ExoPlanet News
An Electronic Newsletter

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https://nccr-planets.ch/exoplanetnews

Contents

1 Editorial

Welcome to Edition 203 of ExoPlanet News!

As usual, we bring you abstracts of scientific papers, job ads, conference announcements, and an overview of exoplanet-related articles on astro-ph. Thanks a lot to all of you who contributed to this issue of the newsletter!

For next month, we continue looking forward to your paper abstracts, job ads or meeting announcements. Also, special announcements are welcome. As always, we would also be happy to receive feedback concerning the newsletter. The LaTeX template (v2.0) for submitting contributions, as well as all previous editions of ExoPlanet News, can be found on the ExoPlanet News webpage (`https://nccr-planets.ch/exoplanetnews/`).

The next issue will appear on Tuesday, June 9th (with a submission deadline ending on Sunday, June 7th, 2026 CET).

Haiyang Wang
Leander Schlarmann
Jeanne Davoult
Timm-Emanuel Riesen

2 Abstracts of refereed papers

Finding Circumbinary Planets: A Semi-Automated Transit Search of *TESS* Eclipsing Binaries

B. D. R. Davies[1,2]*, D. J. A. Brown*[1,2]*, S. Gill*[1,2]*, J. R. French*[3]

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Monthly Notices of the Royal Astronomical Society, in press (arXiv:2604.09435)

The discovery of circumbinary planets (CBPs) has advanced our understanding of planet formation and dynamical evolution in complex environments. However, the population of such planets remains small, leading their underlying physical properties to be loosely constrained. In this work, we have developed a semi-automated framework to identify planetary transit events in light curves of eclipsing binaries observed by the *Transiting Exoplanet Survey Satellite* (*TESS*). Our search method, `mono-cbp`, removes stellar eclipses and applies a custom detrending procedure, searching for individual transit events and applying automated vetting procedures to filter false positive signals. We searched a sample of binaries from the *TESS* Eclipsing Binary Catalogue, yielding one candidate transit event. `mono-cbp` was also tested on the known population of transiting CBPs, using the *Kepler* long-cadence photometry for the *Kepler* transiting CBPs and the *TESS* Full Frame Image photometry for the *TESS* CBPs. Excluding transits that are shallower than the intrinsic noise of the *Kepler*/*TESS* data, `mono-cbp` achieved a recovery rate of ≥ 50 per cent for each planet, reaching > 75 per cent for 9 of the 14 planets. To test the limits of our framework, we injected simulated transit profiles with varying depth and duration into our sample of *TESS* light curves, finding that our recovery rate is a strong function of transit duration and the metrics used to filter false positive signals. This framework may be applied to large samples of *TESS* eclipsing binaries with little computational burden and to photometry from future space-based photometric surveys.

