ExoPlanet News
An Electronic Newsletter

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Editors: L. Schlarmann, D. Angerhausen, J. Davoult, H. Wang & T.-E. Riesen
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https://nccr-planets.ch/exoplanetnews

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1 Editorial

Welcome to Edition 186 of the ExoPlanet News!

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

At the end of the year, we can report that this newsletter has reached **over 1300 active subscribers.**

For 2025 we look forward to your paper abstracts, job ads or meeting announcements. Also, special announcements are welcome. As always, we would also be happy to receive feedback concerning the newsletter. The LaTeX template (v2.0) for submitting contributions, as well as all previous editions of ExoPlanet News, can be found on the ExoPlanet News webpage (`https://nccr-planets.ch/exoplanetnews/`).

The next issue will appear on January 14th 2025.

Thanks again for your support, happy holidays and all the best for 2025 from the editorial team,

Leander Schlarmann
Daniel Angerhausen
Jeanne Davoult
Haiyang Wang
Timm-Emanuel Riesen

2 Abstracts of refereed papers

Pursuing Truth: Improving Retrievals on Mid-infrared Exo-Earth Spectra with Physically Motivated Water Abundance Profiles and Cloud Models

B. S. Konrad[1,2]*, S. P. Quanz*[1,2,3]*, E. Alei*[4]*, R. Wordsworth*[5,6]

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[2] National Center of Competence in Research PlanetS, Gesellschaftsstrasse 6, CH-3012 Bern, Switzerland
[3] ETH Zurich, Department of Earth Sciences, Sonneggstrasse 5, 8092 Zurich, Switzerland
[4] NASA Postdoctoral Program Fellow, NASA Goddard Space Flight Center, Greenbelt, MD, USA
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[6] Department of Earth and Planetary Sciences, Harvard University, Cambridge, MA 02138, USA

The Astrophysical Journal, published (2024ApJ...975...13K)

Atmospheric retrievals are widely used to constrain exoplanet properties from observed spectra. We investigate how the common nonphysical retrieval assumptions of vertically constant molecule abundances and cloud-free atmospheres affect our characterization of an exo-Earth (an Earth-twin orbiting a Sun-like star). Specifically, we use a state-of-the-art retrieval framework to explore how assumptions for the H_2O profile and clouds affect retrievals. In the first step, we validate different retrieval models on a low-noise simulated 1D mid-infrared (MIR) spectrum of Earth. Thereafter, we study how these assumptions affect the characterization of Earth with the Large Interferometer For Exoplanets (LIFE). We run retrievals on LIFE mock observations based on real disk-integrated MIR Earth spectra. The performance of different retrieval models is benchmarked against ground truths derived from remote sensing data. We show that assumptions for the H_2O abundance and clouds directly affect our characterization. Overall, retrievals that use physically motivated models for the H_2O profile and clouds perform better on the empirical Earth data (see the figure below). For observations of Earth with LIFE, they yield accurate estimates for the radius, pressure–temperature structure, and the abundances of CO_2, H_2O, and O_3. Further, at $R = 100$, a reliable and bias-free detection of the biosignature CH_4 becomes feasible. We conclude that the community must use a diverse range of models for temperate exoplanet atmospheres to build an understanding of how different retrieval assumptions can affect the interpretation of exoplanet spectra. This will enable the characterization of distant habitable worlds and the search for life with future space-based instruments.

Download/Website: `https://iopscience.iop.org/article/10.3847/1538-4357/ad74f7/pdf/`

