

Giacomo Mantovan

Curriculum Vitae

Università di Padova
Dipartimento di Fisica e Astronomia "Galileo Galilei"
Vicolo dell'osservatorio 3
IT-35122, Padova, Italy
✉ giacomo.mantovan@unipd.it
📄 <https://gmantovan.github.io/>

Research Interests

My research cover several critical areas in the exoplanet field. I am an expert in validating candidate exoplanets identified with the transit method, which is a crucial step to identify genuine exoplanets and exclude false positives among the plethora of transiting candidates. My expertise extends to the confirmation and characterisation of single- and multi-planet systems, especially those younger than 1 Gyr.

- EXOPLANETS**
- Exoplanet Validation, Confirmation, Characterisation
 - Architecture of exoplanets, Rossiter - McLaughlin effect
 - Young planets, Multi-planet systems
 - Exoplanet Atmospheres
- OTHERS**
- Astrostatistics

Professional Experience

2024

Post-doc in Astronomy, *Università degli Studi di Padova*, Padova, Italy.

Project title Astrometric search for companions of nearby star

Advisor Professor Giampaolo Piotto

Start date 15/11/2024 - ongoing

2024

Post-doc in Astronomy, *Università degli Studi di Padova*, Padova, Italy.

Project title Analysis of light curves of exoplanets from space missions (CHEOPS, TESS and PLATO)

Advisor Professor Giampaolo Piotto

Start - End date 01/01/2024 - 14/11/2024

Educational Background

2020

2024

PhD in Astronomy, *Università degli Studi di Padova*, Padova, Italy.

Thesis title Exoplanetary parameters of the youngest compact multi-planet system TOI-5398: a journey from validation to characterisation

Advisors Professor Giampaolo Piotto, Dr Marco Montalto

Defence date 05/04/2024

2018

2020

MSc in Astronomy, *Università degli Studi di Padova*, Padova, Italy.

Thesis title Validation of candidate exoplanets discovered by TESS

Advisors Professor Giampaolo Piotto, Dr Marco Montalto

Final grade Summa Cum Laude

2015
2018

BSc in Astronomy, *Alma Mater Studiorum - Università di Bologna*, Italy.

Thesis title Classification of galaxies: morphological, photometric and kinematic characteristics

Supervisor Professor Daniele Dallacasa

Final grade 102/110

Research group membership

- ITALY** Member of GAPS (Global Architecture of Planetary Systems) collaboration
- International** Member of the PLATO (PLANetary Transits and Oscillations of stars) Mission Consortium. Member of the PLATO Science Management (PSM)
- International** Member of the TFOP (TESS Follow-up Observing Program): member of the SG2 WG. Member of the TBDWG.
- International** Collaborator of the CHEOPS GTO program.

Grants and awards

2024

Special mention in the 2024 “Pietro Tacchini Prize”, awarded to the best Ph.D. thesis in astrophysics in Italy, Italy, SAIT.

2023

Univ. Cal. Santa Cruz (UCSC) grant to attend the Other World Laboratory (OWL) Summer Program 2023, USA, UCSC, euros 1800€.

2023

Gini scholarship grant, Padova, Fondazione Aldo Gini, euros 4600€, renounced.

2022

COST grant (Exoplanets and astro-statistical analysis techniques Summer School), Geneva, euros 1300€.

2021

Erasmus+ for Traineeship grant, Padova, University of Padova, euros 2400€.

2020

2024

PhD Scholarship, Padova, University of Padova.

2018

Maestro Elio Todeschi merit scholarship, Rovereto, Cassa rurale, euros 300€.

Observing Experience and Proposals

Observing Experience

2024

ESO 3.6m telescope – HARPS & NIRPS, 2 nights (1st observer, DVM).

2023

Telescopio Nazionale Galileo (TNG) – HARPS-N, 11 nights (1st observer), 7 nights (2nd observer).

2021

2023

Asiago telescope – Echelle, 2 nights (2nd observer).

2020

2024

Asiago telescope – Afosc, 2 nights (1st observer), 4 nights (2nd observer).