Download/Website: `https://arxiv.org/abs/2604.09435`

Contact: `ben.d.r.davies@warwick.ac.uk`

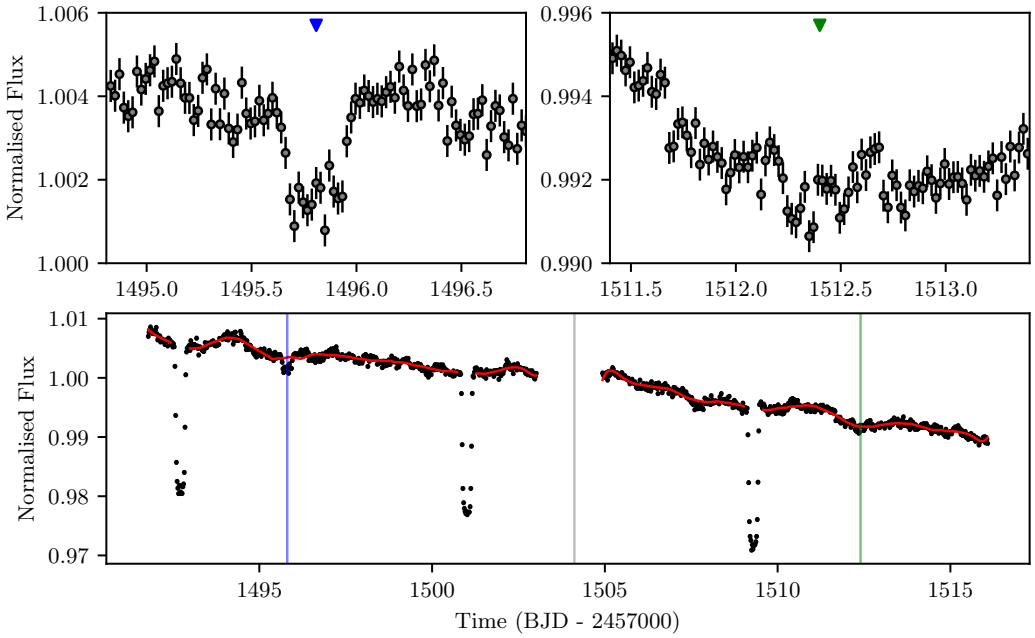

Figure 1: The candidate event identified in the Sector 7 TESS-SPOC light curve of TIC 319011894. *Bottom:* The Sector 7 TESS-SPOC light curve of TIC 319011894, with the `mono-cbp` detrending depicted by a solid red curve. There are three eclipses with depth ≈ 2.2 per cent and period of ≈ 8.3 d. The time of the candidate event (≈ 1495.8 BJD - 2457000) is marked with a blue vertical line. If the candidate event was a secondary eclipse, there would be an event during the mid-sector data gap (grey vertical line) and an event at ≈ 1512.4 BJD - 2457000 (green vertical line). *Top left:* The candidate event. *Top right:* The flux when an observable secondary eclipse would occur, if the candidate event was a secondary eclipse. We point out that these measurements may have been affected by an instrumental systematic or scattered light, but we find no evidence of this from our vetting.

Uncovering the rapidly evolving orbits of the dynamic TOI-201 system

I. Mireles[1], *S. Ulmer-Moll*[2], *D. Liveoak*[3,4,5], *D. Dragomir*[1], *J. Korth*[6], *A. Venner*[7,8], *K. A. Collins*[9], *A. H. M. J. Triaud*[10], *T. Guillot*[11], *A. Petit*[11], *T. Carmichael*[12], *S. Millholland*[3,4], *T. Hallatt*[3,4], *H. Parviainen*[13,14], *H. P. Osborn*[15,16], *D. Rapetti*[17,18], *T. A. Baycroft*[10,19], *S. Bhatnagar*[6,20], *F. Bouchy*[6], *R. Dancikova*[21], *P. Figueira*[6,22], *M. Lendl*[6], *S. Udry*[6], *P. Wheatley*[23], *L. Abe*[11], *A. Agabi*[11], *M. Beltrame*[24], *P. Bendjoya*[11], *V. Deloupy*[24], *D. Mékarnia*[11], *F.-X. Schmider*[11], *O. Súarez*[11], *K. Barkaoui*[14,25,26], *K. Horne*[27], *F. Murgas*[13,14], *E. Palle*[13,14], *R. P. Schwarz*[8], *R. Sefako*[28], *A. Shporer*[3], *G. Srdoc*[29], *C. Stockdale*[30], *F. P. Wilkin*[31], *J. D. Hartman*[32], *L. A. Sgro*[33], *T.-G. Tan*[34], *J. M. Jenkins*[17], *A. Bódi*[32], *D. Havell*[35], *D. Rivett*[35], *I. Transom*[35]

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The complete list of affiliations can be found in the publication.

Science Advances, published (arXiv:2604.23929)

Studying planetary interactions in exoplanet systems informs theories of planet formation and evolution, providing essential context for understanding our own solar system. We combine spectroscopy, transit photometry, transit timing variations, and astrometry to characterize the TOI-201 system. The cotransiting system consists of a super-Earth, warm Jupiter, and massive companion at 5.8-, 53-, and 2900-day orbital periods, respectively. We perform dynamical simulations to study the past and future of the system. von-Zeipel-Kozai-Lidov oscillations emerge as the most plausible scenario to explain the outer companion's high orbital eccentricity, with planet-planet scattering a possible but less likely contender. Because of nonzero mutual inclinations between the planets, the system is visibly evolving on very short timescales, with the current cotransiting configuration ending in 200 years.