Contact: `konradb@student.ethz.ch`

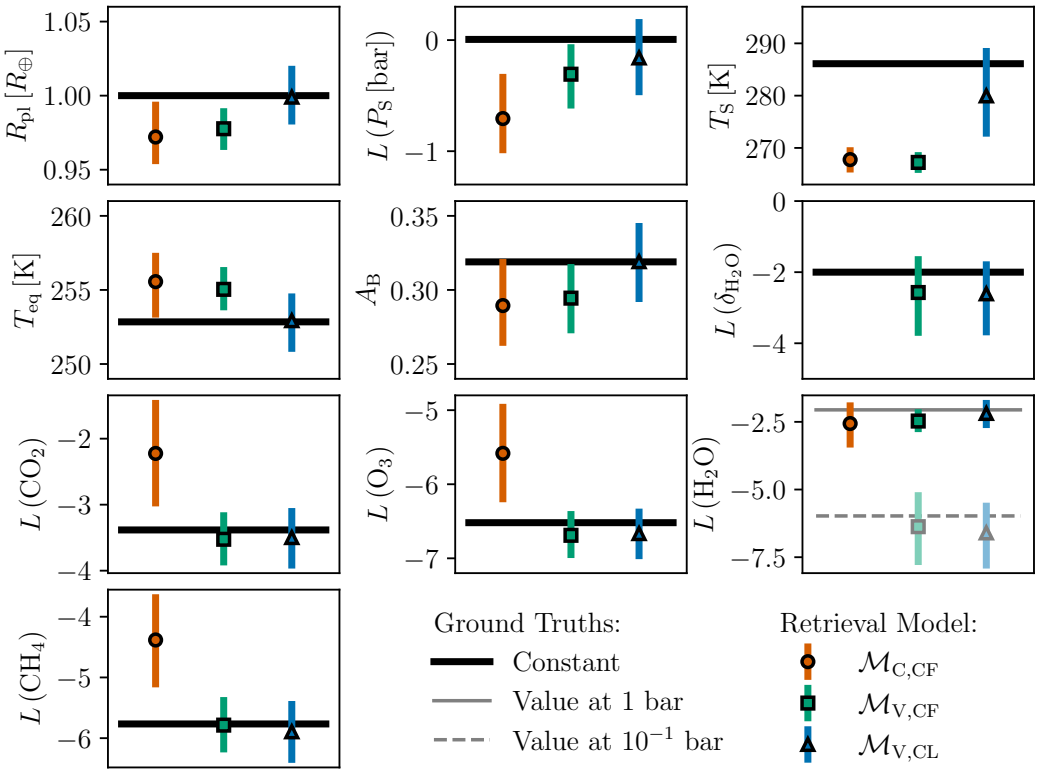

Figure 1: Posteriors from retrievals on a simulated $R = 100$, $S/N = 20$ Earth spectrum. Here, $L(\cdot)$ stands for $\log_{10}(\cdot)$. Thick black lines indicate pressure-independent ground truths. Thin gray lines show the true H_2O abundance at 1 bar (solid line) and at 10^{-1} bar (dashed line). The colored markers represent the posteriors retrieved for different forward models: orange circles – constant H_2O profile, cloud-free ($\mathcal{M}_{\rm C,CF}$); green squares – H_2O condensation, cloud-free ($\mathcal{M}_{\rm V,CF}$); blue triangles – H_2O condensation, clouds ($\mathcal{M}_{\rm V,CL}$). The colored lines indicate the $16\% - 84\%$ posterior percentiles. For the $\mathcal{M}_{\rm V,CF}$ and $\mathcal{M}_{\rm V,CL}$ models, which assume variable H_2O profiles, we provide both the retrieved H_2O abundance at the surface pressure $P_{\rm S}$ (dark marker color) and at 1 dex below $P_{\rm S}$ (light marker color).

Did the terrestrial planets of the Solar System form by pebble accretion?

Alessandro Morbidelli[1,2]*, Thorsten Kleine*[3]*, and Francis Nimmo*[4]*,*

[1] Collège de France, CNRS, Université Paris Sciences et Lettres, Sorbonne Université, 75014 Paris, France
[2] Observatoire de la Côte d'Azur, CNRS, Université Côte d'Azur, 06304 Nice, France
[3] Max Planck Institute for Solar System Research, Justus-von-Liebig-Weg 3, 37077 Göttingen, Germany
[4] Dept. Earth and Planetary Sciences, University of California Santa Cruz, Santa Cruz CA 95060, USA

Earth and Planetary Science Letters - Frontiers, in press (arXiv:2411.09271)

The dominant accretion process leading to the formation of the terrestrial planets of the Solar System is a subject of intense scientific debate. Two radically different scenarios have been proposed. The classic scenario starts from a disk of planetesimals which, by mutual collisions, produce a set of Moon to Mars-mass planetary embryos. After the removal of gas from the disk, the embryos experience mutual giant impacts which, together with the accretion of additional planetesimals, lead to the formation of the terrestrial planets on a timescale of tens of millions of years. In the alternative, pebble accretion scenario, the terrestrial planets grow by accreting sunward-drifting mm-cm sized particles from the outer disk. The planets all form within the lifetime of the disk, with the sole exception of Earth, which undergoes a single post-disk giant impact with Theia (a fifth protoplanet formed by pebble accretion itself) to form the Moon. To distinguish between these two scenarios, we revisit all available constraints: compositional (in terms of nucleosynthetic isotope anomalies and chemical composition), dynamical and chronological. We find that the pebble accretion scenario is unable to match these constraints in a self-consistent manner, unlike the classic scenario.