Observational Proposals

2024	ESO P114 call , 4.3hrs of ESPRESSO to measure the obliquity of an infant planet, continuous RV monitoring, RM observations, PI .
2024	ESO P114 call , 24.4hrs of HARPS radial velocity follow-up, co-PI .
2024	INAF AOT50 call , 18.8hrs of HARPS-N radial velocity follow-up, PI .
2024	INAF AOT50 call , 5.8hrs of HARPS-N and GIANO-B to measure the obliquity of an infant planet, continuous RV monitoring, RM observations, PI .
2024	ESO P113 call , 9hrs of HARPS and NIRPS to measure the 3D obliquity of two planets, through continuous RV monitoring, RM observations, PI .
2024	INAF AOT49 call , 19hrs of HARPS-N to measure the 3D obliquity of four planets, through continuous RV monitoring, RM observations, PI .
2023 2024	INAF AOT48 call , 18.2hrs of HARPS-N to measure the 3D obliquity of two planets, through continuous RV monitoring, RM observations, PI .
2023 2024	INAF AOT48 call , 17.5hrs of HARPS-N radial velocity follow-up, PI .
2023 2024	INAF AOT46 call [DDT] , 7.5hrs of HARPS-N to measure the 3D obliquity of a young planet, through continuous RV monitoring, RM observations, PI .
2023 2024	ESO P111 call , 28.5hrs of HARPS radial velocity follow-up, PI .
2022 2023	INAF AOT46 call , 10hrs of HARPS-N radial velocity follow-up, PI .
2022 2023	INAF AOT46 call , 60hrs of multi-band REM images, PI .
2022 2023	CNTAC 2022B call , 2 nights of Magellan/IMACS images, co-PI . In charge of: scientific rationale, target selection, and technical description.
2021 2022	INAF AOT44 call , 60hrs of multi-band REM images, PI .

Presentations at international meetings and seminars

Contributed Talks at international meetings

2024	XXI Progress Meeting GAPS , Milano (Italy). Title Summary of AOT50 proposals and recent results from AOT48 and 49 (15 min)
2024	EAS 2024 , Padova (Italy). Title Characterisation of the young multi-planet system TOI-5398 (ePoster with Short Presentation)
2024	XX Progress Meeting GAPS , Padova (Italy). Title Status of AOT48 and AOT49 Junior proposal (15 min)
2023	XIX Progress Meeting GAPS , Torino (Italy). Title Analysis of the RM effect and atm. characterisation of TOI-5398 (10 min) Title Unveiling the nature of TESS warm giants exoplanets amenable for atm. characterisation with JWST & Probing the orbital obliquity of tidally young planets through the RM effect (10 min)
2023	OWL Summer Program 2023 , Santa Cruz, California (USA). Title The GAPS programme at the TNG. TOI-5398, the youngest compact multi-planet system composed of an inner sub-Neptune and an outer warm Saturn (12min)
2023	TOE III 2023 , Centro de Astrofisica (Porto, Portugal). Title The GAPS programme at the TNG. TOI-5398, the youngest compact multi-planet system composed of an inner sub-Neptune and an outer warm Saturn (15min)

2023

Telescopio Nazionale Galileo's talks, Breña Baja (Spain).

Title Validation of TESS exoplanet candidates orbiting solar analogues in the all-sky PLATO input catalogue (30 min)

2022

Scottish Exoplanet/BD Spring meeting, St. Andrews (Scotland).

Title Validation of TESS candidates orbiting PLATO, Solar-analog stars (15min)

Posters

2024

Exoplanet V, Leiden (Netherlands).

Title Revealing the enigmatic compact multi-planet systems with giants

2022

NAM 2022, The University of Warwick (England).

Title Validation of TESS exoplanet candidates orbiting solar analogues in the all-sky PLATO input catalogue

2021

TESS Science Conference II, US (Online).

Title Validation of TESS candidates orbiting Solar-type stars

2021

PLATO Mission Conference, Online.

Title Validation of TESS exoplanet candidates orbiting Solar-analog stars

Seminars

2022

Exoplanets and astrostatistical analysis techniques Summer School, Geneva (Switzerland).

2021

Scientific Communication in Astronomy School 2021, Bertinoro, Italy.

TALK SPRITZ talk (5min). 1st prize for best observational proposal competition.

2021

RED School 2021 "Astrobiology Introductory Course", France (Online).

TALK PhD project presentation (2min)

Studies and experiences abroad

2022

European Union Program, Erasmus + traineeship, University of St Andrews **StaCES** (Scotland), duration 6 months.

Research visiting period at the University of St. Andrews (Scotland) from 01/03/2022 to 31/08/2022, under the supervision of Professor Andrew Cameron, as part of the PhD in Astronomy (Unipd).

Teaching Experience

Teaching Assistant

2024
2025

Astrophysics Laboratory 2, *Master degree in Astrophysics and Cosmology*, Unipd, Padova, Italy.

Supervisor Prof. Luca Malavolta; Duration: 24 hrs

2023
2024

Astrophysics Laboratory 2, *Master degree in Astrophysics and Cosmology*, Unipd, Padova, Italy.

Supervisor Prof. Luca Malavolta; Duration: 24 hrs

2022
2023

Astrophysics Laboratory 2, *Master degree in Astrophysics and Cosmology*, Unipd, Padova, Italy.