Download/Website: `https://www.science.org/doi/10.1126/sciadv.aef2618`
Contact: `mirelesi@unm.edu`

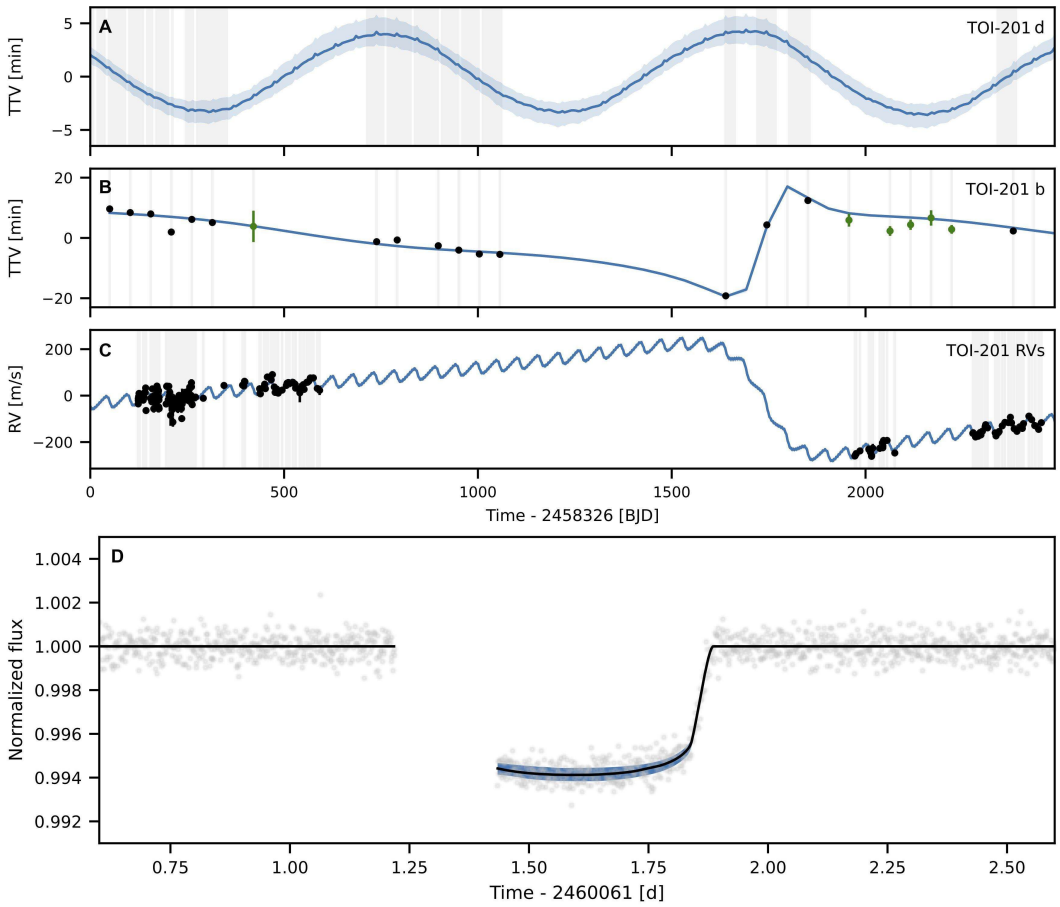

Figure 2: (A) Best-fit TTV model for TOI-201 d. (B) TTVs of TOI-201 b from TESS (black points) and ground-based facilities (green points) and best-fit model. (C) RV data and best-fit RV model. (D) Transit and best-fit model for TOI-201 c. All the panels show the model posterior median as a blue line and the 1-σ posterior uncertainties as light blue shading. In (B) and (C), the uncertainties are smaller than the line width.

3 Exoplanet Archives

April 2026 Updates at the NASA Exoplanet Archive

The NASA Exoplanet Archive team
Caltech/IPAC-NASA Exoplanet Science Institute, MC 100-22 Pasadena CA 91125

Pasadena CA USA, May 12, 2026

Note: Unless otherwise noted, all planetary and stellar data mentioned in the news are in the Planetary Systems Table, which provides a single location for all self-consistent planetary solutions, and its companion table the Planetary Systems Composite Parameters, which offers a more complete table of parameters combined from multiple references and calculations. Links to other tables and System Overview pages are embedded in the news text.

