ExoPlanet News
An Electronic Newsletter

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Contents

1 Editorial

Welcome to Edition 197 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, December 9th (with a submission deadline ending on Sun December 7th, 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

A Carbon-rich Disk Surrounding a Planetary-mass Companion

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Astrophysical Journal Letters, published (2025ApJ...991L..46C)

During the final assembly of gas giant planets, circumplanetary disks (CPDs) of gas and dust form due to the conservation of angular momentum, providing material to be accreted onto the planet and the ingredients for moons. The composition of these disks has remained elusive, as their faint nature and short separations from their host stars have limited our ability to access them. Now, with the spatial and spectral resolution of the JWST/MIRI Medium-Resolution Spectrograph, we can observe and characterize this reservoir for wide-orbit planetary-mass companions for the first time. We present the mid-infrared spectrum from the CPD surrounding the young companion CT Cha b. The data show a carbon-rich chemistry with seven carbon-bearing molecules (up to C_6H_6) and one isotopolog detected and indicate a high gaseous C/O > 1 that is in contrast with the elemental abundance ratios typically measured in directly imaged gas giant atmospheres. This carbon-rich chemistry is also in stark contrast to the spectrum of the disk surrounding the host star, CT Cha A, which shows no carbon-bearing molecules. This difference in disk chemistry between the host disk and its companion indicates rapid, divergent chemical evolution on ~million-year timescales. Nonetheless, the chemical properties of the CPD follow trends observed in isolated objects, where disks transition from an oxygen-rich to carbon-rich composition with decreasing host mass. Our results provide the first direct insight into the chemical and physical properties of material being accreted onto a gas giant analog and into its potential moon system.

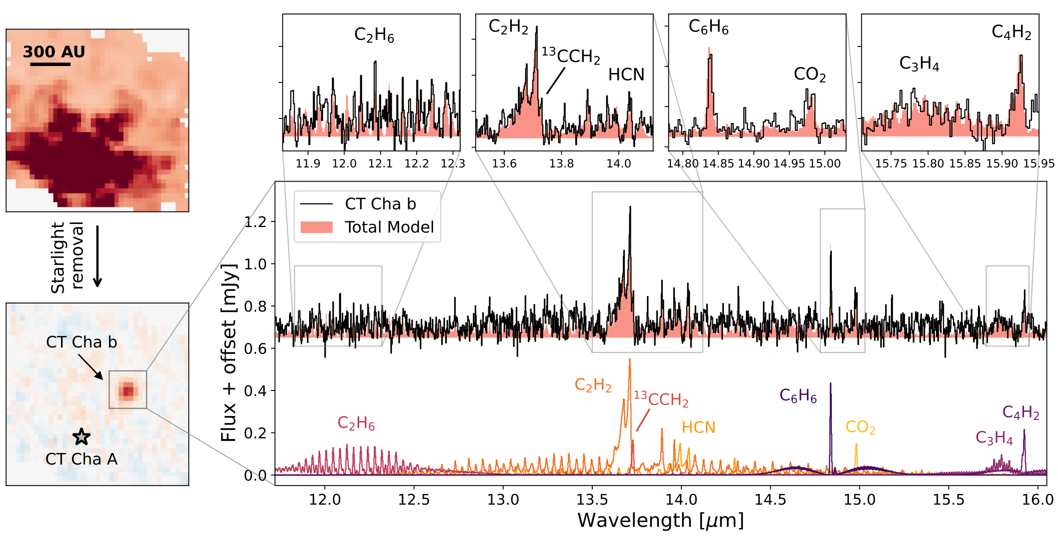

Figure 1: Observed spectrum of CT Cha b. Top left: calibrated JWST/MIRI MRS data of the CT Cha system, showcasing the stellar point-spread function dominating the image at 13.3˘15.6 μm. Bottom left: a spectral cross-correlation map of the same field of view revealing the companion. A gray star marks the location of the host star. Right: continuum-subtracted spectrum of CT Cha b (black) compared to a total model (red shaded area) composed of molecular emission from C_2H_6, C_2H_2, $^{13}CCH_2$, HCN, C_6H_6, CO_2, C_3H_4, and C_4H_2, shown with models in the colors below. The four panels on top show selected wavelength regions that contain important molecular features.

Download/Website: `https://ui.adsabs.harvard.edu/abs/2025ApJ...991L..46C/abstract`
Contact: `gabriele.cugno@uzh.ch`

Direct Measurement of Extinction in a Planet-Hosting Gap

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The Astronomical Journal, in press (arXiv:2509.26617)

Recent disk observations have revealed multiple indirect signatures of forming gas giant planets, but high-contrast imaging has rarely confirmed the presence of the suspected perturbers. Here, we exploit a unique opportunity provided by the background star AS 209bkg, which shines through a wide annular gap in the AS 209 disk, to perform transmission spectrophotometry and directly measure the extinction from gap material for the first time. By combining new VLT/SPHERE and JWST/NIRCam observations with archival HST data from 2005, we model the spectral energy distribution (SED) of AS 209bkg over a 19-year baseline. We find that the SED and its variability are best explained by increasing extinction along the line of sight as AS 209bkg approaches the gap edge in projection. The extinction is best described by a combination of ISM-like extinction component and a grey extinction component. This points to the presence of grains in the disk outer gap that are larger than in the ISM. We find that the extinction in the gap at $\lambda \sim 4.0\ \mu$m is $A_{4\,\mu\mathrm{m}} = 2.7^{+0.7}_{-0.7}$ mag, while at Hα ($\lambda = 0.656\ \mu$m), where most searches for accretion signatures take place, the extinction could be as high as $A_{\mathrm{H}\alpha} = 4.2^{+0.9}_{-1.2}$ mag ($A_V = 4.6^{+1.0}_{-1.3}$). This suggests that even wide, deep gaps can significantly obscure emission from protoplanets, even those following a hot-start evolutionary model. Our extinction measurements help reconcile the discrepancy between ALMA-based predictions of planet-disk interactions and the non-detections from sensitive optical and near-infrared imaging campaigns.

Download/Website: `https://arxiv.org/abs/2509.26617`
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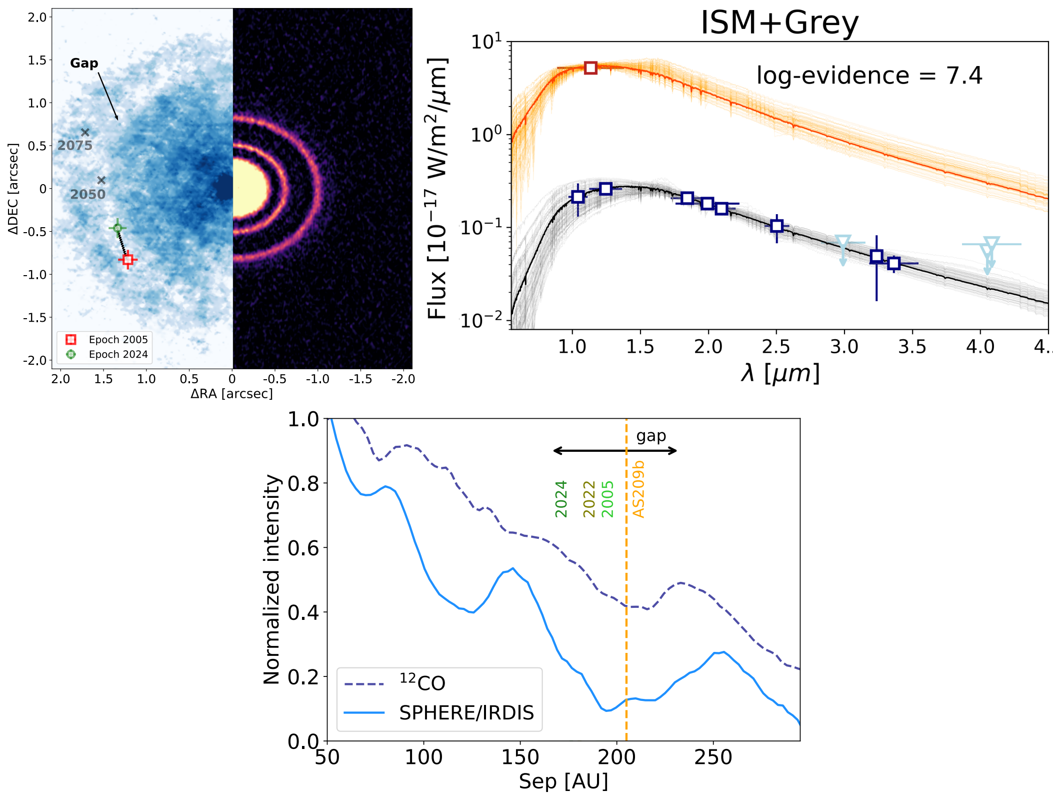

