al. "SOUL at LBT: commissioning results, science and future" Adaptive Optics for Extremely Large Telescopes (AO4ELT7), 7th Edition, held 25-30 June 2023, Avignon, France. Online at https://hal.science/AO4ELT7/, id.80 (June 2023). 10.13009/AO4ELT7-2023-082
- L. Busoni et al. "MORFEO enters final design phase" Adaptive Optics for Extremely Large Telescopes (AO4ELT7), 7th Edition, held 25-30 June 2023, Avignon, France. Online at https://hal.science/AO4ELT7/, id.129 (June 2023). 10.13009/AO4ELT7-2023-046
- T. Fusco, G. Agapito et al. "Key wavefront sensors features for laser-assisted tomographic adaptive optics systems on the Extremely Large Telescope" J. Astron. Telesc. Instrum. Syst. 8(2), 021514 (2022). 10.1117/1.JATIS.8.2.021514
- G. Agapito et al. "Rolling shutter induced aberrations in laser guide star wavefront sensing" J. Astron. Telesc. Instrum. Syst. 8(2), 021505 (2022). 10.1117/1.JATIS.8.2.021505
- F. Rigaut et al. "MAVIS on the VLT: A Powerful, Synergistic ELT Complement in the Visible" The Messenger, vol. 185, p. 7-11 (December 2021). 10.18727/0722-6691/5245
- G. Agapito et al., "Advances in control of a pyramid single conjugate adaptive optics

system", Monthly Notices of the Royal Astronomical Society, Volume 508, Issue 2, December 2021, Pages 1745–1755
10.1093/mnras/stab2665
- S. Esposito et al., "On-sky correction of non-common path aberration with the pyramid wavefront sensor", Astronomy & Astrophysics 636, A88 (2020)
10.1051/0004-6361/201937033

Language

- English
- Italian