April 30, 2026

New JWST Spectrum for eps Ind A b

This week's update has a new directly imaged spectrum from JWST of eps Ind A b that reveals water-ice clouds on the distant, Jupiter-like gas giant, according to a team at the Max Planck Institute for Astronomy. Learn more in the media release and discovery paper, then check the Atmospheric Spectroscopy Table for the data. There are also new spectra for AF Lep b and HD 86226 c.

There are also five new planets: GJ 1137 c, TIC 147027702 b, TIC 245076932 b, TIC 87422071 b, and TWA 7 b. We've also added new data for GJ 1137 b, HD 202772 A b, HR 2562 b, K2-19 b & c, TOI-4127 b, and YSES 1 b (a.k.a. TYC 8998-760-1 b).

April 23, 2026

New TESS Milestone: 114 Planets Added!

This week's bonanza of 114 new planets was brought to you by a team using data from NASA's Transiting Exoplanet Survey Satellite (TESS), in what is the largest mass confirmation of TESS planets to date.
This pre-filtered and pre-sorted interactive table lists the dozens of planets added this week, as well as planets updated with new data. Learn more about these newest validations in the University of Warwick media release and the discovery paper.

We have also updated the disposition of rho CrB d to False Positive Planet based on a published refutation. The object's data have been removed from the Planetary Systems tables, but remain on the rho CrB System Overview page.

April 16, 2026

Another WISPIT 2 Planet and Spectra Galore

This week's update features two new planets, WISPIT 2 c and CWISEP J193518.59-154620.3 b. WISPIT 2 c is a notable discovery because it offers another opportunity to observe the formation of a young planetary system that may be similar to our own solar system. Learn more in the ESO media release and the discovery paper.

There are also new transmission, direct imaging, and eclipse spectra in the Atmospheric Spectroscopy Table for eight planets: GJ 3473 b, HR 8799 b, c, d, & e, Kepler-51 d, LP 791-18 c, and TOI-5205 b.

We've also added new data for 14 planets: TOI-1333 A b, GJ 3473 b, K2-79 b, K2-106 b & c, K2-111 b & c, K2-222 b, K2-263 b, LHS 3844 b, LP 791-18 c, MOA-2007-BLG-192L b, TOI-1634 b, and TOI-5205.

April 9, 2026

New Data for 14 Planets and New Spectra for Three

This week's release features new planets KMT-2021-BLG-0852L b, KMT-2024-BLG-2005L b, KMT-2025-BLG-0481L b, TOI-1232 b & c, TOI-2431 b, and TOI-4552 b. There are also new data for planets HIP 99770 b, TOI-198 b, TOI-672 b, and TOI-2076 b, c, d, & e.

New JWST spectra added to the Atmospheric Spectroscopy Table this week are for planets TOI-270 d, WASP-80 b, and WASP-166 b.

We've also updated the dispositions of HD 102365 b and HD 10700 e (a.k.a. tau Cet e) to False Positive Planet based on a published refutation. Their data will remain on their System Overview pages and have been removed from the Planetary Systems tables.

Download/Website: `https://exoplanetarchive.ipac.caltech.edu`

Contact: `mharbut@caltech.edu`

4 Conferences and Workshops

EXOA3: AI for exoplanet and brown dwarf studies

Yann Alibert[1], *Jeanne Davoult*[2], *Sara Marques*[3], *Romain Eltschinger*[3], *Kai Hou (Gordon) Yip*[4], *Jo Ann Egger*[3], *Carles Cantero Mitjans*[5]

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[3] Space research and planetary science (WP), University of Bern, Switzerland
[5] UCL, England
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Europlanet Science Congress 2026, The Hague, The Netherlands, 6–11 September 2026

Dear Colleagues,

We are happy to invite you to submit your abstract to our session at EPSC meeting:

EXOA3: AI for exoplanet and brown dwarf studies

Artificial intelligence (AI) is revolutionizing planetary sciences, enabling new insights from vast and complex datasets, both for solar system exploration and the study of exoplanets and brown dwarfs.
This session will explore AI-driven approaches for studies, focusing on innovative techniques such as image analysis, curriculum learning, diffusion models, generative models for data augmentation and simulation, machine learning techniques for analyzing large-scale surveys. We will also discuss applications of natural language processing for scientific literature mining, and uncertainty quantification in AI-driven models. By bringing together experts in AI and exoplanetary science, this session aims to foster interdisciplinary collaborations and advance the field.