Figure 2: *Top left:* Projected location of AS 209bkg in the AS 209 disk. On the right side, the millimeter image is reported, showcasing a series of dust rings (Andrews et al., 2018). On the left side, the CO gas as measured by the DSHARP program (Andrews et al., 2018; Guzman et al., 2018) is reported. AS 209bkg shines through the deep outer CO gap. Grey crosses mark the expected position of AS 209bkg in 2050 and 2075. *Top right:* SED fits for AS 209bkg using the extinction models providing the best results. The observed fluxes are reported in blue squares (red for the 2005 HST detection), while detection limits are shown in light blue arrows. The best fit model is shown with black and orange lines for the 2022-2024 and the 2005 epochs, while 100 random samples drawn by the posterior distribution are shown in grey and orange. *Bottom:* AS 209 disk intensity profile in polarized H-band scattered light (solid light blue line, Avenhaus et al., 2018) and peak intensity of ^{12}CO (dashed dark blue line, obtained by azimuthally averaging the unobscured East side of the data from Andrews et al, 2018; Guzman et al., 2018 with the GoFish package, Teague 2019). Vertical shaded areas report the radial location (1σ uncertainties) of AS 209bkg in the three epochs presented in this paper, while the dashed orange line shows the radial separation of AS 209b Bae et al., 2022. The grey area shows the inner and outer radius of the wide gap observed in the disk (Guzman et al., 2018; Avenhaus et al., 2018).

BEBOP VIII. SOPHIE radial velocities reveal an eccentric, circumbinary brown dwarf

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University of Birmingham / BEBOP team

MNRAS, published (DOI:10.1093/mnras/staf1884)

Circumbinary configurations offer a test of planet formation in an altered environment, where the inner binary has perturbed a protoplanetary disc. Comparisons of the physical and orbital parameters between the circumbinary planet population and the population of exoplanets orbiting single stars will reveal how these disc perturbations affect the assembly of planets. Circumbinary exoplanets detected thus far typically have masses $< 3\,\mathrm{M_{jup}}$ raising the question of whether high-mass circumbinary planets are possible, and also whether population features such as the brown dwarf desert would appear in circumbinary configurations like for single star systems. Here, we report observations taken with the SOPHIE high-resolution spectrograph. These observations reveal an $m_\mathrm{b}\,\sin i_\mathrm{b} = 20.9\,\mathrm{M_{jup}}$ outer companion, on an eccentric ($e = 0.43$), $1800\,\mathrm{d}$ orbit, which we call BEBOP-4 (AB) b. Using dynamical arguments we constrain the true mass $m_\mathrm{b} < 26.3\,\mathrm{M_{jup}}$. The inner binary's two eclipsing stellar components have masses $M_\mathrm{A} = 1.51\,\mathrm{M_\odot}$, and $M_\mathrm{B} = 0.46\,\mathrm{M_\odot}$. Their orbital period is $72\,\mathrm{d}$, and their eccentricity is 0.27. This system contains the longest period binary surveyed by the BEBOP project. BEBOP-4 b is expected to be detectable using *Gaia* DR4 single epoch astrometric measurements. Despite a large period ratio of $\sim 25:1$, the substantial eccentricities of both orbits mean that the outer orbit is on the edge of orbital stability, and located in between two destabilising secular resonances. Should the outer companion survive, the BEBOP-4 system appears like a precursor to several post-common envelope binaries exhibiting eclipse timing variations where very massive circumbinary companions have been proposed.

Download/Website: `https://doi.org/10.1093/mnrasl/slad097`

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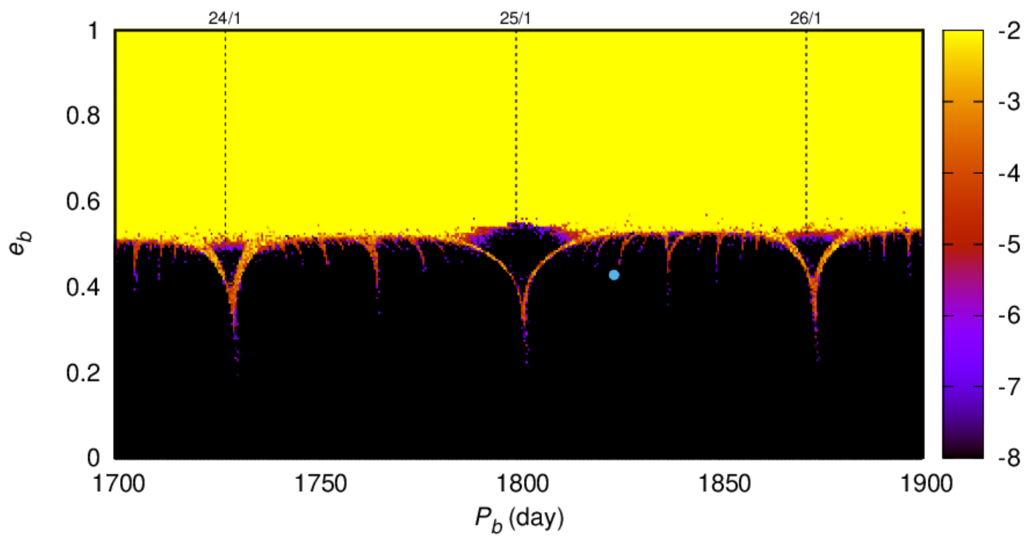

Figure 3: Despite being relatively far from the inner binary in period ratio, BEBOP-4b is very close to the instability limit, and located in between two destabilising mean motion resonances, giving rise to questions about how it got to its present orbit. This plot shows a aability analysis of the brown-dwarf in the BEBOP-4 system assuming coplanar orbits. For fixed initial conditions, the parameter space of the system is explored by varying the orbital period P_{inner} and the eccentricity e_{inner} of the brown-dwarf. A stability indicator is calculated which involved a frequency analysis of the mean longitude of the brown-dwarf. Chaotic diffusion is indicated when the main frequency of the mean longitude varies in time. Yellow points correspond to highly unstable orbits, while purple points correspond to orbits which are likely to be stable on a billion-years timescales. The dashed black lines indicate mean-motion resonances with the binary stars. The blue dot gives the position of the best fit solution.