Download/Website: `http://arxiv.org/abs/2409.06342`

Contact: `alessandro.morbidelli@oca.eu`

Convective mixing in distant and close-in giant planets - Dependences on the initial composition, luminosity, bloating, and semi-convection.

J. Polman, C. Mordasini

Division of Space Research and Planetary Sciences, Physics Institute, University of Bern, Gesellschaftsstrasse 6, 3012 Bern, Switzerland

Astronomy & Astrophysics, in press (arXiv:2411.18686)

Recent structure models of Jupiter suggest the existence of an extended region in the deep interior with a high heavy element abundance, referred to as a dilute core. This finding has led to increased interest in modelling the formation and evolution processes with the goal of understanding how and under what circumstances such a structure is formed and retained, to in turn better understand the relation between atmospheric and bulk metallicity. We modelled the evolution of giant planets, varying various parameters relevant for the convective mixing process, such as the mixing length parameter and the size of the mesh, and parameters related to the general evolution, such as the orbital distance and the initial luminosity. We in particular studied hot Jupiters and find that the effect of bloating on the mixing process is small but can in some cases inhibit convective mixing by lowering the intrinsic luminosity for a given entropy. Semi-convection can significantly lower the extent of a dilute core if it is strong enough. We find that dilute cores are unable to persist for initial luminosities much higher than $\sim 3 \times 10^3$ L_J for a Jupiter-like planet for the initial heavy element profiles we studied. From this we conclude that, based on our model, it is unlikely that a large number of giant planets retain a dilute core throughout their evolution, although this is dependent on the assumptions and limitations of our method. Future work should focus on improving the link between formation and evolution models so that the mixing process is accurately modelled throughout a planet's lifetime and on improving the understanding of how to model convection near radiative-convective boundaries.

