

# MONTHLY NEWSLETTER



## INAF Osservatorio Astrofisico di Arcetri

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### HIGHLIGHTS

On October 27th, the Astrophysical Observatory of Arcetri has celebrated its first 150 years from the second inauguration. In the framework of the celebration "[150 years of research at the Observatory of Arcetri](#)", we have set two institutional events and a large program of public activities.

The series of articles "[150 years ago - the stages of the foundation of the Observatory of Arcetri](#)" (in Italian), written by Simone Bianchi, collects together the most significant stages of the path that led to the realization of the Observatory, 150 years ago. The articles have been published in chronological order, exactly 150 from the date of each event.



October 27th, 1872, Firenze. Credits: Archivio INAF-Osservatorio Astronomico di Monte Porzio.

## REFEREED PUBLICATIONS

L. Magrini, C. Viscasillas Vazquez, L. Spina, S. Randich, D. Romano, E. Franciosini, A. Recio-Blanco, T. Nordlander, V. D'Orazi, M. Baratella, R. Smiljanic, M.L.L. Dantas, L. Pasquini, E. Spitoni, G. Casali, M. Van der Swaelmen, T. Bensby, E. Stonkute, S. Feltzing, G.G. Sacco, A. Bragaglia, E. Pancino, [...], L. Morbidelli

**The Gaia-ESO survey: mapping the shape and evolution of the radial abundance gradients with open clusters**

Astronomy & Astrophysics, in press

<https://arxiv.org/abs/2210.15525?fbclid=IwAR1bxXoEGeEaTZouaDI1W2oE6fh0i9FeeWybCI1QmvXqgjCNfdKbranz5Vo>

L. Olmi, J. Brand, D. Elia

**Probing fragmentation with ALMA continuum and spectral line observations of the dense clumps in the  $\ell = 224^\circ$  region**

Monthly Notices of the Royal Astronomical Society, in press

<https://academic.oup.com/mnras/advance-article/doi/10.1093/mnras/stac3030/6772447>

A. J. T. S. Mello, E. Oroski, V. B. Frenci, G. Agapito, D. R. Pipa

**System identification and tuning applied to pseudo open loop control in multi-conjugate adaptive optics**

Journal of Astrophysics and Astronomy (2022), 43, 61

<https://doi.org/10.1007/s12036-022-09846-3>

M. Simioni, C. Arcidiacono, R. Wagner, A. Grazian, M. Gullieuszik, E. Portaluri, B. Vulcani, A. Zanella, G. Agapito, R. Davies, T. Helin, F. Pedichini, R. Piazzi, E. Pinna, R. Ramlau, F. Rossi, A. Salo

**Point spread function reconstruction for SOUL+LUCI LBT data**

Journal of Astronomical Telescopes, Instruments and Systems (2022), 8, 3

<http://dx.doi.org/10.1111/1.JATIS.8.3.038003>

V. Casasola, S. Bianchi, L. Magrini, A. V. Mosenkov, F. Salvestrini, M. Baes, F. Calura, L. P. Cassara, C. J. R. Clark, E. Corbelli, J. Fritz, F. Galliano, E. Liuzzo, S. Madden, A. Nersesian, F. Pozzi, S. Roychowdhury, I. Baronchelli et al.

**The resolved scaling relations in DustPedia: Zooming in on the local Universe**

Astronomy & Astrophysics, in press

<https://www.aanda.org/component/article?access=doi&doi=10.1051/0004-6361/202245043>

E.-D. Paspaliaris, E. M. Xilouris, A. Nersesian, S. Bianchi, I. Georgantopoulos, V. A. Masoura, G. E. Magdis, M. Plionis