The mass of the exo-Venus Gliese 12 b, as revealed by HARPS-N, ESPRESSO, and CARMENES

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Accepted by Monthly Notices of the Royal Astronomical Society, November 2025, (arXiv:2506.20564),

Small temperate planets are prime targets for exoplanet studies due to their possible similarities with the rocky planets in the Solar System. M dwarfs are promising hosts since the planetary signals are within our current detection capabilities. Gliese 12 b is a Venus-sized temperate planet orbiting a quiet M dwarf. We present here the first precise mass measurement of this small exoplanet. We performed a detailed analysis using HARPS-N, ESPRESSO, and CARMENES radial velocities, along with new and archival *TESS*, *CHEOPS*, and MuSCAT2/3 photometry data. From fitting the available data, we find that the planet has a radius of $R_\mathrm{p} = 0.93 \pm 0.06\,\mathrm{R}_\oplus$ and a mass of $M_\mathrm{p} = 0.95^{+0.29}_{-0.30}\,\mathrm{M}_\oplus$ (a 3.2σ measurement of the semi-amplitude $K = 0.67 \pm 0.21\,\mathrm{m\,s^{-1}}$), and is on an orbit with a period of $12.761418^{+0.000060}_{-0.000055}$ d. A variety of techniques were utilised to attenuate stellar activity signals. Gliese 12 b has an equilibrium temperature of $T_\mathrm{eq} = 317 \pm 8\,\mathrm{K}$, assuming an albedo of zero, and a density consistent with that of Earth and Venus ($\rho_\mathrm{p} = 6.4 \pm 2.4\,\mathrm{g\,cm^{-3}}$). We find that Gliese 12 b has a predominantly rocky interior and simulations indicate that it is unlikely to have retained any of its primordial gaseous envelope. The bulk properties of Gliese 12 b place it in an extremely sparsely populated region of both mass–radius and density–T_eq parameter space, making it a prime target for follow-up observations, including Lyman-α studies.

Download/Website: `https://academic.oup.com/mnras/advance-article/doi/10.1093/mnras/staf1703/8276721`

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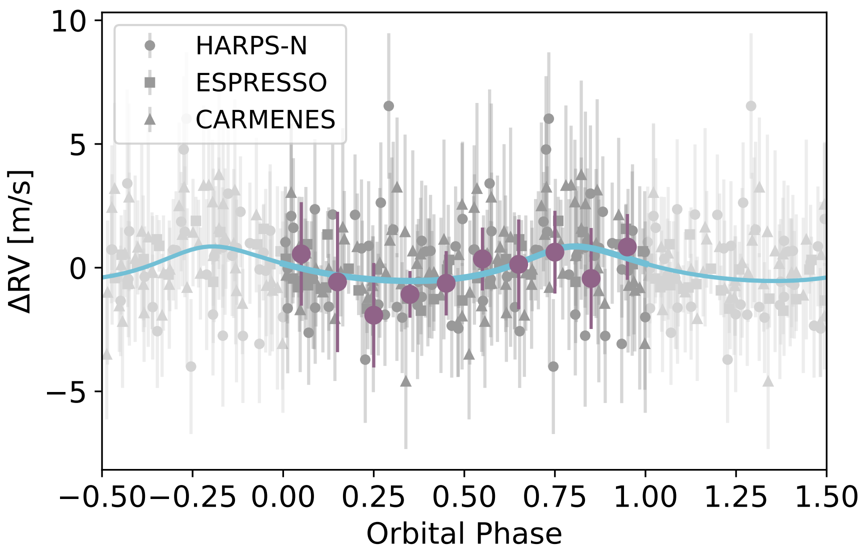

Figure 4: Phase-folded RVs from the best-fit informed RV model with GPs removed. Binned data shown by the large, purple points (10 bins). Phase-folded on the period of the planet (12.761421 d).

A new photometric ephemeris for the 2M1510 AB double brown dwarf eclipsing binary system

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Monthly Notices of the Royal Astronomical Society, in press (arXiv:2510.14801)

Eclipsing brown dwarfs are important calibrators of sub-stellar evolution models used to infer the characteristics of directly imaged brown dwarfs and giant exoplanets. Only two double brown dwarf eclipsing binary systems are known, among them 2MASS J15104786-2818174 (2M1510 AB), published in 2020 with a poorly constrained orbital period. Here we analyse TESS full-frame image (FFI) photometry of this faint ($T_{\rm mag} = 15.9$) binary and detect a significant ($> 10\sigma$) periodic signal spanning TESS Cycles 1–7, consistent with previous data. We refine the orbital period to 20.897782 ± 0.000036 d, reducing its present-day uncertainty from 18 h to 8 min. Our work is crucial for scheduling follow-up observations of this system for detailed study with other photometric facilities. We also find that a recent orbital solution from Doppler data is inconsistent with existing photometry. A timing offset in the Doppler data may have produced a spurious signal mimicking retrograde apsidal precession, from which the claimed circumbinary planet 2M1510 ABb was inferred. From our best attempt at correcting the data we were unable to reconcile the radial velocity data with the photometry, suggesting that the radial velocity uncertainties are underestimated, and that the circumbinary planet 2M1510 ABb may be a false positive.

Download/Website: `https://arxiv.org/abs/2510.14801`

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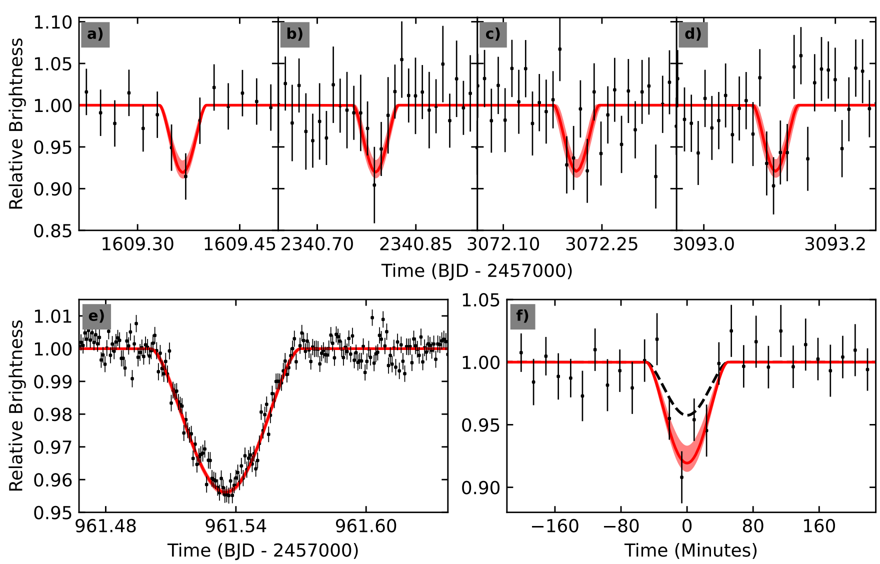

Figure 5: *Top row:* Individual TESS eclipses of 2M1510 AB in Sectors 11, 38, and 65 (x2), respectively. *Bottom left:* Archival SPECULOOS eclipse observed in 2017. *Bottom right:* Phase folded and binned TESS eclipses.

