ExoPlanet News
An Electronic Newsletter

No. 196, 14 October 2025

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Contents

1 Editorial

Welcome to Edition 196 of ExoPlanet News!

This month, 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 look forward to continuing receiving your submissions of paper abstracts, job ads, or meeting announcements. Special announcements are also 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, November 11th (with a submission deadline ending on Sun November 9th, 2025 CEST).

Thanks again for your support, and best wishes from the editorial team.

Jeanne Davoult
Leander Schlarmann
Haiyang Wang
Timm-Emanuel Riesen

2 Abstracts of refereed papers

The New Generation Planetary Population Synthesis (NGPPS). VII. Statistical comparison with the HARPS/Coralie survey

Alexandre Emsenhuber[1,2,3], *Christoph Mordasini*[1], *Michel Mayor*[4], *Maxime Marmier*[4], *Stéphane Udry*[4], *Remo Burn*[5], *Martin Schlecker*[6], *Lokesh Mishra*[7], *Yann Alibert*[1], *Willy Benz*[1], *Erik Asphaug*[3]

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Astronomy & Astrophysics, published

Context. Planetary population synthesis is a tool that is used to better understand the key processes of planet formation at the statistical level.
Aims. We seek to quantify the fidelity with which modern population syntheses reproduce observations in view of their use as predictive tools.
Methods. We compared synthetic populations from the Generation 3 Bern Model of Planet Formation and Evolution (core accretion, solar-type host stars) and the HARPS/Coralie radial velocity sample. We biased the synthetic planet population according to the completeness of the observed data. We then performed quantitative statistical comparisons and systematically identified agreements and differences.
Results. Our nominal population reproduces many of the main features of the HARPS planets, such as two main groups of planets in the mass-distance diagram (close-in sub-Neptunes and distant giants), a bimodal mass function with a less populated 'desert', an observed mean multiplicity of about 1.6, and several key correlations regarding the stellar metallicity dependency, the period ratio distribution, and the eccentricity distribution. Considering that the model was not optimised beforehand to reproduce any particular survey, this indicates that some of the important physical processes governing planetary formation could be captured. The remaining discrepancies that can be quantified thanks to the population synthesis approach point to areas that are not fully captured in the model. For instance, we find that the synthetic population has 1) in absolute terms too many planets by $70\,\%, 2)$ a 'desert' that is too deep by $60\,\%, 3)$ a relative excess of giant planets by $40\,\%, 4)$ planet eccentricities that are on average too low by a factor of about two (median of 0.07 versus 0.15), and 5) a metallicity effect that is too weak. Finally, the synthetic planets are overall too close to the star compared to the HARPS sample. The differences allowed us to find model parameters that better reproduce the observed planet masses, for which we computed additional synthetic populations. We find that decreasing the planet formation efficiency by increasing the planetesimal size re-balances the number of sub-Neptunes versus giant planets. Changing the efficiency of gas-driven migration also affects the sub-Neptune to giant planet ratio, with lower migration rates resulting in more giant planets and fewer sub-Neptunes.
Conclusion. However, only modifying the model parameters seems to be insufficient for the model to fully reproduce both the observed mass and distance distributions at the same time. Instead, physical processes appear to be missing. Planets may originate on wider orbits than our model predicts. Mechanisms leading to higher eccentricities and slower disc-limited gas accretion also seem necessary. We also advocate that theoretical models should make a quantitative, rather than merely a qualitative, comparison between the many current and future large surveys and theoretical results to better understand the origins of planetary systems.

Download/Website: `https://doi.org/10.1051/0004-6361/202452485`

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Methanol emission tracing ice chemistry and dust evolution in the TW Hya protoplanetary disk

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The Astronomical Journal, in press (arXiv:2510.04106)

Methanol (CH_3OH) ice is abundant in space and is a key feedstock for seeding chemical complexity in interstellar and circumstellar environments. Despite its ubiquity, gas-phase methanol has only been detected in one disk around a Solar-type star to date, TW Hya. Here we present new high sensitivity (1 mJy/beam) observations of TW Hya with ALMA that detect four individual transitions of gas-phase methanol spanning upper level energies from 17 to 38 K. We confirm the presence of gas-phase methanol in the luke-warm molecular layer of the disk ($35.9^{+25.9}_{10.6}$ K) and with a disk-integrated column density of $1.8^{+1.3}_{0.5}$ 10^{12} cm ^{2}. A radially-resolved analysis suggests that the gas-phase methanol is centrally compact, peaking within the spatial extent of the mm-sized dust grains (<80 au). Static gas-grain chemical disk models confirm photodesorption as an important mechanism releasing methanol into the gas phase, with the column density further boosted by the inclusion of grain-surface chemistry, reactive desorption, and an increase in dust-grain surface area assuming fractal grains. However, no model can fully reproduce the observed column density nor the radial distribution, and we suggest that the inclusion of dynamic processes such as vertical mixing and radial drift would be required to do so. Our results demonstrate that the abundance and distribution of the precursors for complex chemistry in the planet-forming regions around Solar-type stars is ultimately controlled by the interplay of grain surface chemistry coupled with the evolution of dust in their disks.

Download/Website: `https://ui.adsabs.harvard.edu/abs/2025arXiv251004106I/abstract`

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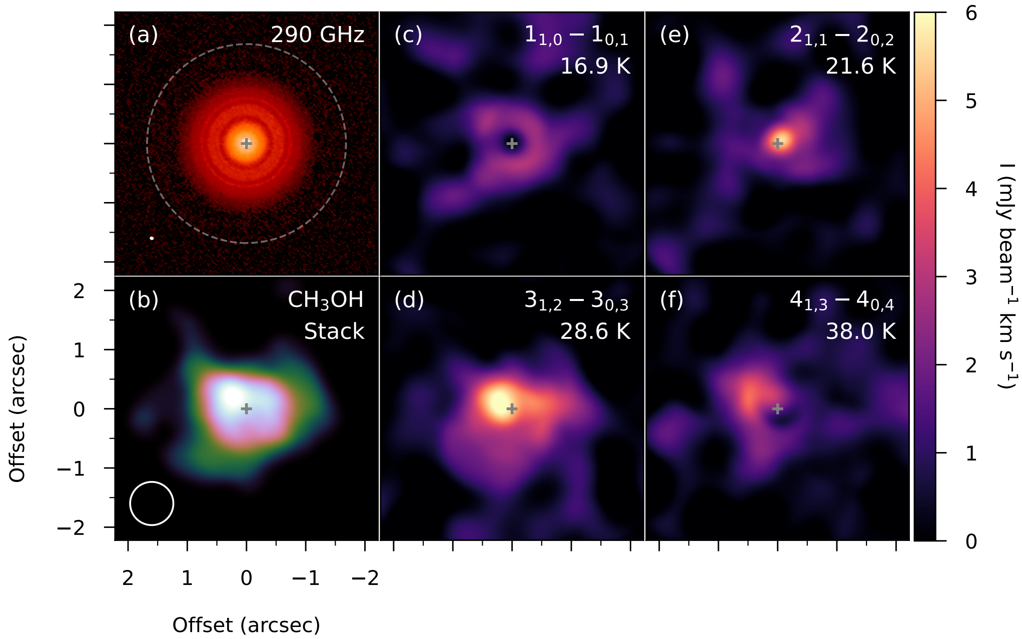

Figure 1: Methanol transitions observed in the TW Hya protoplanetary disk.

Low-mass companions to nine stars

A. Niedzielski[1], *R. Jaros*[1], *D. Srivastava*[2], *M. Adamów*[3], *A. Wolszczan*[4,5], *E. Villaver*[6], *G. Maciejewski*[1], *B. Deka-Szymankiewicz*[1]

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Acta Astronomica, Accepted (arXiv:2509.22127)

We present an independent spectroscopic and radial velocity analysis for nine stars from the Pennsylvania-Toruń Planet Search. For BD+24 4697, we present an updated true companion's mass (0.16 0.02 M), as well as evidence of stellar activity. For BD+54 1640 and BD+65 1241 we present true masses of companions, $m = 0.15 \quad 0.04\,M$ and $m = 0.091 \quad 0.005\,M$, respectively. For BD+63 974 and BD+69 935 we find low mass companions with $m \sin i = 0.046 \quad 0.001\,M$ and $m \sin i = 0.090 \quad 0.005\,M$. For BD+52 1281, BD+54 1382, TYC 2704-2680-1, and TYC 3525-02043-1 we present evidence of low-mass companions with $m \sin i$ of 0.115 0.006 M , 0.083 0.007 M , 0.279 0.009 M , and 0.064 0.006 M , respectively. Consequently, BD+54 1382, BD+63 974, BD+65 1241, BD+69 935 and TYC 3525-02043-1 appear to be Brown Dwarf host candidates.