Abstracts can be submitted using the link below. **The deadline is 13 May 2025, 13:00 CEST.**

`https://meetingorganizer.copernicus.org/EPSC2026/sessionprogramme`

We are looking forward discovering your work and seeing you in Helsinki.
Convenors: Yann Alibert, Jeanne Davoult, Sara Marques, Romain Eltschinger, Kai Hou (Gordon) Yip, Jo Ann Egger, Carles Cantero Mitjans.

5 Others

Opening of the CHEOPS Guest Observers Running Call

European Space Agency (ESA)

The European Space Agency's (ESA's) Characterising Exoplanet Satellite (CHEOPS) mission foresees to launch its new **Running Call** on the 1st of July of 2026, subject to the approval of the mission extension from 2027 to 2029. Observers can continue to apply to the Discretionary Programme until then.

Key Dates: The Running Call is foreseen to open on the **1 July of 2026 (12:00 CEST)** and accept observing proposals continuously throughout the year.

Scientific Opportunities: CHEOPS provides observers with access to space-based ultra-high precision photometry. Research areas include the observations of exoplanet transits, eclipse, occultations, phase curves, exomoons, ring structures, stellar activity, and Solar System objects, among others.

Larger sky area available: Since the reduction of the Sun Exclusion Angle to 115 degrees on October of 2025, CHEOPS can now observe over 75% of the sky and features an overlap with the PLATO field of 47% (compared to the previous 32%) and 50% with the Kepler field (compared to 17% previously).

Novelties in the Running Call:

- No deadlines: you can apply for Guest Observers time throughout the year
- More targets: only 20 GTO reserved targets from the 1st of January of 2027, with all the rest being open to the entire community
- Double-anonymous peer-review of proposals
- Simplified application: simple web-based application process

Find out more about this opportunity via https://www.cosmos.esa.int/web/cheops-guest-observers-programme. We look forward to receiving your observing proposals and advancing our understanding of exoplanetary and stellar systems.

Happy proposing!

Contact: `cheops-support@cosmos.esa.int`

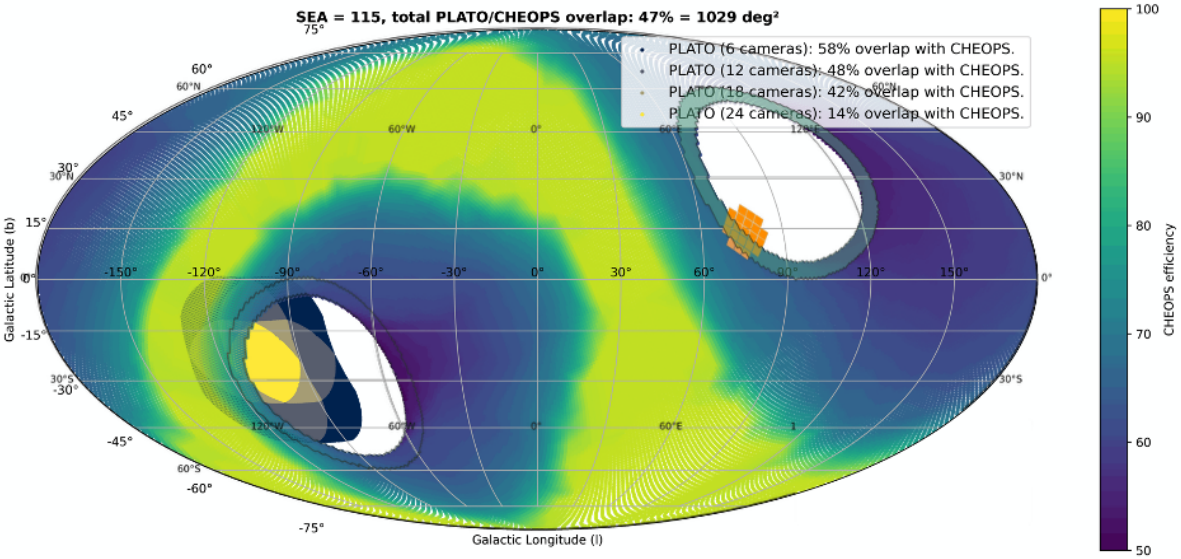
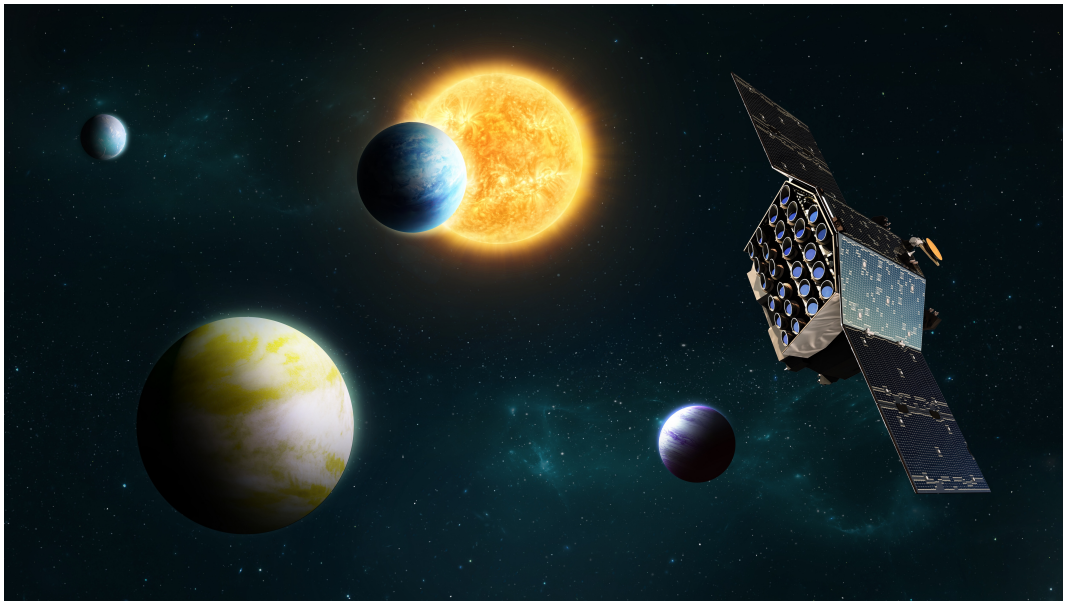