Inferring the physics of protoplanetary disc evolution from the irradiated Cygnus OB2 region
A comparison of viscous and MHD wind-driven scenarios

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Astronomy & Astrophysics, in press (arXiv:2511.01972)

Context. The physical processes driving protoplanetary disc evolution is of paramount importance for understanding planet formation. Our current understanding has crystallised around two possible evolution scenarios (turbulent viscosity and magnetohydrodynamic (MHD) wind-driven). Which of these processes dominates remains unclear.
Aims. Our aims are twofold: Firstly, we investigate whether a single set of model parameters can reproduce the observational constraints of non-irradiated and irradiated discs. Secondly, we propose a novel approach to break degeneracies between these two scenarios by studying the relation of stellar accretion rate and externally driven wind mass-loss rates, which evolve differently depending on the mechanism of angular momentum transport in the outer disc and test this approach using our models.
Methods. We simulate the evolution of synthetic populations of protoplanetary discs using 1D vertically integrated models for both viscous and MHD wind-driven disc evolution including both internal X-ray and external far ultraviolet (FUV) photoevaporation for both evolution scenarios. We investigate both weak and strong FUV field environments, where the strong FUV field is calculated based on an environment similar to the Cygnus OB2 association. We study the time evolution of the disc fraction, disc mass - stellar accretion rate relation, the spatial variation of the disc fraction in a highly irradiated cluster, the evolution of disc radii, and the evolution of accretion rates versus wind-mass-loss rates.
Results. While both evolution scenarios are capable of reproducing observational constraints, our simulations suggest that different parameters are needed for the angular momentum transport to explain disc lifetimes and disc mass - stellar accretion rate relation in weakly and strongly irradiated regions. We find that the predicted median disc radii are much larger in low FUV environments compared to Cygnus OB2, but also decreasing with time. In the viscous scenario, the median disc radius in a low FUV field environment is $\sim 100\,\mathrm{au}$ larger than for the MHD wind-driven scenario. We further demonstrate that studying stellar accretion rates and externally driven wind mass-loss rates (provided that they can be isolated from internally driven winds; i.e. MHD wind) is indeed a promising way of disentangling the two evolution scenarios.
Conclusions. The fact that not a single set of parameters for angular momentum transport is able to reproduce disc lifetimes in both low and highly irradiated regions at the same time indicates a fundamental difference in these two regions.

Download/Website: `https://arxiv.org/abs/2511.01972v1`
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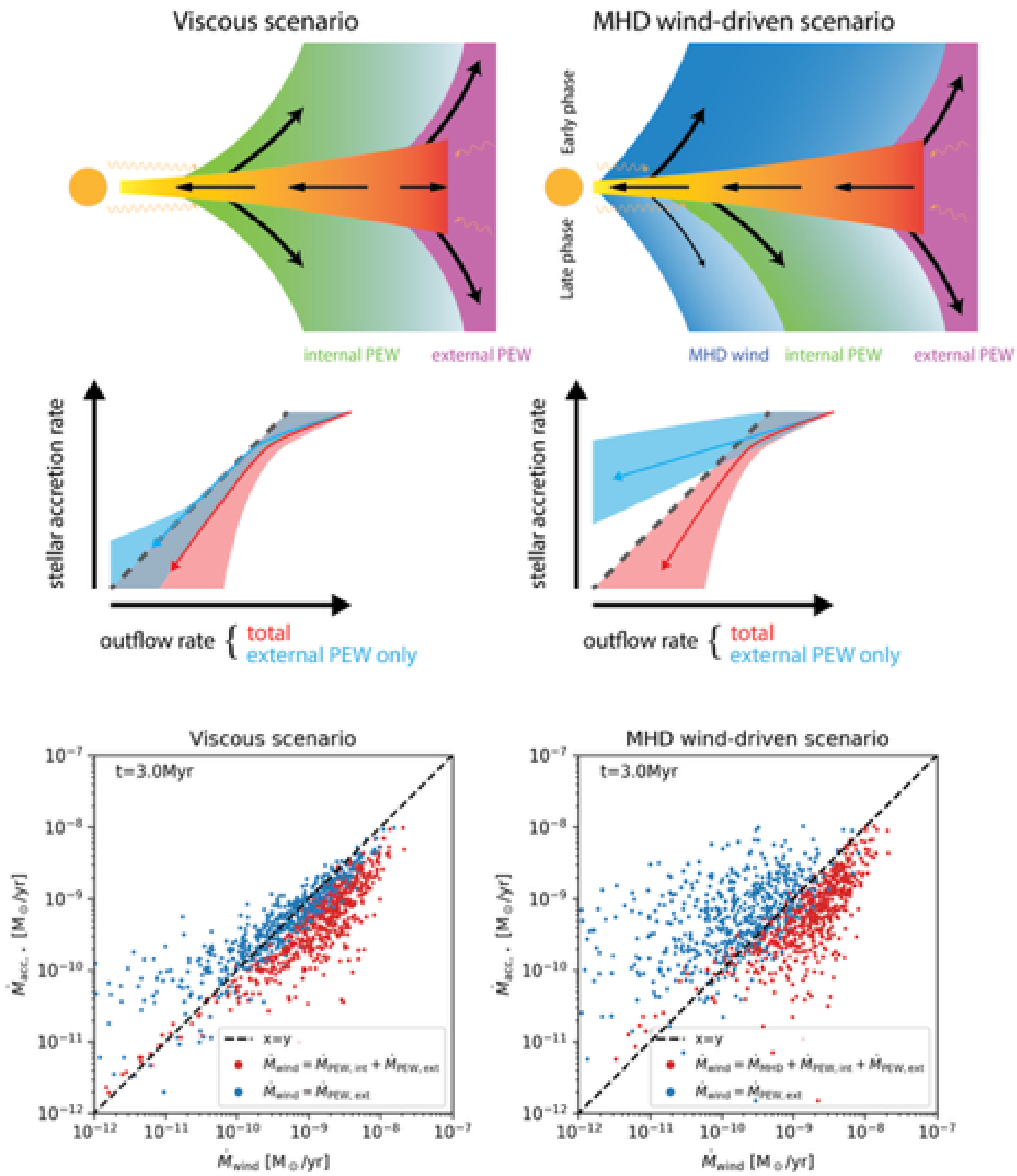

Figure 6: Conceptual illustration of disc evolution scenarios and expected accretion-outflow correlation and comparison with results from disc population synthesis. Top panels: Conceptual representations of the two evolution scenarios. The protoplanetary disc is shown with arrows indicating the direction of the accretion flow. Outflows emerging from the disc are coloured by different processes i.e. internal photoevaporation (green), external photoevaporation (violet) and MHD wind (blue). Note that in the MHD wind-driven scenario, internal photoevaporation is shielded by the emerging MHD wind in an early phase and only acts in a later phase when the MHD wind has decreased. Middle panels: Expected correlations of the stellar accretion rate versus the outflow rates from all processes (red) or external PEW only (blue) based on theoretical considerations. Bottom panels: Stellar accretion rate $\dot{M}_{\rm acc,\star}$ versus outflow rate $\dot{M}_{\rm wind}$ from synthetic disc populations shown at 3 Myr. Red dots take the full mass outflow into account, whereas blue dots correspond to the outflow due to external photoevaporation only.

Astrometric exomoon detection by means of optical interferometry

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Astronomy & Astrophysics, in press (arXiv:2509.15304)

Context. With no conclusive detection to date, the search for exomoons, satellites of planets orbiting other stars, remains a formidable challenge. Detecting these objects, compiling a population-level sample and constraining their occurrence will inform planet and moon formation models and shed light on moon habitability.
Aims. Here, we demonstrate the possibility of a moon search based on astrometric time series data, repeated measurements of the position of a given planet relative to its host star. The perturbing influence of an orbiting moon induces a potentially detectable planetary reflex motion.
Methods. Based on an analytical description of the astrometric signal amplitude, we placed the expected signatures of putative moons around real exoplanets into context with our current and future astrometric measurement precision. Modelling the orbital perturbation as a function of time, we then simulated the detection process given different target system configurations, instrumental measurement precisions and numbers of observational epochs to obtain the first astrometric exomoon sensitivity curves.
Results. The astrometric technique already allows for the detection and characterisation of favourable moons around giant exoplanets and brown dwarfs. Since the detection sensitivity of this method is mainly governed by the achievable astrometric precision, long-baseline interferometry lends itself ideally to this pursuit. We find that, on the basis of 12 epochs obtained with VLTI/GRAVITY, it is already today possible to infer at a confidence of $5\,\sigma$ the presence of a $0.14\,\mathrm{M_{Jup}}$ satellite at a separation of 0.39 AU around AF Lep b. Future facilities offering better precision will refine our sensitivity in both moon mass and separation from the host planet by several orders of magnitude.
Conclusions. The astrometric method of exomoon detection, especially when applied to interferometric observations, provides a promising avenue towards making the detection of these elusive worlds a reality and efficiently building a sample of confirmed objects. With a future facility that achieves an astrometric precision of $1\,\mu\mathrm{as}$, probing for Earth-like moons within the habitable zone of a given star will become a realistic proposition.