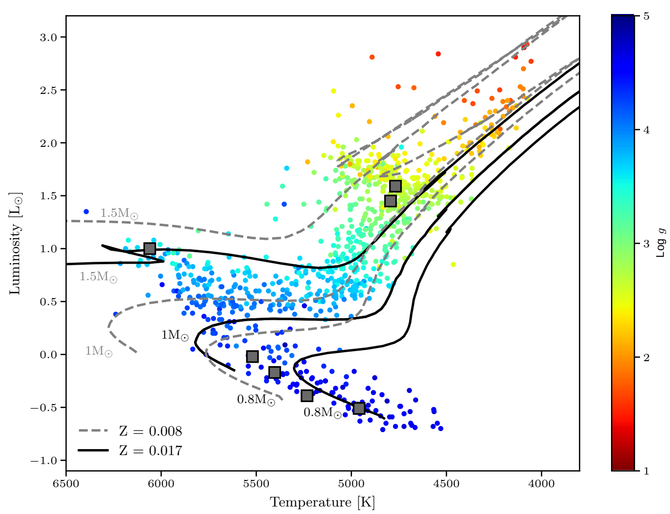

Figure 2: Hertzsprung-Russell diagram for all 9 stars on top of the complete PTPS sample, and evolutionary tracks from Bertelli et al. (2008) for a star with 0.8, 1.0 and 1.5 M and metallicities Z = 0.008 and Z = 0.017 (see the legend in the bottom left corner of the plot).

Download/Website: `https://arxiv.org/abs/2509.22127`

Contact: `jaros@doktorant.umk.pl`

Granulation on a quiet K dwarf: HD 166620 I. Spectral signatures as a function of line-formation temperature

A. Anna John[1,2], K. Al Moulla[3,4], N.K. O'Sullivan[5], J, Fitzpatrick[6], A. Collier Cameron[2], B.S. Lakeland[1], M. Cretignier[5], A. Mortier[1] et al. (remaining authors & affiliations can be found on full publication.)

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Monthly Notices of the Royal Astronomical Society, Volume 543, Issue 3, November 2025, (2025MNRAS.tmp.1495J)

As radial velocity (RV) spectrographs reach unprecedented precision and stability below $1\ \mathrm{m\,s}^{\ 1}$, the challenge of granulation in the context of exoplanet detection has intensified. Despite promising advancements in post-processing tools, granulation remains a significant concern for the EPRV community. We present a pilot study to detect and characterise granulation using the High-Accuracy Radial-velocity Planet Searcher for the Northern hemisphere (HARPS-N) spectrograph. We observed HD 166620, a K2 star in the Maunder Minimum phase, intensely for two successive nights, expecting granulation to be the dominant nightly noise source in the absence of strong magnetic activity. After correcting for a newly identified instrumental signature, originating from CCD illumination variations under optimal seeing conditions, we detected the granulation signal using structure-function (SF) analysis and a single-component Gaussian Process (GP) model. The granulation signal has a characteristic timescale of $43.65^{+16.9}_{\ 14.7}$ minutes, within one σ, and a standard deviation of $22.9^{+0.83}_{\ 0.72}\ \mathrm{cm\,s}^{\ 1}$, within three σ of the predicted value. By examining spectra and RVs as a function of line formation temperature, we investigated the sensitivity of granulation-induced RV variations across different photospheric layers. We extracted RVs from various photospheric depths using both the line-by-line (LBL) and cross-correlation function (CCF) methods to mitigate any extraction method biases. Our findings indicate that granulation variability is detectable in both temperature bins, with the cooler bins, corresponding to the shallower layers of the photosphere, aligning more closely with predicted values.

Download/Website: `https://academic.oup.com/mnras/article/543/3/1974/8256849`

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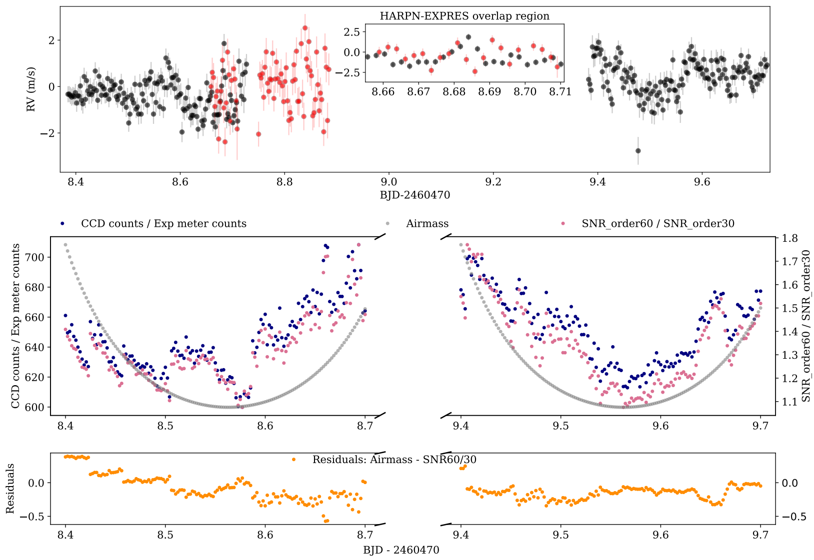

Figure 3: **Top:** The contemporaneously acquired HARPS-N (black) and EXPRES (red) radial-velocity observations of HD 166620. **Middle:** Diagnostic ratios CCD counts/exposure-meter counts (dark blue) and SN60/SN30 (dark pink), plotted against Julian date of the HARPS-N observations. Both metrics display a striking resemblance, with measured correlation coefficients of 0.99 and 0.98 for nights 1 and 2, respectively. The airmass is shown in grey. **Bottom:** The residuals after subtracting the airmass from the ratios, revealing distinct structures.

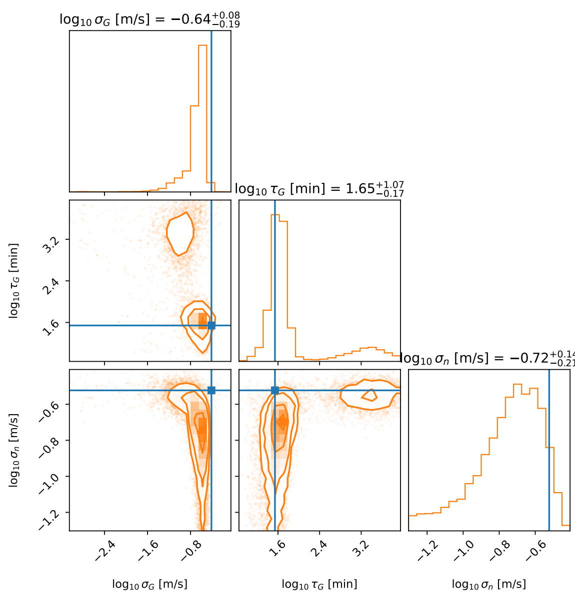

Figure 4: MCMC posterior distribution plots for the one-aperiodic GP model of the de-trended HARPS-N DRS RVs. The parameters shown are the granulation standard deviation, $\log_{10}\sigma_G$, the granulation timescale, $\log_{10}\tau_G$, and the white noise, $\log_{10}\sigma_n$. The predicted values are indicated by the blue lines. The smaller peak in the distributions likely comes from the window function.