Download/Website: `https://arxiv.org/abs/2411.18686`

Contact: `jesse.polman@unibe.ch`

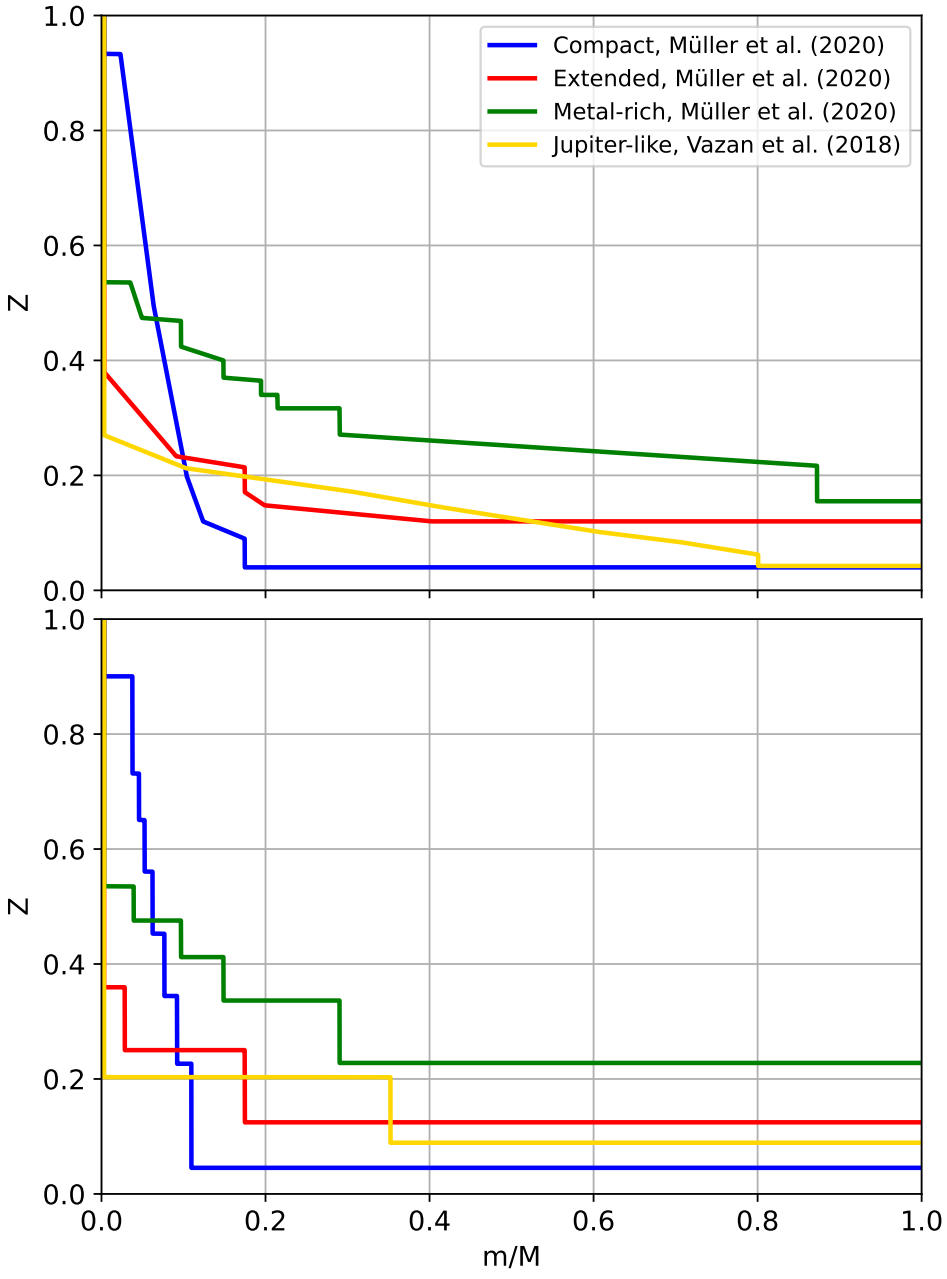

Figure 2: Composition of the different models at the start (top) and end (bottom) of the simulation at 4.5 Gyr. The x-axis shows the normalised mass and the y-axis the fraction of high-Z material, water in our case. The compositions 'compact', 'extended', and 'metal-rich' correspond to Hot_Compact_Z, Cold_extended_Z, and Cold_high_Z in Müller et al. (2020), respectively.

3 Jobs and Positions

PhD Opportunities at the University of Birmingham

Bill Chaplin, Guy Davies, Annelies Mortier, Anjali Piette, Amaury Triaud
Sun, Stars & Exoplanets research group, School of Physics & Astronomy, University of Birmingham

Deadline, 15th January 2025

The University of Birmingham's Sun, Stars and Exoplanets group are pleased to offer a number of PhD opportunities in the current application cycle. Topics include exoplanet detection and characterisation, exoplanet atmospheres, hierarchical Bayesian modeling of stars and planets, and observing the Sun as a star. A full list of projects and further details can be found here: `https://www.birmingham.ac.uk/schools/physics/phd/phd-opportunities-physics-astronomy`.

The Sun, Stars and Exoplanets research group is a vibrant group within the School of Physics and Astronomy, and currently holds two ERC, one FLF and three STFC grants for six permanent academics. The group has made unique and impactful research contributions in the fields of asteroseismology, helioseismology and exoplanet detections. In addition, the Sun, Stars and Exoplanets group has created a welcoming and inclusive environment for research, which is reflected within surveys of our PhD students and postdocs. The group is one of only few physics groups UK-wide that is gender-balanced at all seniority levels. Our website is `http://www.birmingham.ac.uk/sasp/`.

Download/Website: *`\https://www.birmingham.ac.uk/schools/physics/phd/phd-opportunities-physics-astronomy`*

Contact: `sasp-phd@contacts.bham.ac.uk`

Postdoctoral position in exoplanets at the Instituto de Astronomía UNAM

Dr. Yilen Gómez Maqueo Chew

Instituto de Astronomía UNAM @ Mexico City, Position is currently available. Start date is negotiable.

Applications are invited for a Postdoctoral position at the Instituto de Astronomía at UNAM in Mexico City for up to 3 years to conduct research to advance our understanding of planets orbiting brown dwarfs. A PhD or equivalent is required by the starting date. The successful applicant will contribute toward the exoplanet search around brown dwarfs and will be involved with the science operations and maintenance of the SAINT-EX telescope. As part of the team, the successful applicant will develop more tools in diversity, equity, inclusion and accessibility, and to support organizational change.

The position includes: (a) a monthly stipend of $45 000 MXN (depending on exchange rate at transfer); (b) health insurance consideration in stipend; (c) access to observing resources in Mexico; (d) travel budget for conferences and UNAM/UniBe collaboration; (e) publication costs and computing resources, and (f) yearly UNAM holidays, plus Mexican federal holidays.

An application should consist of: (a) a Curriculum Vitae; (b) a research proposal (up to 3 pages); (c) a summary of past achievements (1 page); (d) a full list of publications, and (e) the names and contact information for 3 references. Applications should be sent in a single email with attached files in PDF format and filenames should contain the applicant's name or last name.

Candidates with previous expertise in exoplanet observations, population synthesis modeling and/or ground-based telescope operations and applications from people with identities that are underrepresented in the field are strongly encouraged to apply.