Download/Website: `https://ui.adsabs.harvard.edu/abs/2025arXiv250915304W/abstract`
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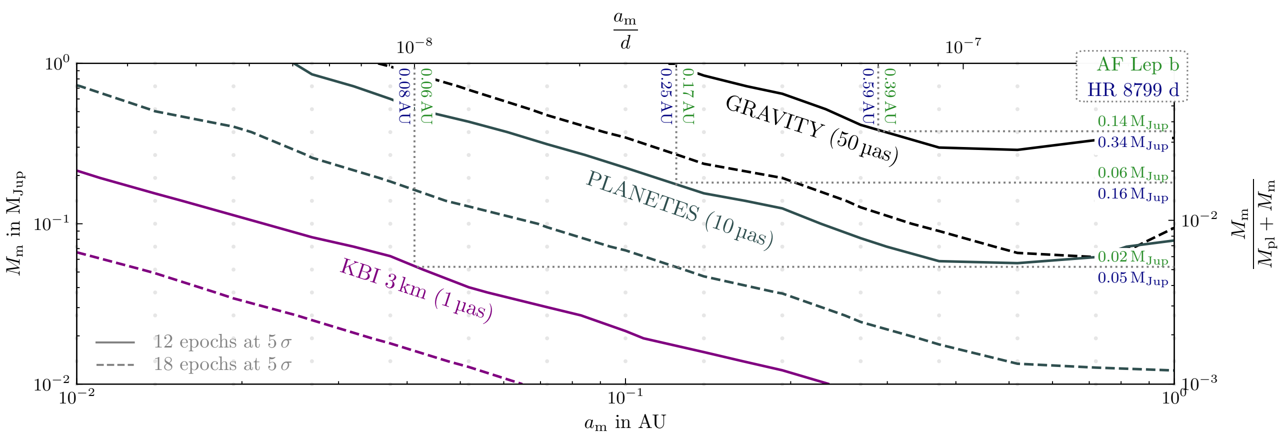

Figure 7: Sensitivity curves of different current and future interferometric instruments capable of astrometric measurements. The solid and dashed lines indicate the 5 σ detection limits based on 12 and 18 epochs, respectively. The grey dots in the background mark the probed grid points. The rescaled axes in the top and on the right provide a parametrisation where the fiducial target system distance, $d = 20\,\text{pc}$, and planet mass, $M_{\text{pl}} = 10\,\text{M}_{\text{Jup}}$, have been folded in. They can thus be used to estimate the moon detection significance achievable for a genuine exoplanet of interest. Three exemplary moons detectable around AF Lep b ($M_{\text{pl}} = (3.27 \pm 0.25)\,\text{M}_{\text{Jup}}$; Balmer et al. 2025) and HR 8799 d ($M_{\text{pl}} = (9.3 \pm 0.5)\,\text{M}_{\text{Jup}}$; Zurlo et al. 2022) are indicated by the dotted lines. The corresponding moon masses and semi-major axes are provided.

3 Exoplanet Archives

October 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, November 11, 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.

October 30, 2025

Data for 45 Planets, Including a Potential super-Earth in the Habitable Zone

This week's 15 new planets include GJ 251 c, a planet four times as massive as Earth that is orbiting an M dwarf at an orbital distance that may support liquid water on its surface. Read the University of California Irvine media release and the discovery paper.

The other new planets are 55 Cnc B b & c, BD+37 3172 b, BD+42 2315 b, HD 23079 c, HD 196067 c, HIP 18606 b, HIP 111909 b & c, OGLE-2016-BLG-1266L b, TOI-2093 b & c, and TOI-2345 b & c.

There are also new data for 30 planets: 55 Cnc A b, c, d, e, & f, HD 17156 b, HD 23079 b, HD 196067 b, HD 86226 b & c, HD 63433 b & c, HIP 24275 b & c, HIP 56640 b, HIP 67851 b & c, HIP 74890 b, HIP 75092 b, HIP 84056 b, HIP 90988 b, HIP 95124 b, HIP 114933 b, HIP 116630 b, nu2 Lup b, c, & d, TOI-3714 b, and TOI-5293 A b.

We have also demoted NGC 2682 Sand 364 b to False Positive Planet status based on a published refutation. Its data have been removed from the Planetary Systems and Planetary Systems Composite Parameters tables, but are still available on the NGC 2682 Sand 364 System Overview page.

October 16, 2025

Same Planets, Better Data: Now with Gaia DR3 IDs!

This week's release does not include new planets, but we've made it easier for users to plan observations and query the Gaia catalog by integrating Gaia DR3 IDs into our data tables and user interfaces.

Our System Overview pages now include Gaia DR3 aliases for exoplanet targets (when available), and you may also search for an exoplanet system by its Gaia DR3 ID in the **Explore the Archive** search box on our home page.

We've also added Gaia DR3 ID as a selectable column in the Planetary Systems, Planetary Systems Composite Data, Stellar Hosts, and K2 Planets and Candidates tables, which will make it easier to find the Gaia DR3 IDs for multiple planets in the interactive tables. The Exoplanet Follow-up Observing Program (ExoFOP) site also reflects this update.

More information about how we performed the crossmatch to add the Gaia DR3 IDs to the Exoplanet Archive is explained on our Gaia Mission page.

October 9, 2025

Six Planets, Including a Second GPI Planet!

This week's new planets include HD 143811 AB b, a massive Jupiter in a 300+-year orbit around two young (15 Myr) stars that was directly imaged by the Gemini Planet Imager (GPI). It is also the second planet discovered with the Gemini Telescope instrument.

The other new planets are TOI-2449 b, TOI-6109 b & c, NGTS-31 b, and NGTS-32 b. There are also new data for an additional ten planets: HATS-29 b, TOI-270 b, c, & d, WASP-6 b, WASP-25 b, WASP-55 b, WASP-96 b, WASP-110 b, and WASP-124 b.

We've also added new JWST transmission spectra for HAT-P-26 b and TOI-270 b to the Atmospheric Spectroscopy Table.

October 2, 2025

A Star, a Brown Dwarf, and a Planet Walk Into an Archive...

This week's release includes data for 13 planets, including a triple microlensing system composed of a star, a brown dwarf, and a planet in the KMT-2024-BLG-0404L system.

This week's 10 new planets are AU Mic e, KMT-2024-BLG-0404L b & c, TOI-1203 b, c, d, & e, TOI-1743 b, TOI-5799 c, and TOI-6223 b. We've also added new parameters for Kepler-90 g & h and TOI-5799 b.

We've also updated the status of YSES 2 b to False Positive Planet based on a published refutation. Its data will remain on the YSES 2 System Overview page, which also reflects the object's new status.

New and Updated Archive Movies!

Our exoplanet data plot movies have been refreshed with a new, more contemporary look, as well as more data for two of them. Check them out on our Videos page.

There will also be a new series of videos posted to the NASA Exoplanet Archive YouTube channel that will provide overviews of our tools and data. Check out the first one—a guided tour of our home page—that has already been posted. More movies are in development so make sure to subscribe!