**Star-forming early- and quiescent late-type galaxies in the local Universe**

Astronomy & Astrophysics, in press

<https://ui.adsabs.harvard.edu/abs/2022arXiv220913437P/abstract>

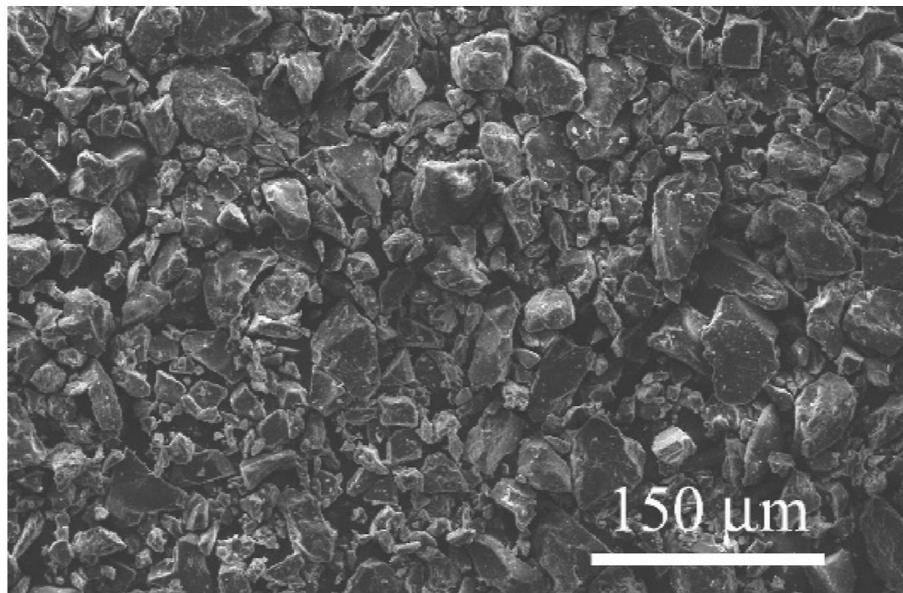
R. Licheri, R. Orrù, E. Sani, **A. Dell'Oro**, G. Cao

**Spark plasma sintering and optical characterization of lunar regolith simulant**

Acta Astronautica (2022), 201, 164-171

<https://www.sciencedirect.com/science/article/pii/S0094576522004817>

Media INAF: <https://www.media.inaf.it/2022/10/21/ceramiche-pseudo-lunari/>



SEM micrograph of regolith powders to be consolidated by SPS

K.-H Chae, **F. Lelli**, H. Desmond, S.S. McGaugh, J.M. Schombert

**Testing Modified Gravity Theories with Numerical Solutions of the External Field Effect in Rotationally Supported Galaxies**

Physical Review D, in press

<https://ui.adsabs.harvard.edu/abs/2022arXiv220907357C/abstract>

V. Brunn, A. Marcowith, C. Sauty, **M. Padovani**, C. Rab, C. Meskini.

**Ionisation of inner T Tauri star discs: effects of in-situ energetic particles produced by strong magnetic reconnection events**

Monthly Notices of the Royal Astronomical Society, in press

<https://ui.adsabs.harvard.edu/abs/2022arXiv221010356B/abstract>

## PROCEEDINGS

### SPIE Astronomical Telescopes + Instrumentation, 2022, Montréal, Québec, Canada

G. Agapito, L. Busoni, G. Carlà, C. Plantet, S. Esposito, P. Ciliegi

**MAORY/MORFEO and LIFT: can the low order wavefront sensors become phasing sensors?**

Vol. 12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2629352>

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**G. Agapito, L. Busoni, G. Carlà, C. Plantet, S. Esposito, P. Ciliegi**  
***MAORY/MORFEO and rolling shutter induced aberrations in laser guide star wavefront sensing***

Vol.12185, Adaptive Optics Systems VIII  
<https://doi.org/10.1117/12.2629343>

**G. Agapito, D. Vassallo, C. Plantet, J. Cranney, H. Zhang, V. Viotto, E. Pinna, F. Rigaut**  
***MAVIS: performance estimation of the adaptive optics module***

Vol.12185, Adaptive Optics Systems VIII  
<https://doi.org/10.1117/12.2629363>

**R. Briguglio, M. Xompero, M. Scalera, M. Riva, C. Del Vecchio, L. Carbonaro, C. Arcidiacono, G. Agapito, E. Pinna et al.**