Figure 3: New sky areas observable by CHEOPS and efficiency map including the extended area given by the new Sun Exclusion Angle of 115 degrees.



PLATO'S Guest Observers Programme: AO-1 Call Closing Soon

European Space Agency (ESA)

ESA is looking forward to PLATO (PLAnetary Transits and Oscillations of stars), scheduled for launch in under a year. PLATO will monitor a wide field for several years, delivering imagettes and light curves for hundreds of thousands of stars. Its goals include detecting terrestrial planets in habitable zones and advancing asteroseismology, with most data becoming public shortly after validation.

ESA now invites Guest Observer proposals for complementary science. The First Announcement of Opportunity opened on 7 April and will close on 21 May, offering 8% telemetry for new targets, upgraded modes, and a proprietary access period. Proposers are encouraged to review the available material, join community initiatives, and submit their research ideas.

Download/Website: `https://www.cosmos.esa.int/web/plato/ao-1`

6 As seen on astro-ph

The following list contains exoplanet related entries appearing on astro-ph in April 2026.
Disclaimer: The hyperlinks to the astro-ph articles are provided for the convenience of the reader, but the ExoPlanet News cannot be responsible for their accuracy and perpetuity.

April 2026

astro-ph/2604.00191: **Resistive MHD Simulations of Stellar Wind-Magnetosphere Coupling in TRAPPIST-1e** *by J. J. González-Avilés et al.*
astro-ph/2604.00993: **Focal plane wavefront control with model-based reinforcement learning** *by Jalo Nousiainen et al.*
astro-ph/2604.01219: **Information content of JWST transmission spectroscopy of the exoplanet HAT-P-12b from the optical to the mid-infrared** *by L. Heinke et al.*
astro-ph/2604.01672: **Unusually Hot Interiors Could Reconcile the Missing Methane Problem for Warm-to-Hot Exoplanets with Hydrogen Atmospheres** *by Xinting Yu et al.*
astro-ph/2604.02332: **Hot Rocks Survey V: Secondary Eclipse Photometry of GJ 3473 b with JWST/MIRI** *by Måns Holmberg et al.*
astro-ph/2604.02725: **What Are Pulsar Companions Made of? Using Gravitational Tides to Probe Their Compositions** *by Liam Colombo-Murphy et al.*
astro-ph/2604.03365: **The PLATO field selection process III. Selection of the Prime Sample for the LOPS2 field** *by V. Nascimbeni et al.*
astro-ph/2604.03369: **The PLATO Input Catalogue of targets (tPIC) for the first Long Pointing Field** *by M. Montalto et al.*
astro-ph/2604.03575: **Influence of CO versus CH_4 on organic haze formation in atmospheres of diverse terrestrial exoplanets** *by Sai Wang et al.*
astro-ph/2604.03792: **Interaction between Winds from Weak-lined T Tauri Stars with Exoplanetary Magnetospheres** *by Y. F. Tamburus et al.*
astro-ph/2604.04042: **The PLATO Science Calibration and Validation Plan: Targets for the First Long-pointing Field** *by Konstanze Zwintz et al.*