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

Contact: `mharbut@caltech.edu`

4 Jobs and Positions

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`

Professor in Planetary Sciences (open rank)

Christoph Mordasini
Division of Space Research and Planetary Sciences, Sidlerstrasse 5, 3012 Bern, Switzerland

Bern, Start date: negotiable

The Division of Space Research and Planetary Sciences of the Physics Institute, University of Bern, Switzerland, invites applications for a full-time position as a **Professor in Planetary Sciences** (100%). The Division is a leading institute in space research and is looking for a Professor of Experimental Physics in the field of planetary science for Solar System exploration. The initial level of tenure can range from assistant professor tenure track to full professor depending on qualifications (open rank).We invite applications from candidates who conduct outstanding research, teaching, mentorship, and leadership in any area of experimental planetary science. Areas of research could include, but are not limited to, the properties, origin and evolution of planets and minor bodies in the Solar System, the search for and emergence of life beyond Earth, the composition of surfaces and atmospheres, ongoing physical and chemical surface and sub-surface processes and the evolution of planetary interiors. A diverse spectrum of approaches and methodologies is welcome, including, but not limited to, the analysis and modelling of space probe datasets, instrumentation and flight hardware development, experimental, observational and laboratory techniques, comparative planetology or the involvement, development and leadership in space missions.

The successful candidate's research program will constitute a defining part of the Division's research activities. It will complement existing research initiatives locally and within the Swiss and international landscape. The successful candidate will become a member of the faculty of science and of the Division directorate, playing a vital role in a large and dynamic Division that is strongly engaged in research, education, and outreach programs. The Division values internationality and boasts a longstanding tradition in planetary research and space missions. It provides excellent conditions in terms of infrastructure like laboratories, engineering and manufacturing capabilities to build space-grade hardware, but also through a rich and vibrant scientific environment that includes the Division, the interdisciplinary Center for Space and Habitability of the University of Bern, and the International Space Science Institute in Bern.

We anticipate an excellent academic record including the successful acquisition of third-party funds, a strong international network in space research, as well as excellent social skills. We seek suitable candidates who have the potential and/or skills in transformational leadership and who foster a conducive research culture. The successful candidate will also possess a strong record and/or commitment to excellence in teaching, advising and mentorship. Candidates are expected to hold a PhD in planetary sciences, physics, geophysics, astrophysics or a related field. In line with its commitment to fostering an inclusive academic environment, the University of Bern actively seeks to increase the proportion of women and other underrepresented groups in leadership positions. We warmly encourage such candidates to apply. Applications involving job sharing or part time will be considered. As a signatory of the DORA declaration, the University applies its principles to ensure fair and transparent recruitment.

The University of Bern provides a comprehensive set of research, teaching, and grant application support services. It offers attractive working conditions with various support mechanisms, like family assistance, personal coaching, and career development. The University is situated in a central location within the city of Bern which is renowned for its high quality of life. An attractive salary package and organisational retirement plan are provided by the renumeration scheme of the Canton of Bern. Extensive relocation support, onboarding assistance, and a start-up package are available to facilitate the transition into academic and personal life in Switzerland and the initiation of new research projects.

Applications should include:

- Letter of motivation (max. 3 pages)

- Curriculum Vitae (max. 5 pages)
- List of publications
- List of courses taught (max. 2 pages)
- List of third-party funds raised (max. 1 page)
- DEI-statement outlining past and planned future contributions (max. 1 page)
- Research plan for the first 5 years (max. 10 pages excluding references)

The application documents should be submitted by 31 January 2026 electronically in a single PDF file to the Dean's Office (email: applications.natdek@unibe.ch), including this completed online questionnaire available at the link given below. For inquiries, please contact Prof. Christoph Mordasini, Executive Director of the Division of Space Research and Planetary Sciences (jobs.space@unibe.ch).
`https://www.space.unibe.ch/about_us/open_positions/index_eng.html`

Contact: `jobs.space@unibe.ch`

5 Conferences and Workshops

Ariel: Science, Mission and Community 2026

the Ariel Mission Consortium and ESA Ariel Science Team

ESA ECSAT, Harwell Campus., 17th -19th March 2026

Dear Colleagues,

Registration and Abstract submission for the: *"Ariel: Science, Mission amd Community Conference 2026* is now open at: `https://arielmission.space/index.php/ariel-open-conference-2026/`.

The international scientific community is cordially invited to attend the Ariel Open Conference 2026, 17-19 March 2026 at ESA-ECSAT, Harwell Campus, Didcot, UK, hosted at the ESA Magali Vaissiere Conference Centre, in the Harwell Campus in the UK.

Please find all relevant information at the above included link!

Early registration will be open until November 10th (275 euros).
Late registration: 10 November – 15 February (350 euros).

A limited number of discounted fees/fee waivers is available for students and early career scientists! Applications for those are accepted until November 10th using the abstract submission page.

Abstracts for contributed talks will be considered until November 30th.

`https://www.smartsurvey.co.uk/s/Ariel_Open_Conference_2026_Abstract_Submission/`

We look forward to seeing you at the conference in March 2026!

Giovanna Tinetti and Theresa Lueftinger,
on behalf of the Ariel Mission Consortium and ESA Ariel Science Team.

Download/Website: *`https://arielmission.space/index.php/ariel-open-conference-2026/`*

UK Exoplanet Meeting 2026

Hannah Wakeford & Denis Sergeev
University of Bristol, UK

Bristol, UK, 30 March – 2 April 2026

We are excited to announce that Abstract Submission is now open for the UK Exoplanet Meeting (UKExoM) to be held at the University of Bristol from March 30th to April 2nd 2026.

UKExoM aims to showcase dynamic research on any topic related to exoplanetary sciences that takes place in the United Kingdom, and foster discussion. All theoretical and observational aspects of planet formation, planet detection, planet characterisation, orbital dynamics, protoplanetary discs, stellar characterisation, brown dwarfs, planetary atmospheres, planetary interior properties, planet demographics and more are welcome at UKExoM! We particularly encourages submissions by PhD students and postdoctoral researchers. We also welcome suggestions for topics or formats for an extended 50 minute community session which can be added at the end of the form.

- Website: `https://ukexom2026.blogs.bristol.ac.uk`
- Abstract submission form: `https://forms.gle/hV88qykGPPNCP8eX8`
- Abstract deadline: **5 December 2025, 5pm GMT**
- Registration: expected to open in late January 2026

We look forward to welcoming you to Bristol next spring.

All the best,
Hannah & Denis
on behalf to the UKExoM2026 organising committee

Session at the EGU General Assembly 2026: PS5.2: Early Solar system: crucial timings for habitability

K.G. Kislyakova[1], A. Raorane[1], L. Müller[1], S. Kane[2], T. Lichtenberg[3]
[1] Institute for Astrophysics, University of Vienna, Vienna, Austria
[2] University of California, Riverside, USA
[3] Kapteyn Astronomical Institute of the University of Groningen, Netherlands

Vienna, Austria, Abstract submission deadline: 15 January 2026

The inner solar system has three rocky terrestrial planets with substantial atmospheres. Each one is unique and each of their atmospheres differs from every other in important ways, including their composition, atmospheric and interior evolution. Many questions remain unanswered despite the long history of research on the solar system. For most of its history, the Earth has been habitable, but its atmosphere and geology have evolved tremendously. The Archean Earth was very different to the modern Earth, yet it was already habitable as early as 3.7 gigayears ago. How probable was it for the Earth to stay habitable for such a long geological time? Why did Mars lose most of its atmosphere? Its small mass certainly played a role, but what role has been played by the geological processes, for instance, volcanism and magnetic dynamo? Did Venus ever have habitable conditions? If so, how long did they last and why did they disappear?