***Laboratory characterization of a large format, contactless active mirror with intrinsic rejection of vibrations***

Vol. 12180, Space Telescopes and Instrumentation 2022: Optical, Infrared, and Millimeter Wave  
<https://doi.org/10.1117/12.2628730>

**L. Busoni, G. Agapito, C. Plantet, G. Carlà, S. Oberti, M. Bonaglia, T. Lapucci, M. Xompero, et al.**

***MAORY/MORFEO @ ELT: preliminary design of the adaptive optics subsystem***

Vol.12185, Adaptive Optics Systems VIII  
<https://doi.org/10.1117/12.2629606>

**G. Carlà, L. Busoni, C. Plantet, G. Agapito, C. Arcidiacono, P. Ciliegi**

***Tip-tilt anisoplanatism in MCAO-assisted astrometric observations***

Vol.12185, Adaptive Optics Systems VIII  
<https://doi.org/10.1117/12.2627126>

**A. Riccardi, A. Puglisi, P. Grani, R. Briguglio, S. Esposito, G. Agapito, V. Biliotti, M. Bonaglia, L. Carbonaro, M. Xompero et al.**

***The ERIS Adaptive Optics System: first on-sky results of the ongoing commissioning at the VLT-UT4***

Vol.12185, Adaptive Optics Systems VIII  
<https://doi.org/10.1117/12.2629425>

**A. Turchi, G. Agapito, E. Masciadri, O. Beltramo-Martin, J. Milli, C. Plantet, F. Rossi, E. Pinna et al.**  
***PSF nowcast using PASSATA simulations: towards a PSF forecast***

Vol.12185, Adaptive Optics Systems VIII  
<https://doi.org/10.1117/12.2629455>

F. Quirós-Pacheco, M. van Dam, A. H. Bouchez, R. Conan, S. Y. Haffert, **G. Agapito**, R. Demers  
***The Giant Magellan Telescope natural guidestar adaptive optics mode: improving the robustness of segment piston control***

Vol.12185, Adaptive Optics Systems VIII  
<https://doi.org/10.1117/12.2629618>

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R. Demers, [...], **G. Agapito**, N. Azzaroli, **L. Carbonaro**, A. Cheffot, **S. Esposito**, **T. Lapucci**, **E. Pinna**, **C. Plantet**, **A. Puglisi** et al.

***Phasing the segmented Giant Magellan Telescope: progress in testbeds and prototypes***

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2630144>

C. Arcidiacono, E. Portaluri, M. Gullieuszik, M. Cantiello, F. Annibali, P. Ciliegi, **G. Agapito**, **C.**

**Plantet**, **L. Busoni**

***A preliminary design review study of the scientific performance of MAORY (MORFEO)***

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2629068>

P. Ciliegi, **G. Agapito**, [...], **M. Bonaglia**, **R. Briguglio**, **L. Busoni**, M. Cantiello, G. Capasso, **G.**

**Carlà**, [...], **S. Esposito**, [...], **T. Lapucci**, [...], **C. Plantet**, E. Portaluri, **A. Puglisi**, [...], **M. Xompero**

***MAORY/MORFEO@ELT: general overview up to the preliminary design and a look towards the final design***

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2628969>

M. Simioni, [...], **G. Agapito**, [...], **E. Pinna** et al.

***LBT SOUL data as a science test bench for MICADO PSF-R tool***

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2627640>

P. Haguenauer, **G. Agapito**, B. Neichel

***Knowing your atmosphere, key to optimized and faithful AO simulations***

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2627243>

M. Bonaglia, **G. Agapito**, [...], **L. Busoni**, **R. Briguglio**, **G. Carlà**, **S. Esposito**, P. Grani, **T. Lapucci**, **C. Plantet**, **A. Puglisi** et al.