GPI+SPHERE detection of a $6.1 M_{\mathrm{Jup}}$ circumbinary planet around HD 143811

V. Squicciarini[1,2], *J. Mazoyer*[2], *C. Wilkinson*[2], *A.-M. Lagrange*[2,3], *P. Delorme*[3], *A. Radcliffe*[2], *O. Flasseur*[4], *F. Kiefer*[2] *& E. Alecian*[3]

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Astronomy & Astrophysics, in press (arXiv:2509.06009)

Owing to its sensitivity to wide-orbit giant exoplanets, direct imaging is uniquely positioned to shed light on the interplay between protoplanetary disks and stellar hosts. In addition to constraining formation models, new detections are natural benchmarks for an atmospheric characterization. The COBREX project performed an extensive reanalysis of archival observations from SPHERE and GPI using advanced post-processing techniques, that enhanced the detection sensitivity at close separation. Newly found companion candidates are being followed up to confirm new planets. Following the detection of a companion candidate around the young (15 Myr) binary star HD 143811, we collected a new observation with SPHERE@VLT (0.95-1.67 μm) to confirm the presence of the source and to assess its physical bond to the target. We report the discovery of a new exoplanet orbiting HD 143811 at a projected separation of 0.43" 60 au. Based on a 9-year-long baseline, we derive a mostly face-on and low-eccentricity orbit with a period of 320^{+250}_{90} years. The luminosity of the planet, constrained through the H-band spectrum from GPI, H-band photometry from SPHERE/IRDIS and YJ upper limits from SPHERE/IFS, allows us to place strong constraints on the intrinsic temperature of the planet ($T_{\mathrm{int}} = 1000$ 30 K), which corresponds to a mass of $6.1^{+0.7}_{0.9}$ M_{Jup}. HD 143811(AB)b is the second planet ever discovered by GPI. It joins the small cohort of circumbinary planets discovered through imaging and becomes a prime target for follow-up formation, dynamical, and characterization studies.

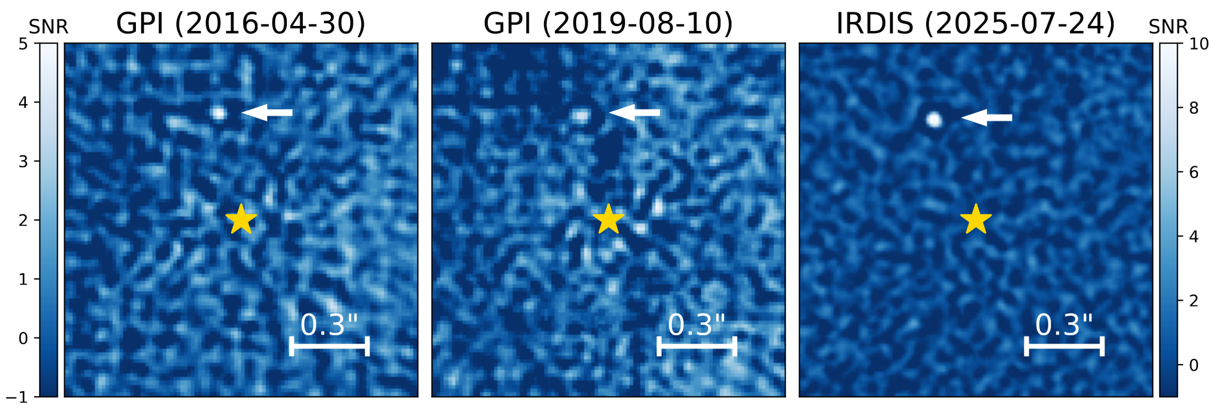

Figure 5: S/N maps for the three observations. The new planet HD 143811 b is indicated by white arrows. The image scale is shown in the lower right corner; the left color bar refers to the two GPI maps.

Download/Website: `https://www.aanda.org/component/article?access=doi&doi=10.1051/0004-6361/202557104`

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Laboratory study of amino acids on amorphous Mg-silicate using infrared spectroscopy and X-ray diffraction - implications for the survival and delivery of interstellar organics to the solar nebula and early Earth

S.P. Thompson, S. J. Day
Diamond Light Source, Harwell Science and Innovation Campus, Chilton, Didcot, Oxfordshire OX11 0DE, UK

Monthly Notices of the Royal Astronomical Society, published (2025MNRAS.543..951T)

Organic molecules formed within interstellar dust grain ice mantles may have contributed to the pre-biogenic organic inventory of the early Earth. Their ability to remain on the grain following mantle sublimation is likely to have been an important factor. Glycine, alanine, glutamic acid and aspartic acid were deposited on hydrogenated and dehydrogenated amorphous $MgSiO_3$ particles and characterised by infrared spectroscopy and synchrotron X-ray powder diffraction. In situ synchrotron X-ray powder diffraction was subsequently used to monitor the loss of the amino acids from the silicates as a function of temperature. Only glycine and alanine were found to deposit on the amorphous silicate particles, evidenced by characteristic infrared bands and diffraction features. Glycine deposited as mixed phases, while D- and L-alanine deposited as single phases. A number of peptide and other phases of astronomical and astrobiological interest were also observed. Glycine was lost from the silicate at temperatures below the melting/degradation temperature of pure glycine, with 15 C difference between the hydrogenated and dehydrogenated silicates. Alanine survived to temperatures well above its melting point, but with clear temperature differences between L- and D- forms. Not all amino acids that potentially form under interstellar conditions appear able to transfer to bare silicate surfaces during ice mantle loss under warm early solar nebula/disk conditions. This could point to a possible astromineralogical selection mechanism that may have influenced the specific species, their relative proportion and therefore the contributions that pre-solar organics delivered by pre-solar dust may have made to the Earth's original organic inventory.

Download/Website: `https://doi.org/10.1093/mnras/staf1457`
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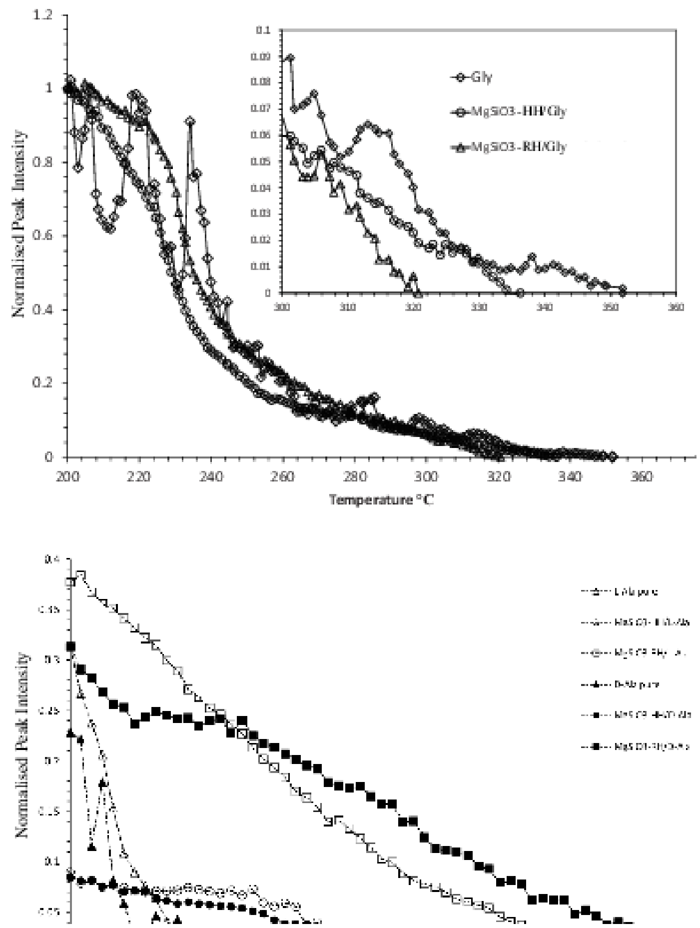


Figure 6: Loss of glycine and alanine from hydrogenated (HH) and reduced-hydrogenation (RH) amorphous $MgSiO_3$ silicate particles with increasing temperature. The figures plot the reduction in normalised peak intensity for characterictic X-ray diffraction features for each phase, measured in situ during thermal processing, and show clear differences between HH and RH silicates for both glycine and alanine, and between L- and D-forms of alanine for each silicate.

3 Exoplanet Archives

September 2025 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, October 14, 2025

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.

September 25, 2025

Six New Planets and Five Spectra

This week's new planets are four super-Jupiters and two non-transiting sub-Neptunes. They are TOI-2141 c & d, TOI-4773 b, TOI-5261 b, TOI-5350 b, and TOI-6420 b. There are also new parameters for 51 Eri b, bet Pic b & c, HAT-P-54 b, HD 4113 b, pi Men c, TOI-2141 b, TOI-4138 b, VHS J125601.92-125723.9 b, and WASP-4 b.

New spectra from NASA's JWST and Hubble space telescopes have also been added to the Atmospheric Spectroscopy Table for HD 3167 c, KELT-7 b, and WASP-127 b.

September 17, 2025

The NASA Exoplanet Archive Hits 6,000 Planets!