astro-ph/2604.05122: **Azimuthal Dust Polarization from Aerodynamically Aligned Grains as Evidence for the Streaming Instability in Protoplanetary Disks** *by Zhe-Yu Daniel Lin et al.*
astro-ph/2604.05178: **Gas Giants Formed by Gravitational Instability May Accrete Atmospheres with Super-Stellar Carbon to Oxygen Ratios** *by Alan P. Boss*
astro-ph/2604.05221: **A Chemical Mismatch Between Young Stars and Their Inner Disks** *by Diogo Souto et al.*
astro-ph/2604.05235: **The JWST Search for Earth-Luna Analogs: Upper Limits on Exomoons and Refined Ephemerides for TOI 700 d and e** *by Emily K. Pass et al.*
astro-ph/2604.06388: **Determining the Host Stars of Planets in Binary Star Systems with Asterodensity Profiling: Investigating the Canonical Radius Gap** *by Nathanael Burns-Watson et al.*
astro-ph/2604.05902: **Study of the migration of Earth-like planets in planetesimal disks and the formation of debris disks** *by O. S. Oleynik, V. V. Emel'yanenko*
astro-ph/2604.05305: **Scientific Validation of the SPARC4 Pipeline: Multi-band Imaging, Polarimetry, and Photometric Time Series for Improved Characterization of Transiting Exoplanets** *by Eder Martioli et al.*
astro-ph/2604.06064: **Star-planet magnetic interactions in photoevaporating exoplanets** *by Andrés Presa et al.*
astro-ph/2604.06602: **UMI: GPU-Accelerated Asymmetric Robust Estimator for Photometric Detrending in Exoplanet Transit Searches** *by Omar Khan*
astro-ph/2604.06792: **Habitability Study of Terrestrial Planets: Application to Venus-like Worlds** *by Swathi Raviprakash et al.*

astro-ph/2604.06809: **Chemical Abundances Shape History (CASH). I. A Link between Giant Planets Orbital Periods and Host Stellar C/O Ratios** *by Ruisheng Zhang et al.*

astro-ph/2604.07068: **An astrometric search for planets in debris disk systems** *by Elisabeth M. Penderghast et al.*

astro-ph/2604.07176: **Panchromatic View of the Frigid Jovian Exoplanet COCONUTS-2 b** *by Matthieu Ravet et al.*

astro-ph/2604.07268: **GEMS JWST: HATS-75 b – A giant planet with a sub-solar metallicity atmosphere orbiting an M-dwarf** *by Reza Ashtari et al.*

astro-ph/2604.07461: **The Goldilocks problem for detecting water in terrestrial planets: Constraining water abundances in the mid-IR with LIFE** *by Sarah Rugheimer et al.*

astro-ph/2604.07498: **Hydrolyzed Hazes on Water-rich Exoplanets: Optical Constants and Detectability** *by Cara Pesciotta et al.*

astro-ph/2604.07505: **What's the (RV) Point? A $3.5\times$ Enhancement in Super-Jupiters with Saturn-like Periods from a Critical Observation** *by Marie C. Tagliavia, Lauren M. Weiss*

astro-ph/2604.07598: **On the Information Content of Ariel Transmission Spectra: Reassessing the Tier System** *by Michael Radica et al.*

astro-ph/2604.08406: **Exoplanet Orbital Distribution around FGK Sun-like Host Stars I: planet occurrence rate derived from the Kepler Mission and theoretical interpretations from planet formation** *by Li Zeng et al.*