***MORFEO/MAORY low-order and reference WFS module preliminary design***

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2628794>

M. Bonaglia, **G. Agapito**, M. Aliverti, N. Azzaroli, **R. Briguglio**, **L. Busoni**, G. Capasso, **L. Carbonaro**, M. Colapietro, **C. Del Vecchio**, [...], **T. Lapucci**, **C. Plantet**, **E. Pinna**, **A. Puglisi**, [...], **C. Selmi** et al.

***MAVIS: preliminary design overview of the natural guide star wavefront sensor submodule***

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2628799>

I. Di Antonio, [...], **G. Agapito**, E. Redaelli, V. Cianniello

***The calibration and test unit of MAORY/MORFEO: analyses and performance evaluation***

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2629461>

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S. Perera, [...], **G. Agapito**, S. M. Ammons, **M. Bonaglia**, M. Boucher, J. Dunn, **S. Esposito** et al.

**GPI 2.0: pyramid wavefront sensor status**

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2629062>

J. Chilcote, [...], **G. Agapito**, A. Aleman, S. M. Ammons, **M. Bonaglia**, [...], **S. Esposito** et al.

**GPI 2.0: upgrade status of the Gemini Planet Imager**

Vol. 12184, Ground-based and Airborne Instrumentation for Astronomy IX

<https://doi.org/10.1117/12.2630159>

D. Greggio, B. Taylor, **M. Bonaglia**, V. Viotto, M. Bergomi, **E. Pinna**, **G. Agapito** et al.

**MAVIS Adaptive Optics Module: optical configuration and expected performance**

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2630017>

A. Baruffolo, I. Baronchelli, S. Savarese, S. Lampitelli, I. Foppiani, G. Capasso, P. Schipani, A.

Petrella, D. Selvestrel, **L. Busoni**, **G. Agapito**, **C. Plantet**, et al.

**MORFEO@ELT: preliminary design of the real-time computer**

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2630088>

M. Riva, **L. Busoni**, [...], **G. Agapito**, [...], **M. Bonaglia**, **R. Briguglio**, [...], **T. Lapucci**, [...], **C.**

**Plantet**, [...], **M. Xompero**

**MORFEO@ELT: system engineering activity up to preliminary design review**

Vol. 12187, Modeling, Systems Engineering, and Project Management for Astronomy X

<https://doi.org/10.1117/12.2630353>

F. Rossi, **C. Plantet**, A. Cheffot, **G. Agapito**, **E. Pinna**, **S. Esposito**

**Machine learning techniques for piston sensing**

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2629983>

C. Arcidiacono, [...], **E. Pinna**, **G. Agapito**, F. Rossi, **C. Plantet**

**BRUTE, PSF Reconstruction for the SOUL pyramid-based Single Conjugate Adaptive Optics facility of the LBT**

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2629001>

F. Pedichini, [...], **E. Pinna**, **R. Briguglio**, **G. Agapito**, **A. Puglisi**, J. Farinato, M. Bergomi

**SHARK-VIS ready for the stars: instrument description and final laboratory performance test**

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2629244>

V. Viotto, **E. Pinna, G. Agapito, [...], M. Bonaglia, R. Briguglio, G. Capasso, L. Carbonaro, [...], C.**

**Del Vecchio, [...], C. Plantet, A. Puglisi, [...], C. Selmi, [...], S. Esposito** et al.

**MAVIS: preliminary design of the adaptive optics module**

Vol.12185, Adaptive Optics Systems VIII

<https://doi.org/10.1117/12.2629441>

## OTHER PUBLICATIONS

**G. Macario, Carlo Baffa, C. Belli, P. Bolli, S. Chiarucci, G. Comoretto, P. Di Ninni, E. Giani, G. Kyriakou**

*I contributo dell'INAF- Osservatorio Astrofisico di Arcetri alla tecnologia ed alle prime osservazioni di SKA-Low. The INAF-Arcetri Astrophysical Observatory contribution to SKA-Low: technology and first observations*

Il Colle di Galileo (2022), 11, 2

<https://oajournals.fupress.net/index.php/cdq/article/view/13839/12836?>