In this session, we focus on several main topics relevant for formation of habitable conditions:

- The evolution of the composition of the atmospheres of Earth, Venus, and Mars, and the role played by volcanic outgassing and planetary dynamos;
- Influence of the atmospheric escape to space from upper atmospheres on surface conditions;
- Evolving climates and possible past habitability windows for Mars and Venus.

This session is dedicated to studies of the divergent evolution of the three planets and the role played by the Sun. We aim to provide a synergetic view of the evolution of the Earth, Venus, and Mars, with contributions on planetary interiors and magnetic dynamos, and atmospheres' formation and escape being equally welcome.
Support applications deadline: 1 December 2025
Abstract submission deadline: 15 January 2026

Download/Website: `https://meetingorganizer.copernicus.org/EGU26/sessionprogramme/PS#s56110`

Contact: `kristina.kislyakova@univie.ac.at`

Session at the EGU General Assembly 2026:
PS6.2: Planetary and stellar parameters conducive to habitability and biosignature observability

E. Macdonald[1]*, G. Van Looveren*[1]*, T. Robinson*[2]*, J. Davey*[3]

[1] Institute for Astrophysics, University of Vienna, Vienna, Austria
[2] Lunar and Planetary Laboratory, University of Arizon, Tucson, USA
[3] Dept of Physics & Astronomy, University College London, London, UK

Vienna, Austria, Abstract submission deadline: 15 January 2026

From the classical circumstellar habitable zone to the EUV habitable zone, the possible places to look for habitable worlds depend strongly on the interplay of planetary and stellar parameters. While observations are not yet available, theoretical models help inform future observational strategies by constraining which rocky planets could maintain atmospheres, particularly ones able to support life. Models can also help identify and interpret possible biosignatures in environments different from the Solar System. In particular, they are needed to determine whether or not a potential biosignature could be abiotic in origin.

The goal of this session is to establish synergy between the theoretical and observational aspects of the search for habitable exoplanet atmospheres. We welcome contributions related to:

- Which rocky planets can retain observable atmospheres?
- Which factors can influence observations (e.g., clouds, hazes, surface conditions…)?
- Under which combinations of planetary and stellar parameters could worlds be habitable?
- Which biomarkers are observable (with current or upcoming instruments)?
- How can biosignatures be distinguished from false positives?
- What instrumental capabilities are needed to make these observations?

Support applications deadline: 1 December 2025
Abstract submission deadline: 15 January 2026

Download/Website: `https://meetingorganizer.copernicus.org/EGU26/sessionprogramme/PS#s55984`

Contact: `gwenaelle.van.looveren@univie.ac.at`

Session at the EGU General Assembly 2026:
PS6.4: Interdisciplinary approaches to understand the environments that could support life

O. Herbort[1], *C. M. Guimond*[2],*M. Fox-Powell*[3]

[1] Institute for Astrophysics, University of Vienna, Vienna, Austria
[2] Atmospheric, Oceanic, and Planetary Physics, University of Oxford, United Kingdom
[3] Open University, Milton Keynes, United Kingdom

Vienna, Austria, Abstract submission deadline: 15 January 2026

Understanding the prospects of places beyond Earth to host living systems requires understanding the properties of these places themselves: what kinds of places does life need, and what is special about such places on Earth? The answers will naturally draw upon the expertise of many disciplines, including but not limited to geology, biochemistry, atmospheric physics, and astronomy. This session invites presentations from any discipline that speak to the properties of environments that could host life, from Earth and the solar system to exoplanets.
Support applications deadline: 1 December 2025
Abstract submission deadline: 15 January 2026

Download/Website: `https://meetingorganizer.copernicus.org/EGU26/sessionprogramme/PS#s55986`

Contact: `oliver.herbort@univie.ac.at`

6 As seen on astro-ph

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

October 2025

astro-ph/2510.00105: **The OATMEAL Survey. III. An Aligned Transiting Warm Brown Dwarf and Evidence for Quiescent Brown Dwarf Migration** *by Noah Vowell et al.*

astro-ph/2510.00299: **A planetary system with a sub-Neptune planet in the habitable zone of TOI-2093** *by J. Sanz-Forcada et al.*

astro-ph/2510.00124: **What's in Your Transit? Towards Reliably Getting $5\times$ More Science from Exoplanet Transit Data** *by Samson J. Mercier et al.*

astro-ph/2510.00138: **Semianalytical Accretion-Tracer Emission: Forming Planets Are Intrinsically Faint** *by Gabriel-Dominique Marleau*

astro-ph/2510.00169: **Bayesian Model Comparison and Significance: Widespread Errors and how to Correct Them** *by Daniel P. Thorngren et al.*

astro-ph/2510.00736: **Exoplanets beyond the Conservative Habitable Zone: I. Habitability** *by Amri Wandel*

astro-ph/2510.00782: **Exoplanets beyond the Conservative Habitable Zone: II. Occurrence** *by Amri Wandel*

astro-ph/2510.01332: **Dynamical Excitation as a probe of planetary origins** *by Brad M. S. Hansen et al.*

astro-ph/2510.02591: **Exploring Warm Jupiter Migration Pathways with Eccentricities II. Correlations with Host Star Properties and Orbital Separation** *by Marvin Morgan et al.*

astro-ph/2510.02509: **A Kinematic History of Stellar Encounters with Beta Pictoris** *by Jose Luis Gragera-Más et al.*

astro-ph/2510.02436: **DIPSY: A new Disc Instability Population SYnthesis, I. Modeling, evolution of individual systems, and tests** *by O. Schib et al.*

astro-ph/2510.02437: **DIPSY: A new Disc Instability Population SYnthesis, II. The Populations of Companions Formed Through Disc Instability** *by O. Schib et al.*

astro-ph/2510.02260: **Mapping the Cloud-Driven Atmospheric Dynamics & Chemistry of an Isolated Exoplanet Analog with Harmonic Signatures** *by Michael K. Plummer et al.*

astro-ph/2510.02176: **Investigating the Sulfur Mystery in Protoplanetary Disks Through Chemical Modeling** *by Becky J. Williams et al.*

astro-ph/2510.01747: **Discovery of an Accretion Burst in a Free-Floating Planetary-Mass Object** *by V. Almendros-Abad et al.*

astro-ph/2510.01725: **High Five From ASTEP: Three Validated Planets and Two Eclipsing Binaries in a Diverse Set of Long-Period Candidates** *by Erika Rea et al.*

astro-ph/2510.03147: **Eclipse Mapping with Ariel: Future Prospects for a Population-Level Mapping Survey** *by Daniel Valentine et al.*

astro-ph/2510.03401: **The impact of internal versus external perturbations on close-in exoplanet architectures** *by Christina Schoettler, James E Owen*

astro-ph/2510.03916: **Observation of undepleted phosphine in the atmosphere of a low-temperature brown dwarf** *by Adam J. Burgasser et al.*

astro-ph/2510.05308: **Wavefront Error Recovery and Companion Identification with the James Webb Space Telescope** *by Matthew De Furio et al.*

astro-ph/2510.05281: **Water solubility in silicate melts: The effects of melt composition under reducing conditions and implications for nebular ingassing on rocky planets** *by Maggie A. Thompson et al.*

astro-ph/2510.04677: **Edge-On Disk Study (EODS) II: HCO^+ and CO vertical stratification in the disk surrounding SSTTau042021** *by C. Foucher et al.*

astro-ph/2510.04981: **A Link Between Rocky Planet Density and Host Star Chemistry** *by Aida Behmard et al.*