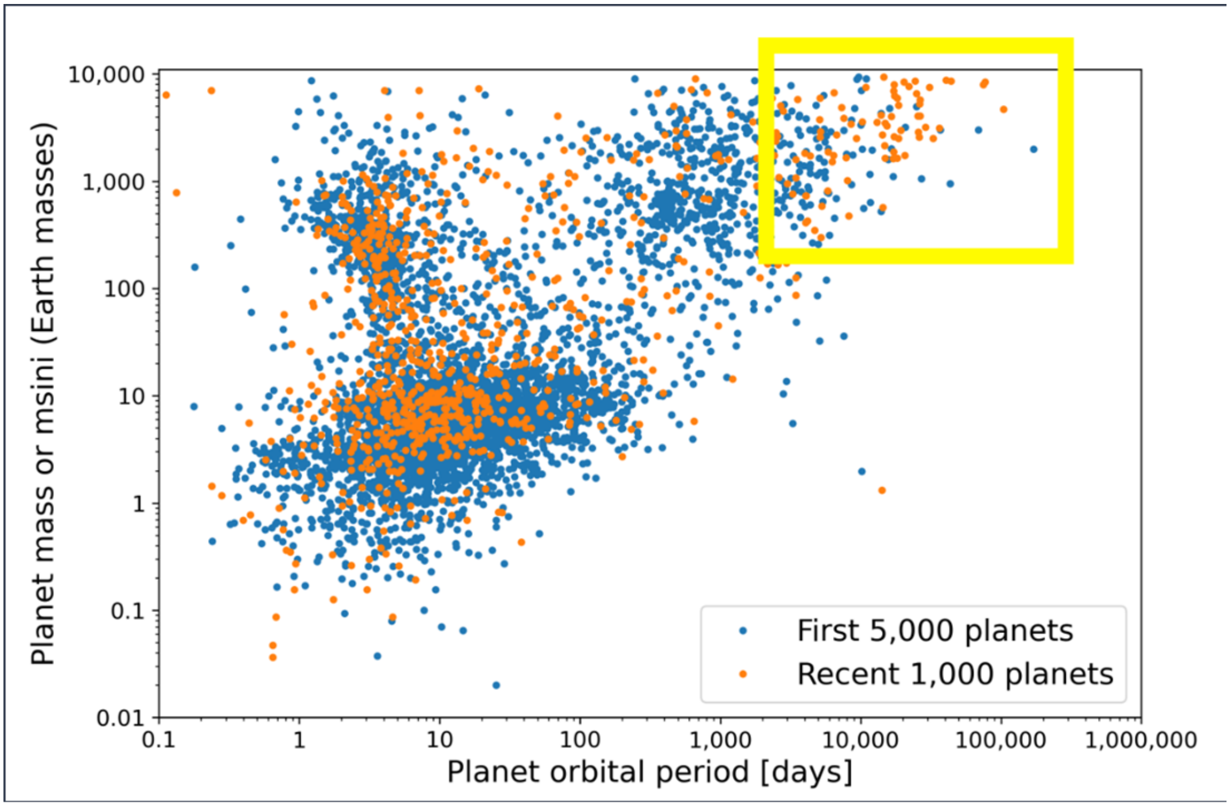
From sub-Earth-sized planets to hot Jupiters and everything in between, today's milestone highlights the rapid growth of exoplanet discoveries and their importance to understanding worlds beyond our own.

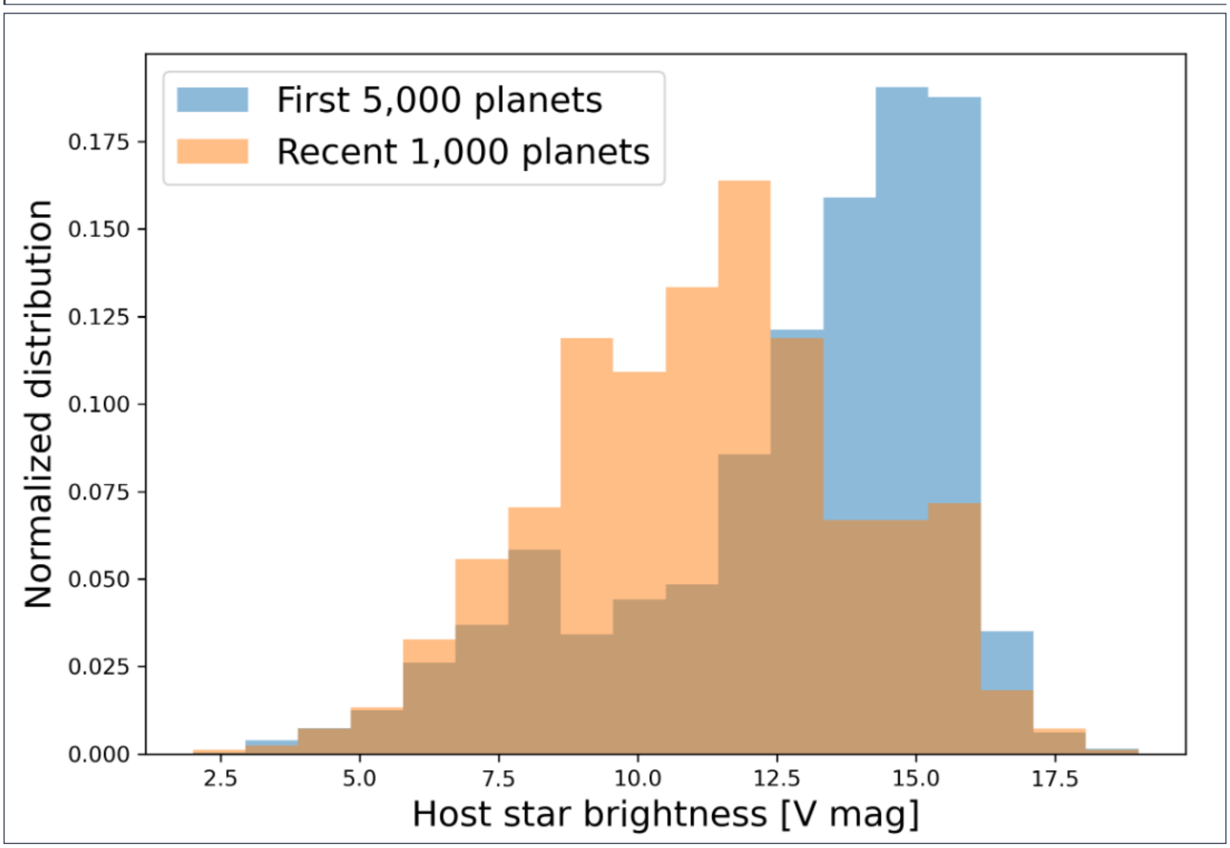
Since our 5,000-exoplanet milestone was reached in March 2022, the newest 1,000 planets have helped us expand the parameter space of known planets, and dramatically increase the number of planets we can characterize in detail.

To illustrate the former point, this plot shows the distribution of planets in their mass (or minimum mass) and their orbital period. The yellow box highlights one area where the most recent 1,000 planets build on our previous discoveries—cool, giant planets that are analogs to Jupiter and Saturn in our solar system. These planets have largely been discovered by the radial velocity technique, as the increasing baseline of long, ongoing surveys reaches sensitivity to these distant planets, as well as the direct imaging technique as new instruments come online and search algorithms are refined.

In the figure below, a scatter plot (top) of all confirmed exoplanets in the NASA Exoplanet Archive, with the x-axis representing the planet mass/msini in Earth masses from .01 to 10,000 and the y-axis representing planet orbital periods in days, from .1 to 1,000,000. Blue/gray points indicate confirmed planets added to the NASA Exoplanet Archive before March 2022; orange points indicate planets added to the archive since March 2022.

To illustrate the latter point, the bottom plot in the figure shows the brightness distribution (in V magnitudes) of the first 5,000 planets, dominated by fainter Kepler and K2 targets, compared to the most recent 1,000 planets. The newest planets are typically orbiting stars that are eight times brighter than the older planets, largely due to the fact


Planet mass or msini (Earth masses)
10,000
1,000
100
10
1
0.1
0.01
0.1
1
10
100
1,000
10,000
100,000
1,000,000
Planet orbital period [days]
First 5,000 planets
Recent 1,000 planets


Normalized distribution
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
2.5
5.0
7.5
10.0
12.5
15.0
17.5
Host star brightness [V mag]
First 5,000 planets
Recent 1,000 planets

that nearly half (490) of the 1,000 new planets were discovered by NASA's Transiting Exoplanet Survey Satellite (TESS). The TESS mission is performing an all-sky survey and therefore observes many more bright stars than NASA's Kepler/K2 mission, which concentrated on smaller footprints on the sky. Planets orbiting brighter stars are more easily followed up with other techniques like radial velocity, to measure their masses precisely, and their atmospheres are more readily observed with telescopes like NASA's Hubble and Webb space telescopes.