Supervisor Prof. Luca Malavolta; Duration: 24 hrs

Skills

Programming	Python (Advanced) , Fortran (Intermediate), Matlab (Intermediate), R (Foundation), HTML (Basic), Supermongo (Basic), \LaTeX (Advanced), BASH (Basic)
Tools	GitHub, Jupyter-notebook, Jupyter-lab, Visual Studio Code
Softwares in data analysis	DS9, TOPCAT
Operating systems	Linux (Advanced), Microsoft Windows (Highly Specialised)
Office Suite	LibreOffice (Advanced), Microsoft Office (Advanced)
Raste graphic editor	GIMP (Intermediate)

Languages

Italian	Native
English	C1 level

Certificates

English	<i>Language assessment result (CEFR Level C1)</i> OLS language assessment, Erasmus+ (EU), 7 Mar 2022 <i>Attendance certificate (Academic English for PhD, 30hrs)</i> University of Padova Language Centre (IT), 1 Jan 2022 <i>Attendance certificate (Intermediate Level B2)</i> School of Science, University of Padova (IT), 31 Jan 2020
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Outreach

2022	NameExoWorlds 2022 , Museo civico di Rovereto, Italy. Public, outreach talk on exoplanets (20 min)
2022	NameExoWorlds 2022 , Liceo artistico Vittoria, Trento, Italy. Outreach talk on exoplanets, to a fourth-year high-school class (40 min)
2022	Notte dei Ricercatori - 2022 , Padova, Italy.
2021	Notte dei Ricercatori - Veneto Night 2021 , Padova, Italy.

Publications

ADS	See here for an interactive and most updated list of all publications
ORCID	https://orcid.org/0000-0002-6871-6131
Google	Scholar

Referred first-author

- [1] **Mantovan, G.** et al. “The inflated, eccentric warm Jupiter TOI-4914 b orbiting a metal-poor star, and the hot Jupiters TOI-2714 b and TOI-2981 b”. In: *A&A* 691, A67 (Nov. 2024), A67. DOI: 10.1051/0004-6361/202451841. arXiv: 2409.07520 [astro-ph.EP].
- [2] **Mantovan, G.** et al. “Orbital obliquity of the young planet TOI-5398 b and the evolutionary history of the system”. In: *A&A* 684, L17 (Apr. 2024), p. L17. DOI: 10.1051/0004-6361/202449769. arXiv: 2404.02969 [astro-ph.EP].

- [3] **Mantovan, G.** et al. “The GAPS programme at TNG. XLIX. TOI-5398, the youngest compact multi-planet system composed of an inner sub-Neptune and an outer warm Saturn”. In: *A&A* 682, A129 (Feb. 2024), A129. DOI: 10.1051/0004-6361/202347472. arXiv: 2310.16888 [astro-ph.EP].
- [4] **Mantovan, G.** et al. “Validation of TESS exoplanet candidates orbiting solar analogues in the all-sky PLATO input catalogue”. In: *MNRAS* 516.3 (Nov. 2022), pp. 4432–4447. DOI: 10.1093/mnras/stac2451. arXiv: 2208.12276 [astro-ph.EP].