astro-ph/2604.08428: **Exoplanet Orbital Distribution around FGK Sun-like Host Stars II: a valley in the orbital semi-major axis distribution of sub-Neptunes** *by Li Zeng et al.*

astro-ph/2604.08379: **What you see is not necessarily what you get: Interpreting near-infrared scattering phase functions of debris discs** *by Quincy Bosschaart, Johan Olofsson*

astro-ph/2604.08383: **Planetesimal-Driven Instabilities in Resonant Chains of Cold Neptunes and Their Dynamical Outcomes** *by Ryan LoRusso et al.*

astro-ph/2604.08248: **Substructure in externally irradiated protoplanetary disks, I. spirals and rings in two-dimensional radiation hydrodynamics** *by Alexandros Ziampras et al.*

astro-ph/2604.09785: **Direct Images of CO2 Absorption in the Atmosphere of a Super-Jupiter: Enhanced Metallicity Suggestive of Formation in a Disk** *by William O. Balmer et al.*

astro-ph/2604.09526: **High-Contrast Imaging of Forming Protoplanets: VLTs, JWST, and the Promise of ELT** *by Gabriele Cugno, Michael R. Meyer*

astro-ph/2604.09435: **Finding Circumbinary Planets: A Semi-Automated Transit Search of TESS Eclipsing Binaries** *by Benjamin D. R. Davies et al.*

astro-ph/2604.09385: **NCCR PlanetS: Observational and computational characterization of exoplanet atmospheres** *by Daniel Kitzmann et al.*

astro-ph/2604.09269: **Detecting nitrogen-carriers in the inner regions of protoplanetary disks** *by Marissa Vlasblom et al.*

astro-ph/2604.09254: **Long-period transiting exoplanets: advances in detection and characterization** *by Solène Ulmer-Moll et al.*

astro-ph/2604.09042: **Giant Planet Formation by Disk Instability** *by Ravit Helled et al.*

astro-ph/2604.09020: **Recent development in high-precision high-fidelity spectrographs for exoplanet research and characterization** *by François Bouchy et al.*

astro-ph/2604.09011: **The formation of planetary systems: physics, populations, and architectures** *by Andrin Kessler et al.*

astro-ph/2604.08993: **Spectral signatures from the habitable zone** *by Vincent Kofman*

astro-ph/2604.08975: **Polarimetry in Planetary Sciences and Astronomy** *by C. H. Lucas Patty et al.*

astro-ph/2604.09122: **Dust Processing in Protoplanetary Discs From Infall to Dispersal: the Origin of Solar System Isotopic Heterogeneities** *by Mark A. Hutchison et al.*

astro-ph/2604.10140: **A seeing measurement device for the PoET solar telescope** *by Bachar Wehbe et al.*

astro-ph/2604.11925: **How leaky? A large parameter study of leaky dust traps to quantify the transport of pebbles and ice in protoplanetary discs** *by Adrien Houge et al.*

astro-ph/2604.11919: **Sub-Neptunes as Soot Factories: Deep Atmosphere Hydrocarbon Formation and Quenching as the Origin of Sub-Neptune Aerosol Trends** *by Jeehyun Yang et al.*

astro-ph/2604.11904: **JOYS: Launching and destruction of dust in protostellar jets. The case of BHR71-IRS1 with JWST/MIRI** *by Łukasz Tychoniec et al.*

astro-ph/2604.11779: **Origin and characterization of super-Earths and sub-Neptunes** *by Léna Parc et al.*

astro-ph/2604.11728: **The GAPS Programme at TNG. LXXIII. Confirmation of the hot sub-Neptune TOI-4602 b (HD 25295 b), a key target for future atmospheric characterization** *by C. Di Maio et al.*

astro-ph/2604.11642: **Investigation of gravitational stability of protoplanetary disks based on statistical analysis of their masses** *by Sophia A. Drobchik, Sergey A. Khaibrakhmanov*

astro-ph/2604.11405: **From Dust to Planets – A Chemical Perspective** *by Klaus Mezger et al.*

astro-ph/2604.11408: **Compact Hydrogen Sulfide Emission Indicates Sulfur-bearing Ice Sublimation in the Inner Disk of HD 163296** *by Yoshihide Yamato et al.*

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