This Week's New Data

This week's new planets that tipped our counter to 6,007 include three exoplanets— WISPIT 1 b & c and WISPIT 2 b)—that were directly imaged orbiting young, Sun-like stars. The WISPIT 2 system is particularly intriguing because of the clear detection of planet b, which has cleared a gap in a protoplanetary disk. (Go, baby planet!)

Learn more about WISPIT 2 b in this University of Leiden release and the two coordinated discovery papers; van Capelleveen et al. (2025) and Close et al. (2025). The circumbinary WISPIT 1 system is described in another paper by van Capelleveen et al. (2025).

The new planets are GJ 536 c, HD 224018 b, c, & d, HD 28471 b, c, & d, HIP 41378 g, K2-73 c, TOI-1438 b & c, TOI-2322 b & c, TOI-6303 b, TOI-6330 b, WISPIT 1 b & c, and WISPIT 2 b.

There are also 10 new spectra, including four from TRAPPIST-1 e taken by JWST, added to the Atmospheric Spectroscopy Table.

Exoplanet Science For Everyone

Today's announcement kicks off NASA's observance of 30 years of exoplanet science, with a press release and video. More stories, resources, and activities will be posted to the NASA Exoplanets website in the coming months.

While the search for Earth 2.0 continues, planets outside our solar system continue to spark widespread interest and imagination. The following video series help tell the stories of the search for new worlds—and the researchers who study them:

The Explore Exoplanets: The Discoverers video interview series dives into the minds of the scientists who have discovered planets. They share both their eureka moments and their favorite fictional planets, which host and NExScI Chief Scientist Jessie Christiansen match to the closest real-world counterparts in the Exoplanet Archive. (Check out the highlight reel!)

The Astrophysics Variety Hour is an irreverent (and informative) multimedia program about where planets and people came from and how astronomers find exoplanets. Hosted by Felicia Day, this lighthearted series was produced by NASA's Universe of Learning collaboration.

The Habitable Zone, also by Universe of Learning, is a fictional story with stars (the celebrity kind) from the television show The Expanse, and illustrates the challenges of finding an exoplanet that can support human life.

Exoplanets are still too far to visit in person, but they're only a scroll away at the Exoplanet Travel Bureau.

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

Contact: `mharbut@caltech.edu`

4 Jobs and Positions

ESA Archival Research Visitor Programme

Guido De Marchi

ESAC (Spain) and ESTEC (Netherlands), Spring 2026 to Autumn 2026

To increase the scientific return from its space science missions, the European Space Agency (ESA) welcomes applications from scientists interested in pursuing research projects based on data publicly available in the ESA Space Science Archives.

The ESA Archival Research Visitor Programme is open to scientists, at all career levels, who are affiliated with institutes in ESA Member States and Cooperating States. All visits must comply with the ESA security directives, which may necessitate additional checks. Early-career scientists and PhD students are particularly encouraged to apply. We encourage applications from women and minorities. The peer-review evaluation process is anonymised to ensure equal opportunities for all applicants.

During their stay, visiting scientists will have access to archives and mission specialists for help with the retrieval, calibration, and analysis of archival data. In principle, all areas of space research covered by ESA science missions can be supported.

Residence lasts typically between one and three months, also distributed over multiple visits. Research projects can be carried out at ESAC (Madrid, Spain) and at ESTEC (Noordwijk, Netherlands). To offset the expenses incurred by visitors, ESA covers travel costs from and to the home institution and provides support for lodging expenses and meals.

Applications received by 10 November 2025 will be considered for visits in spring and summer 2026.

For further details, including areas of research and contact information, please refer to the website and email address indicated below.

Download/Website: `https://www.cosmos.esa.int/web/esdc/visitor-programme`

Contact: `arvp@cosmos.esa.int`

2026 Trottier Postdoctoral Fellowship in Exoplanetary Science

Prof. René Doyon

Université de Montréal, Montréal, Canada, Starting date: May to September 2026

The Trottier Institute for Research on Exoplanets (IREx), affiliated with the Dept. of Physics of the Université de Montréal, invites applications for the **Trottier Postdoctoral Fellowship**, which enables cutting-edge independent research in experimental, observational, or theoretical astrophysics applied to the study of exoplanets and related fields of astrophysics and astronomical instrumentation.

A PhD in physics, astronomy or related discipline is required when the position starts. Preference will be given to applicants who have obtained their Ph.D. within the last 3 years. Applicants with career interruptions due, for example, to parental, medical, or family leaves are invited to mention this in their cover letter if desired. The position start date is between **May and September 2026**, and is for two years, renewable for a third year subject to performance and availability of funds.

Applicants should submit a cover letter (optional, max. 1 page), a statement of research interests (max. 2 pages), and a CV incl. a list of publications through the dedicated form https://forms.gle/nbDkwRPerbp2h4aT9. They should also arrange to have three referees send a letter of reference to **irex-applications@umontreal.ca by December 4, 2025**, for full consideration. However, this position will remain open until filled.

IREx consists of a team of about 60 people from several research institutions located in Quebec, Canada (Université de Montréal, McGill University, Bishop's University, Montreal Planetarium, Université Laval), working at the forefront of exoplanet research. Our professors, researchers, and students are actively involved in large international projects related to the detection and characterisation of exoplanets, notably the James Webb Space Telescope, the SPIRou and NIRPS spectrographs, and have privileged access to time and data from these instruments. IREx also has a vibrant science education and outreach program. We train scientists who have exceptional scientific research skills, but also outstanding communication skills. We strongly encourage applications from women, visible and ethnic minorities, Indigenous people, persons with disabilities and people of all sexual orientations and gender identities to apply.

More information on the position and on our institute and its members, our research programs, our EPO initiatives and our EDI efforts can be found on our website: https://exoplanetes.umontreal.ca/en.

Download/Website: *https://exoplanetes.umontreal.ca/en/job/2026-trottier-postdoctoral-fellowship/*

Contact: marie-eve.naud@umontreal.ca

Postdoctoral Position in Planetary Astronomy and Public Outreach at Boise State University

Brian Jackson

Boise, Idaho USA, Fall 2025

The Department of Physics at Boise State University invites applicants for a postdoc in Brian Jackson's group. Expertise in exoplanet transit photometry or martian atmospheric science desired. The postdoc will also participate in outreach efforts and student advising. Intended start date is fall 2025 but can be negotiated. Compensation includes about $55k in salary plus benefits, as well as conference travel, publication charges, and moving expenses. The appointment is for one year with a likely renewal for a second year subject to performance and funding availability. Applicants must have a Ph.D. in physics, astronomy, planetary science, or a related field at appointment. Boise State University is located in downtown Boise, which is rapidly growing and frequently ranked among the best cities in which to live and work in the US. Please submit a CV, a 3-page research statement, 1-page outreach statement, & contact information for professional references to `https://jobs.boisestate.edu/en-us/job/499279/post-doctoral-research-fellow`. Application review expected to begin first week of Nov with offer by end of Nov. Direct questions to Prof. Brian Jackson - bjackson@boisestate.edu.