astro-ph/2510.05240: **The First Dedicated Survey of Atmospheric Escape from Planets Orbiting F Stars** *by Morgan Saidel et al.*
astro-ph/2510.05601: **Infall Explains the Disk Kinematics of AB Aur Without Gravitational Instability** *by Josh Calcino et al.*
astro-ph/2510.05763: **Line shapes of the Na/K resonance line profiles perturbed by H2 at extreme density** *by N. F. Allard, J. F. Kielkopf*
astro-ph/2510.05818: **An interferometric mid-infrared study of the eruptive star binary Z CMa with MATISSE/VLTI. I. Imaging the protoplanetary disks during the 2023 outburst** *by F. Lykou et al.*
astro-ph/2510.05852: **An in-depth study of brown dwarfs with TESS** *by F. Marcadon, A. Prša*
astro-ph/2510.05964: **Flow Regimes in Hot Jupiter Atmospheres: Insights from Anelastic Models** *by W. Dietrich, J. Wicht*
astro-ph/2510.06169: **JWST-TST DREAMS: The Nightside Emission and Chemistry of WASP-17b** *by Jacob Lustig-Yaeger et al.*
astro-ph/2510.07349: **Probing the Origin of Water in Planets within Habitable Zones by HWO** *by Yasuhiro Hasegawa et al.*
astro-ph/2510.07282: **A Comoving Framework for Planet Migration** *by Ximena S. Ramos, Pablo Benitez-Llambay*
astro-ph/2510.07428: **Enhanced Pebble Drift Across Planet-Opened Gaps in Windy Protoplanetary Disks** *by Lorraine Nicholson, Jaehan Bae*
astro-ph/2510.07367: **Magma ocean interactions can explain JWST observations of the sub-Neptune TOI-270 d** *by Matthew C. Nixon et al.*
astro-ph/2510.07253: **JWST-TST High Contrast: Medium-resolution spectroscopy reveals a carbon-rich circumplanetary disk around the young accreting exoplanet Delorme 1 AB b** *by Mathilde Mâlin et al.*
astro-ph/2510.07595: **Composition of planetary debris around the white dwarf GD 362** *by William T. Reach et al.*
astro-ph/2510.07163: **Disk fraction among free-floating planetary-mass objects in Upper Scorpius** *by Tommy Rodrigues et al.*
astro-ph/2510.07187: **Fomalhaut's debris disc is not dominated by primordial Plutos** *by Tim D. Pearce et al.*
astro-ph/2510.06589: **Revisiting the Orbital Dynamics of the Hot Jupiter WASP-12b with New Transit Times** *by Shraddha Biswas et al.*
astro-ph/2510.06939: **Is the high-energy environment of K2-18b special?** *by S. Rukdee et al.*
astro-ph/2510.07378: **Thin H_2-dominated Atmospheres as Signposts of Magmatic Outgassing on Tidally-Heated Terrestrial Exoplanets** *by R. Arora et al.*
astro-ph/2510.06978: **Protoplanetary disc population synthesis I. Constraining disc parameters to reproduce disc observations** *by Jose L. Gomez et al.*
astro-ph/2510.07130: **Polka-dotted Stars II: Starspots and obliquities of Kepler-17 and Kepler-63** *by Sabina Sagynbayeva, Will M. Farr*
astro-ph/2510.08280: **How Internal Structure Shapes the Metallicity of Giant Exoplanets** *by Lorenzo Peerani et al.*
astro-ph/2510.08319: **SOAPv4: A new step toward modeling stellar signatures in exoplanet research** *by E. Cristo et al.*
astro-ph/2510.08327: **Direct Spectroscopy of 51 Eridani b with JWST NIRSpec** *by Alexander Madurowicz et al.*
astro-ph/2510.08424: **Starspot temperature of CoRoT-2 from multiwavelength observations with SPARC4** *by Adriana Valio et al.*
astro-ph/2510.08574: **Fragmentation-limited dust filtration in 2D simulations of planet-disk systems with dust coagulation. Parameter study and implications for the inner disk's dust mass budget and composition** *by Thomas Pfeil et al.*
astro-ph/2510.08676: **Tracing Planetary Accretion in a 3 Gyr-old Hydrogen-Rich White Dwarf: The Ex-**

tremely Polluted Atmosphere of LSPM J0207+3331 *by Érika Le Bourdais et al.*

astro-ph/2510.08681: **Next-Generation Improvements in Giant Exoplanet Evolutionary and Structural Models** *by Ankan Sur et al.*

astro-ph/2510.08691: **The ExoGRAVITY survey: A K-band spectral library of giant exoplanet and brown dwarf companions** *by J. Kammerer et al.*

astro-ph/2510.08698: **The polar debris disc around 99 Herculis: A potential signpost for polar circumbinary planets** *by Jeremy L. Smallwood et al.*

astro-ph/2510.08766: **Understanding Exoplanet Habitability: A Bayesian ML Framework for Predicting Atmospheric Absorption Spectra** *by Vasuda Trehan et al.*

astro-ph/2510.08844: **Constraining exoplanet interiors using observations of their atmospheres** *by Tim Lichtenberg et al.*

astro-ph/2510.09920: **TESS Discovers a Second System of Transiting Exocomets in the Extreme Debris Disk of RZ Psc** *by Adalyn Gibson et al.*

astro-ph/2510.09823: **The influence of tight binaries on proto-planetary disk masses** *by Kevin Flaherty et al.*

astro-ph/2510.09841: **Leveraging Photometry for Deconfusion of Directly Imaged Multi-Planet Systems** *by Samantha N. Hasler et al.*

astro-ph/2510.09797: **The survival of aromatic molecules in protoplanetary disks** *by Elettra L. Piacentino et al.*

astro-ph/2510.09305: **Probing the geological setting of exoplanets through atmospheric analysis: using Mars as a test case** *by Monica Rainer et al.*

astro-ph/2510.09809: **A complex structure of escaping helium spanning more than half the orbit of the ultra-hot Jupiter WASP-121 b** *by Romain Allart et al.*

astro-ph/2510.10092: **Insights into Planet Formation from the Ages, Masses, and Elemental Abundances of Host Stars** *by Xunzhou Chen et al.*

astro-ph/2510.10826: **Survival of satellites during the migration of a Hot Jupiter** *by Emeline Bolmont et al.*

astro-ph/2510.11021: **On The Orbital Evolution of Multiple Wide Super-Jupiters: How Disk Migration and Dispersal Shape the Stability of The PDS 70 System** *by Clarissa R. Do Ó et al.*

astro-ph/2510.11940: **Near the Runaway: The Climate and Habitability of Teegarden's Star b** *by Ryan Boukrouche et al.*

astro-ph/2510.10941: **Using chromatic covariance to correct for scintillation noise in ground-based spectrophotometry** *by Jason E. Williams, Nicholas P. Konidaris*

astro-ph/2510.11819: **Hubble reveals complex multi-scale structure in the edge-on protoplanetary disk IRAS 23077+6707** *by Kristina Monsch et al.*

astro-ph/2510.11785: **Spin and Obliquity Distributions of Low-mass Planets Shaped by Dynamical Instability** *by Dieran Wang et al.*

astro-ph/2510.11904: **A Systematic North-South asymmetry in the Steady-state Climate of rapidly-rotating Oblique Water Worlds** *by Y Wu et al.*

astro-ph/2510.11523: **Characterizing planetary systems with SPIRou: questions about the magnetic cycle of 55 Cnc A and two new planets around B** *by C. Moutou et al.*

astro-ph/2510.11479: **A Metal-Rich Atmosphere with a Super-Solar C/O Ratio for the Extreme Ultra-Hot Jupiter WASP-178b** *by Suman Saha, James S. Jenkins*

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