Referred coauthor

- [1] G. Piotto et al. “Architecture of TOI-561 planetary system”. In: *MNRAS* 535.3 (Dec. 2024), pp. 2763–2774. DOI: 10.1093/mnras/stae2440. arXiv: 2410.18169 [astro-ph.EP].
- [2] L. Naponiello et al. “The GAPS programme at TNG LXIV: An inner eccentric sub-Neptune and an outer sub-Neptune-mass candidate around BD+00 444 (TOI-2443)”. In: *arXiv e-prints*, arXiv:2411.09417 (Nov. 2024), arXiv:2411.09417. DOI: 10.48550/arXiv.2411.09417. arXiv: 2411.09417 [astro-ph.EP].
- [3] D. Nardiello et al. “The GAPS Programme at TNG. LXV. Precise density measurement of TOI-1430 b, a young planet with an evaporating atmosphere”. In: *arXiv e-prints*, arXiv:2411.12795 (Nov. 2024), arXiv:2411.12795. DOI: 10.48550/arXiv.2411.12795. arXiv: 2411.12795 [astro-ph.EP].
- [4] M. C. D’Arpa et al. “The GAPS programme at TNG: LX. Atmospheric characterisation of KELT-9 b via single-line analysis: Detection of six H I Balmer lines, Na I, Ca I, Ca II, Fe I, Fe II, Mg I, Ti II, Sc II, and Cr II”. In: *A&A* 690, A237 (Oct. 2024), A237. DOI: 10.1051/0004-6361/202449341. arXiv: 2409.01779 [astro-ph.EP].
- [5] M. C. D’Arpa et al. “The GAPS programme at TNG – LXIII. Photo-evaporating puzzle: Exploring the enigmatic nature of TOI-5398 b atmospheric signal”. In: *arXiv e-prints*, arXiv:2410.15917 (Oct. 2024), arXiv:2410.15917. DOI: 10.48550/arXiv.2410.15917. arXiv: 2410.15917 [astro-ph.EP].
- [6] M. Damasso et al. “The GAPS Programme at TNG. LIX. A characterisation study of the ~300 Myr old multi-planetary system orbiting the star BD+40 2790 (TOI-2076)”. In: *A&A* 690, A235 (Oct. 2024), A235. DOI: 10.1051/0004-6361/202450366. arXiv: 2408.10629 [astro-ph.EP].
- [7] S. Filomeno et al. “The GAPS Programme at TNG. LXI. Atmospheric parameters and elemental abundances of TESS young exoplanet host stars”. In: *A&A* 690, A370 (Oct. 2024), A370. DOI: 10.1051/0004-6361/202450611. arXiv: 2409.00675 [astro-ph.SR].
- [8] V. Nascimbeni et al. “The K2-24 planetary system revisited by CHEOPS”. In: *A&A* 690, A349 (Oct. 2024), A349. DOI: 10.1051/0004-6361/202450852. arXiv: 2409.02995 [astro-ph.EP].
- [9] M. Damasso et al. “TOI-837 b: Characterisation, formation, and evolutionary history of an infant warm Saturn-mass planet”. In: *A&A* 688, A15 (Aug. 2024), A15. DOI: 10.1051/0004-6361/202450679. arXiv: 2406.08949 [astro-ph.EP].
- [10] M. Montalto et al. “The GAPS programme at TNG. LVII. TOI-5076b: A warm sub-Neptune planet orbiting a thin-to-thick-disk transition star in a wide binary system”. In: *A&A* 687, A226 (July 2024), A226. DOI: 10.1051/0004-6361/202349082. arXiv: 2405.18950 [astro-ph.EP].
- [11] G. Guilluy et al. “The GAPS Programme at TNG. LIV. A He I survey of close-in giant planets hosted by M-K dwarf stars with GIANO-B”. In: *A&A* 686, A83 (June 2024), A83. DOI: 10.1051/0004-6361/202348997. arXiv: 2403.00608 [astro-ph.EP].
- [12] Heike Rauer et al. “The PLATO Mission”. In: *arXiv e-prints*, arXiv:2406.05447 (June 2024), arXiv:2406.05447. DOI: 10.48550/arXiv.2406.05447. arXiv: 2406.05447 [astro-ph.IM].

- [13] A. Ruggieri et al. “[The GAPS Programme at TNG. LIII. New insights on the peculiar XO-2 system](#)”. In: *A&A* 684, A116 (Apr. 2024), A116. DOI: 10.1051/0004-6361/202348042. arXiv: 2401.17876 [astro-ph.EP].
- [14] I. Carleo et al. “[The GAPS programme at TNG. L. TOI-4515 b: An eccentric warm Jupiter orbiting a 1.2 Gyr-old G-star](#)”. In: *A&A* 682, A135 (Feb. 2024), A135. DOI: 10.1051/0004-6361/202348207. arXiv: 2311.11903 [astro-ph.EP].
- [15] A. Sozzetti et al. “[The GAPS Programme at TNG. XLVII. A conundrum resolved: HIP 66074b/Gaia-3b characterised as a massive giant planet on a quasi-face-on and extremely elongated orbit](#)”. In: *A&A* 677, L15 (Sept. 2023), p. L15. DOI: 10.1051/0004-6361/202347329.
- [16] J. Maldonado et al. “[The GAPS programme at TNG. XLIII. A massive brown dwarf orbiting the active M dwarf TOI-5375](#)”. In: *A&A* 674, A132 (June 2023), A132. DOI: 10.1051/0004-6361/202346096. arXiv: 2304.04477 [astro-ph.SR].
- [17] F. Z. Majidi et al. “[New members of the Lupus I cloud based on Gaia astrometry. Physical and accretion properties from X-shooter spectra](#)”. In: *A&A* 671, A46 (Mar. 2023), A46. DOI: 10.1051/0004-6361/202245261. arXiv: 2301.04463 [astro-ph.SR].
- [18] M. Montalto et al. “[TIC 257060897b: An inflated, low-density, hot-Jupiter transiting a rapidly evolving subgiant star](#)”. In: *MNRAS* 509.2 (Jan. 2022), pp. 2908–2919. DOI: 10.1093/mnras/stab2923. arXiv: 2110.00489 [astro-ph.EP].
- [19] D. Nardiello et al. “[A PSF-based Approach to TESS High quality data Of Stellar clusters \(PATHOS\) - IV. Candidate exoplanets around stars in open clusters: frequency and age-planetary radius distribution](#)”. In: *MNRAS* 505.3 (Aug. 2021), pp. 3767–3784. DOI: 10.1093/mnras/stab1497. arXiv: 2105.09952 [astro-ph.EP].