Download/Website: `https://aas.org/jobregister/ad/f84b84dd`

Contact: `bjackson@boisestate.edu`

5 Conferences and Workshops

PLATO Theory Meeting 2026

SOC: Richard Nelson[1], Ravit Helled[2], Farzana Meru[3], Christoph Mordasini[4]
[1] Queen Mary University of London
[2] University of Zurich
[3] University of Warwick
[4] University of Bern

Queen Mary University of London, 12th - 14th January 2026

The PLATO Theory Meeting 2026 will be held at Queen Mary University of London between 12-14 January 2026. The webpage for the meeting, where you will find more information and be able to register and submit a title and abstract for a presentation, can be found here:

The meeting will be primarily focussed on the formation, internal structure and dynamical evolution of planets and planetary systems, and hence will be organised around the following PLATO work packages:
WP116100 - Composition & Formation of Gas and Ice Giants
WP116 200 - Mass-radius Terrestrial Planets
WP116 300 - Planetary Formation and Orbital Evolution
WP116 310 - Protoplanetary Disc Models
WP116 320 - Disc-Planet Interactions
WP116 330 - The Assembly of Planetary Systems
WP116 340 - The Post-Formation Long-term Dynamical Evolution of Planetary Systems
WP116 350 - Planet Formation and Evolution in Binary Systems
WP116 360 - The Influence of Birth Environment on the Formation and Evolution of Planetary Systems
WP116 370 - Post-Main Sequence Evolution of Planetary Systems
WP116 380 - Statistical Comparison Between Theory and PLATO Data
WP116 400 - Atmospheres of PLATO Terrestrial Planets
WP116 600 - Dynamical Interactions in Multiplanet Systems
WP116 610 - Long-term Dynamical Evolution of Planetary Systems
WP116 620 - Stability and Resonances in Multi-Planet Systems
WP116 630 - Tidal Dissipation and Evolution in Multi-Planet Systems
WP116 640 - Rotational Evolution of Planets in Multiple Systems
For more information about the PLATO work packages please click on the following link:
`https://warwick.ac.uk/fac/sci/physics/research/astro/plato-science/research/researchareas/exoplanets/`

The meeting is open to everyone who is interested in contributing to PLATO science, not just existing members of the work packages, so please forward this message to anyone who may be interested in attending.

We look forward to seeing you in London in January 2026!
The SOC: Richard Nelson, Ravit Helled, Farzana Meru, Christoph Mordasini

Download/Website: `https://rpn1966.github.io/platotheory2026/`

Contact: `R.P.Nelson@qmul.ac.uk`

6 As seen on astro-ph

The following list contains exoplanet related entries appearing on astro-ph in September 2025.
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.

September 2025

astro-ph/2509.00149: **Mapping atmospheric features of the planetary-mass brown dwarf SIMP 0136 with JWST NIRISS** *by Roman Akhmetshyn et al.*
astro-ph/2509.00151: **Atmospheric composition and circulation of the ultra-hot Jupiter WASP-121b with joint NIRPS, HARPS and CRIRES+ transit spectroscopy** *by Valentina Vaulato et al.*
astro-ph/2509.00364: **3D Simulations of Convective Entrainment in Gas Giants: Rotation and Decreasing Luminosity as Barriers to Mixing** *by Shu Zhang et al.*
astro-ph/2509.00762: **Improved characterization of the TOI-2141 system: a dense sub-Neptune with non-transiting inner and outer companions** *by R. Luque et al.*
astro-ph/2509.01669: **Are Local Group Dwarf Spheroidal Galaxies the First Safe Planet-hosting Environments?** *by Stefano Ciabattini et al.*
astro-ph/2509.01672: **Tertiary Tides with Eccentric Orbits** *by Yan Gao et al.*
astro-ph/2509.01697: **Detecting water ice and vapor disks originating from icy planetary bodies around white dwarfs with future PRIMA observations** *by Ayaka Okuya, Hideko Nomura*
astro-ph/2509.02745: **The Influence of Cold Jupiters in the Formation of Close-in planets. II. Collisional Growth of Planetesimals** *by Marcela Best et al.*
astro-ph/2509.02825: **High Resolution ALMA Data of the Fomalhaut Debris Disk Confirms Apsidal Width Variation** *by Jay S. Chittidi et al.*
astro-ph/2509.02884: **ALMA Reveals an Eccentricity Gradient in the Fomalhaut Debris Disk** *by Joshua B. Lovell et al.*
astro-ph/2509.03549: **Revisiting the Radius Valley Across Stellar Types: A Transit-Only Analysis of M, K, G, and F Stars with Updated NASA Exoplanet Archive Data** *by Sukdev Mahapatra*
astro-ph/2509.02848: **Observational Tests of Terrestrial Planet Buffering Feedbacks and the Habitable Zone Concept** *by Morgan Underwood et al.*
astro-ph/2509.02681: **A Striking First Impression: CGI Commissioning Observations of the AB Aurigae Protoplanetary System** *by Thayne Currie et al.*
astro-ph/2509.01930: **An Analysis of the Radius Gap in a Sample of Kepler, K2 and TESS exoplanets orbiting M Dwarf Stars** *by Fábio Wanderley et al.*
astro-ph/2509.02665: **Multi-band Spectral and Astrometric Characterization of the HIP 99770 b Planet with SCExAO/CHARIS and Gaia** *by Danielle Bovie et al.*
astro-ph/2509.02666: **Migration and Evolution of giant ExoPlanets (MEEP) II: Super-Jupiters and Lithium-rich Host Stars** *by Jack Schulte et al.*
astro-ph/2509.02507: **Sub-Jupiter Gas Giants Orbiting Giant Stars Uncovered using a Bayesian Framework** *by J. S. Jenkins et al.*
astro-ph/2509.02657: **On the synergetic use of Ariel and JWST for exoplanet atmospheric science** *by Quentin Changeat et al.*
astro-ph/2509.02128: **First JWST thermal phase curves of temperate terrestrial exoplanets reveal no thick atmosphere around TRAPPIST-1 b and c** *by Michaël Gillon et al.*
astro-ph/2509.02120: **Constraints on the possible atmospheres on TRAPPIST-1 b: insights from 3D climate modeling** *by Alice Maurel et al.*
astro-ph/2509.01937: **Radiative Transfer Modeling of a Shadowed Protoplanetary Disk assisted by a Neural Network** *by Jonathan P. Williams et al.*
astro-ph/2509.02685: **Dynamical Evolution of Quasi-Hierarchical Triples** *by Yonadav Barry Ginat et al.*

astro-ph/2509.01896: **ALMA High-resolution Observation for the Transitional Disk around IRAS 04125+2902** *by Ayumu Shoshi et al.*

astro-ph/2509.03623: **Revealing Fine Structure in Protoplanetary Disks with Physics Constrained Neural Fields** *by Aviad Levis et al.*

astro-ph/2509.03624: **A JWST/MIRI view of k Andromedae b: Refining its mass, age, and physical parameters** *by N. Godoy et al.*

astro-ph/2509.03617: **Exoplanetary atmospheres retrieval via a quantum extreme learning machine** *by Marco Vetrano et al.*

astro-ph/2509.04531: **OrbDot: A Python package for studying the secular evolution of exoplanet orbits** *by Simone R. Hagey, Aaron Boley*

astro-ph/2509.03767: **The ODYSSEUS Survey. Using accretion and stellar rotation to reveal the star-disk connection in T Tauri stars** *by Caeley V. Pittman et al.*

astro-ph/2509.03724: **Proto-planetary disk composition-dependent element volatility in the context of rocky planet formation** *by Rob J. Spaargaren et al.*

astro-ph/2509.03492: **Predictions of the Nancy Grace Roman Space Telescope Galactic Exoplanet Survey. III. Detectability of Giant Exomoons of Wide Separation Giant Planets** *by Matthew Lastovka et al.*

astro-ph/2509.03455: **Nitrogen chemistry of hycean worlds on the example of K2-18b** *by Maja W. Radecka, Paul B. Rimmer*

astro-ph/2509.03325: **Optimising reference library selection for reference-star differential imaging of discs with SPHERE/IRDIS** *by S. Stasevic et al.*

astro-ph/2509.03276: **Stellar-activity analysis of the nearby M dwarf GJ 526. Multi-dimensional Gaussian-process modelling of RV, FWHM and S-index** *by A. K. Stefanov et al.*

astro-ph/2509.03248: **Alpha effect in density-stratified turbulence with large-scale shear in astrophysical clouds and discs** *by Igor Rogachevskii, Nathan Kleeorin*

astro-ph/2509.03134: **A second low-mass planet orbiting the nearby M-dwarf GJ 536** *by A. Suárez Mascareño et al.*

astro-ph/2509.04564: **The Evolution and Internal Structure of Neptunes and Sub-Neptunes: The importance of thermal conductivity in non-convective regions** *by Mark Eberlein, Ravit Helled*

astro-ph/2509.04558: **A carbon-rich atmosphere on a windy pulsar planet** *by Michael Zhang et al.*

astro-ph/2509.04282: **How two-dimensional are planet–disc interactions? I. Locally isothermal discs** *by Amelia J. Cordwell et al.*

astro-ph/2509.03894: **Second-Generation Planet Formation in Post-AGB Discs: Testing the Role of Gravitational Instability** *by Ali Pourmand et al.*

astro-ph/2509.04297: **The changing transit shape of TOI-3884 b** *by Hritam Chakraborty et al.*

astro-ph/2509.05522: **Six microlensing planets detected via sub-day signals during the 2023 – 2024 season** *by Cheongho Han et al.*

astro-ph/2509.05414: **JWST-TST DREAMS: NIRSpec/PRISM Transmission Spectroscopy of the Habitable Zone Planet TRAPPIST-1 e** *by Néstor Espinoza et al.*

astro-ph/2509.05407: **JWST-TST DREAMS: Secondary Atmosphere Constraints for the Habitable Zone Planet TRAPPIST-1 e** *by Ana Glidden et al.*

astro-ph/2509.05082: **The Variable Radio Emission of V830 Tau and Its Putative Planet** *by Rachel A. Osten, Scott J. Wolk*

astro-ph/2509.05038: **TOI-1743 b, TOI-5799 b, TOI-5799 c and TOI-6223 b: TESS discovery and validation of four super-Earth to Neptune-sized planets around M dwarfs** *by S. Yalçınkaya et al.*

astro-ph/2509.04944: **Observation of an Accreting Planetary-Mass Companion with Signs of Disk-Disk Interaction in Orion** *by Emilie Vila et al.*

astro-ph/2509.04793: **Identifying Exoplanets with Deep Learning: A CNN and RNN Classifier for Kepler DR25 and Candidate Vetting** *by Bibin Thomas et al.*

astro-ph/2509.05645: **Stereovision Image Processing for Planetary Navigation Maps with Semi-Global Match-**

ing and Superpixel Segmentation *by Yan-Shan Lu et al.*

astro-ph/2509.06072: **An updated catalog of HIRES/Keck radial velocity measurements. Including Ca II HK measurements** *by Jerusalem T. Teklu et al.*

astro-ph/2509.06009: **GPI+SPHERE detection of a 6.1 M_{Jup} circumbinary planet around HD 143811** *by Vito Squicciarini et al.*

astro-ph/2509.07226: **A transformer-based generative model for planetary systems** *by Yann Alibert et al.*

astro-ph/2509.07063: **Simulations of Flare Chemistry in Brown Dwarf Companions to Active M Dwarfs** *by Aidan Gibbs, Michael P. Fitzgerald*

astro-ph/2509.06847: **HET/HPF observations of Helium in warm, hot, and ultra-hot Jupiters** *by Jaume Orell-Miquel et al.*

astro-ph/2509.07048: **What is the maximum radius of cold planets?** *by David Garfinkle, Alberto G. Rojo*

astro-ph/2509.06772: **JWST Detection of Hydrocarbon Ices and Methane Gas on Makemake** *by Silvia Protopapa et al.*

astro-ph/2509.06747: **Direct Detection of Known Exoplanets in Reflected Light: Predicting Sky Position with Literature Orbit Solutions** *by Logan A. Pearce et al.*

astro-ph/2509.06738: **A Scaling Law for the Orbital Architecture of Planetary Systems Formed by Gravitational Scattering and Collisions** *by Eiichiro Kokubo et al.*

astro-ph/2509.06729: **HD 143811 AB b: A Directly Imaged Planet Orbiting a Spectroscopic Binary in Sco-Cen** *by Nathalie K. Jones et al.*

astro-ph/2509.06727: **Characterization of the Host Binary of the Directly Imaged Exoplanet HD 143811 AB b** *by Anne E. Peck et al.*

astro-ph/2509.07118: **On the Detection of Exorings in Reflected Light with JWST NIRCam** *by Rachel Bowens-Rubin et al.*

astro-ph/2509.06695: **Hydrodynamical Simulations of Planet Rebound Migration in Photo-evaporating Disks** *by Beibei Liu et al.*

astro-ph/2509.06708: **Fractal Aggregate Aerosols in the Virga Cloud Code I: Model Description and Application to a Benchmark Cloudy Exoplanet** *by Sarah E. Moran et al.*

astro-ph/2509.06310: **A Deep SETI Search for Technosignatures in the TRAPPIST-1 System with FAST** *by Guang-Yuan Song et al.*

astro-ph/2509.06494: **Understanding JWST water spectra: what can thermochemical models tell us about the (cold) water in protoplanetary disks?** *by Marissa Vlasblom et al.*

astro-ph/2509.06564: **Late accretion offers pathway to misaligned disk around the planet-hosting IRAS 04125+2902** *by L. -A. Hühn et al.*

astro-ph/2509.06590: **Gas mixing through a Smoothed Particle Hydrodynamics approach** *by Luca Maggioni et al.*

astro-ph/2509.06632: **Influence of Boundary Conditions and Heating Modes on the Onset of Columnar Convection in Rotating Spherical Shells** *by William Seeley et al.*

astro-ph/2509.07930: **Particle dynamics in TOI-178 planetary system** *by J. Boskovic et al.*

astro-ph/2509.08076: **High-Pass Filtering and Gaussian Process Regularization: Stellar Activity Characterization Techniques Applied to the 55 Cancri Planetary System** *by Justin Harrell, Sarah E. Dodson-Robinson*

astro-ph/2509.08044: **spherical: A Comprehensive Database and Automated Pipeline for VLT/SPHERE High-Contrast Imaging** *by Matthias Samland*

astro-ph/2509.07938: **The JADE code. II. Modeling the coupled orbital and atmospheric evolution of GJ 436 b to constrain its migration and companion** *by M. Attia et al.*

astro-ph/2509.07866: **The Role of Magnetospheric Rebound in Breaking Resonant Chains of Super-Earths and Mini-Neptunes** *by Mengrui Pan et al.*

astro-ph/2509.07644: **Simulating RISTRETTO: Proxima b detectability in reflected light** *by Maddalena Bugatti et al.*

astro-ph/2509.07409: **Reassessment of Kepler's habitable zone Earth-like exoplanets with data-driven null-signal templates** *by Jakob Robnik, Uroš Seljak*
astro-ph/2509.07297: **Bioverse: Assessing the Ability of Direct Imaging Surveys to Empirically Constrain the Habitable Zone via Trends in Albedo** *by Noah W. Tuchow et al.*
astro-ph/2509.09029: **Lyman-Alpha Emission from K and M Dwarfs: Intrinsic Profiles, Variability, and Flux in the Habitable Zone** *by Sarah Peacock et al.*
astro-ph/2509.08999: **HWO Target Stars and Systems: A Survey of Archival UV and X-ray Data** *by Sarah Peacock et al.*
astro-ph/2509.08994: **Snowball Bistability Vanishes at Moderate Orbital Eccentricity** *by Xuan Ji, Dorian S. Abbot*
astro-ph/2509.08905: **Demonstrating Improved Contrast on the Roman Coronagraph with Spatial Linear Dark Field Control** *by Thayne Currie et al.*
astro-ph/2509.08773: **Searching for GEMS: The Occurrence of Giant Planets orbiting M-dwarfs within 100 pc** *by Rowen I. Glusman et al.*
astro-ph/2509.08607: **MasconCube: Fast and Accurate Gravity Modeling with an Explicit Representation** *by Pietro Fanti, Dario Izzo*
astro-ph/2509.08737: **Constraining Brown Dwarf Desert Formation Mechanisms Through Statistical Comparison of Observed and Simulated Orbital Distributions** *by Behrooz Karamiqucham*
astro-ph/2509.08313: **Ground-Based Mid-IR Direct Imaging: The Origin of the Thermal Background on the Keck II Telescope and Correcting Instrumental Systematics** *by Jayke S. Nguyen et al.*
astro-ph/2509.08870: **Empirical Modeling of Zodiacal Backgrounds to Improve JWST NIRISS/SOSS Data Reduction** *by Tyler Baines et al.*
astro-ph/2509.08393: **Protoplanetary disks around magnetized young stars with large-scale magnetic fields I: Steady-state solutions** *by D. Steiner et al.*
astro-ph/2509.09317: **High-resolution simulations of disc tearing in the GW Orionis triple system** *by Alison K. Young*
astro-ph/2509.09450: **A Radially Resolved Magnetic Field Threading the Disk of TW Hya** *by Richard Teague et al.*
astro-ph/2509.09504: **YSES 2b is a background star: Differential astrometric M-dwarf measurements in time** *by Matthew Kenworthy et al.*
astro-ph/2509.09654: **Dual-Backend Multibeam Position Switching Targeted SETI Observations toward Nearby Active Planet-Hosting Systems with FAST** *by Jian-Kang Li et al.*
astro-ph/2509.09760: **Precise Constraints on the Energy Budget of WASP-121 b from its JWST NIRISS/SOSS Phase Curve** *by Jared Splinter et al.*
astro-ph/2509.09762: **The New Generation Planetary Population Synthesis (NGPPS). VII. Statistical comparison with the HARPS/Coralie survey** *by Alexandre Emsenhuber et al.*
astro-ph/2509.09858: **Initial conditions for tidal synchronisation of a planet by its moon** *by Valeri V. Makarov, Michael Efroimsky*
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astro-ph/2509.09892: **What do the fundamental constants of physics tell us about life?** *by Pankaj Mehta, Jane Kondev*
astro-ph/2509.09305: **Dust growth and planet formation by disc fragmentation** *by Hans Lee et al.*
astro-ph/2509.10619: **LEO-Vetter: Fully Automated Flux- and Pixel-Level Vetting of TESS Planet Candidates to Support Occurrence Rates** *by Michelle Kunimoto et al.*
astro-ph/2509.10614: **An Introduction to Dust Evolution and Vertical Transport in Protoplanetary Disks** *by Marion Villenave*
astro-ph/2509.10611: **The Photochemical Plausibility of Warm Exo-Titans Orbiting M-Dwarf Stars** *by Sukrit*

Ranjan et al.

astro-ph/2509.10218: **Ionospheric Electron Heat Flow Modulates Planetary Ambipolar Electric Fields** *by Liangliang Yuan, Shuanggen Jin*

astro-ph/2509.10136: **A four-planet system orbiting the old thick disk star TOI-1203** *by D. Gandolfi et al.*

astro-ph/2509.10090: **An intense geomagnetic storm originated from stealth Coronal Mass Ejection: remote and $insitu$ observations by near radially aligned spacecraft** *by P. Vemareddy, K. Selva Bharathi*

astro-ph/2509.10145: **Calculating Occultation Light Curves using Wavelets: Exponential Atmospheres and the Constraints of Static Stability** *by Leslie A. Young, Michael J. Person*

astro-ph/2509.10883: **Space Astrometry with Gaia: Advances in Understanding our Galaxy** *by Michael Perryman*

astro-ph/2509.10947: **Hydrocarbon Hazes on Temperate sub-Neptune K2-18b supported by data from the James Webb Space Telescope** *by Ruohan Liu et al.*

astro-ph/2509.11036: **Consistent Modeling of Non-equilibrium Dust Sublimation and the Interactions with Dust Evolution in the Inner Regions of Protoplanetary Disks** *by Sheng Xu et al.*

astro-ph/2509.12298: **SIMBA: A Python-based single-point astrochemical solver and analysis tool** *by Luke Keyte, Jason Ran*

astro-ph/2509.12120: **Evidence for a gap in the envelope mass fraction of sub-Saturns** *by Luis Thomas et al.*

astro-ph/2509.11909: **Dust trapping in protoplanetary discs after stellar flybys** *by Vasundhara R. Prasad et al.*

astro-ph/2509.12324: **VADER: A Variational Autoencoder to Infer Planetary Masses and Gas-Dust Disk Properties Around Young Stars** *by Sayed Shafaat Mahmud et al.*

astro-ph/2509.11694: **Disentangling disc and atmospheric signatures of young brown dwarfs with JWST/NIRSpec** *by D. González Picos et al.*

astro-ph/2509.11837: **Understanding variations of galactic energetic particles in the heliosphere: modelling and radiation hazard assessment** *by Miguel Orcinha et al.*

astro-ph/2509.11565: **The Polar Orbit of TOI-2374 b, a Planet in the Neptunian Ridge** *by Samuel W. Yee et al.*

astro-ph/2509.12328: **Do Outer Giants Inflate Neptune-sized Planets? An Architecture-Dependent Mass-Radius Relation** *by Dolev Bashi*

astro-ph/2509.12479: **BOWIE-ALIGN: Weak spectral features in KELT-7b's JWST NIRSpec/G395H transmission spectrum imply a high cloud deck or a low-metallicity atmosphere** *by Eva-Maria Ahrer et al.*

astro-ph/2509.12334: **No Giant Planets in the Eta Cassiopeiae System: Dynamical Implications of a Wide Binary Companion** *by Stephen R. Kane et al.*

astro-ph/2509.13587: **Direct Imaging Explorations for Companions from the Subaru/IRD Strategic Program II; Discovery of a Brown-dwarf Companion around a Nearby mid-M dwarf LSPM J1446+4633** *by Taichi Uyama et al.*

astro-ph/2509.13549: **Vanishing Refractories: Tracing Dust Evolution in the BP Tau Protoplanetary Disk** *by Marbely Micolta et al.*

astro-ph/2509.13521: **ARDENT: A Python package for fast dynamical detection limits with radial velocities** *by Manu Stalport et al.*

astro-ph/2509.13513: **Astrometric Methods for Detecting Exomoons Orbiting Imaged Exoplanets: Prospects for Detecting Moons Orbiting a Giant Planet in Centauri A's Habitable Zone** *by Kevin Wagner et al.*

astro-ph/2509.13422: **Discovery of an icy and nitrogen-rich extrasolar planetesimal** *by Snehalata Sahu et al.*

astro-ph/2509.13320: **Redefining interiors and envelopes: hydrogen-silicate miscibility and its consequences for the structure and evolution of sub-Neptunes** *by James G. Rogers et al.*

astro-ph/2509.13263: **Massive Retrograde Moons May Survive During Different Hot Jupiters' Migration Scenario** *by Yangjun Pu et al.*

astro-ph/2509.13544: **Characterizing the Time Variability of 2M1207 A+b with JWST NIRSpec/PRISM** *by Arthur D. Adams et al.*

astro-ph/2509.13143: **Increasing science yield with a twilight observing program with the SCALES instrument at Keck** *by Isabel J. Kain et al.*

astro-ph/2509.13122: **Puffed-up Inner Rings and Razor-thin Outer Rings in Structured Protoplanetary Disks** *by Haochang Jiang et al.*

astro-ph/2509.12898: **Asymmetric radiation in binary systems: Implications for disk evolution and chemistry** *by Pedro P. Poblete et al.*

astro-ph/2509.12737: **TSD: An inverse problem approach for recovering the exoplanetary atmosphere transmission spectrum from high-resolution spectroscopy** *by Nikolai Piskunov et al.*

astro-ph/2509.12671: **Identifying Fixed Points in the Three-Body Problem Using a High-Order Transfer Map** *by Xingyu Zhou et al.*

astro-ph/2509.12713: **Multiple Giant Impacts and Chemical Equilibria: An Integrated Approach to Rocky Planet Formation** *by Haruya Maeda, Takanori Sasaki*

astro-ph/2509.13152: **Probing Stellar Kinematics with the Time-Asymmetric Hanbury Brown and Twiss Effect** *by Lucijana Stanic et al.*

astro-ph/2509.14397: **Projective Plane Subdivision Method For Initial Orbit Determination** *by Ruiqi Huang et al.*

astro-ph/2509.14363: **KID Detector Readout Electronics Development for Habitable Worlds Observatory** *by Sean Bryan et al.*

astro-ph/2509.14325: **The cosmic journey of dust grains – from nucleation to planetary system** *by Kira Lund et al.*

astro-ph/2509.14321: **New Orbital Constraints for YSES 1 b and HR 2562 B from High-Precision Astrometry and Planetary Radial Velocities** *by Jonathan Roberts et al.*

astro-ph/2509.14318: **Mapping the SO2 Shoreline in Gas Giant Exoplanets** *by Ian J. M. Crossfield et al.*

astro-ph/2509.14156: **Transit Timing Variations in HIP 41378: CHEOPS and TESS confirm a non-transiting sixth planet in the system** *by P. Leonardi et al.*

astro-ph/2509.21348: **Asymptotics of spherical dynamos exhibiting a small-scale MAC balance** *by Justin A. Nicoski et al.*

astro-ph/2509.14101: **Diversity in planetary architectures from pebble accretion: Water delivery to the habitable zone with pebble snow** *by Sean McCloat et al.*

astro-ph/2509.13932: **Investigating aerosols as a reconciliation mechanism for K2-18 b JWST MIRI and NIRISS/NIRSpec observations** *by Adam Yassin Jaziri, Thomas Drant*

astro-ph/2509.13610: **Volatile-bearing mineral atmospheres of hot rocky exoplanets as probes of interior state and composition** *by Fabian L. Seidler et al.*

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