The full call for this postdoctoral position can be found at: https://astronomia.unam.mx/convocatorias-instituto-astronomia/one-postdoctoral-position-in-exoplanet-scienceat-ia-unam-in-mexico-city/.

AAS Job Register Ad: https://aas.org/jobregister/ad/e14f9b67.

The deadline for application submissions is **Friday 7 February 2025**.

Contact: `ygmc@astro.unam.mx`

125 Anniversary Fellows & Anniversary Chairs at the University of Birmingham

Amaury Triaud
Sun, Stars & Exoplanets research group, School of Physics & Astronomy

Deadline, 12 January 2025

To celebrate its 125^{th} anniversary, the University of Birmingham is opening **125 new permanent academic positions** across all disciplines. There are two types of positions on offer, *Anniversary Fellows*, at the rank of assistant professor, and *Anniversary Chairs*, at the rank of professor.

The recruitment drive will last into 2026, and its first phase already recruited about 30 new positions. This particular call is the start of the second phase of recruitment, with a deadline on 12 January 2025.

The *Sun, Stars & Exoplanets* research group, within the School of Physics & Astronomy is very keen to attract excellent candidates to apply to this scheme, which when selected would expand and complement our research portfolio. While any research profile can apply to the Anniversary recruitment and is of interest to us, we feel the following areas have the greatest potential: **astronomical instrumentation related to exoplanets; direct imaging; observation and theory of exoplanet atmospheres; observations and theory related to young stars and protoplanetary discs; advanced statistics and machine learning applied to stellar astronomy**.

Information about the Anniversary scheme can be found at:
`https://fellowsandchairs.birmingham.ac.uk/`.

Because this is a centrally managed recruitment scheme, any application should show not just what a good scientist and future/established academic you are, but also include a strong motivation for your general research area, as well as a strong statement about what attracts you to join the *Sun, Stars & Exoplanets* research group. We strongly recommend candidates to reach out about those well ahead of the deadline.

Applications to the scheme should include:
- Details of three referees
- A 10,000 character statement that provide "your reasons for applying for this role, skills, experience, and other interests and activities as appropriate to the post for which you are applying".
- A CV and cover letter
- A list of publications

The School of Physics & Astronomy also particularly recommends to applicants, that they attach a research statement, and a teaching statement to their CV (roughly 2 pages each).

The School of Physics & Astronomy at the University of Birmingham has an outstanding track record of internationally recognised research. The 2013 Nobel Prize in Physics was awarded to Higgs and Englert for their theoretical prediction of the Higgs boson that was discovered in 2012 with strong involvement of the Birmingham team within the ATLAS experiment. The 2016 Nobel Prize in Physics was awarded to Professor Mike Kosterlitz and Professor David Thouless jointly for their work into the discoveries of the properties of matter, work which started when they were at Birmingham together. The 2017 Prize was awarded for the detection of gravitational waves, in which Birmingham staff played a key role; the University recognised these contributions and future major opportunities in the field by establishing the Institute for Gravitational Wave Astronomy. The School is an excellent environment for an upcoming academic. The School performed strongly in REF 2021, ranking first out of all Physics departments in the UK on 4-star research, and fourth overall on GPA.

The *Sun, Stars and Exoplanets* research group is one of its more successful groups, which currently holds two ERC, one FLF and three STFC grants for six permanent academics. The group has made unique and impactful research contributions in the fields of asteroseismology, helioseismology and exoplanet detections. In addition, the *Sun, Stars and Exoplanets* group has created a welcoming and inclusive environment for research, which is reflected within surveys of our PhD students and postdocs. The group is one of only few physics groups UK-wide that is

gender-balanced at all seniority levels. Our website is http://www.birmingham.ac.uk/sasp/

For more information, please contact Amaury Triaud (see below).

Download/Website: *https://fellowsandchairs.birmingham.ac.uk/*
Download/Website: *https://www.jobs.ac.uk/job/DKG958/anniversary-fellow*
Download/Website: *https://www.jobs.ac.uk/job/DKG952/anniversary-chair*
Contact: a.triaud@bham.ac.uk

4 Conferences and Workshops

Session at the EGU General Assembly 2025: PS5.1: Exoplanets atmosphere studies: climates, clouds and magnetic coupling

Ch. Helling[1,2]*, M. Lendl*[3]*, J. M. Désert*[4]*, N. Iro*[5]

[1] Space Research Institute, Austrian Academy of Sciences, Austria
[2] Institute for Theoretical Physics and Computational Physics, Graz University of Technology, Austria
[3] University of Geneva, Switzerland
[4] University of Amsterdam, The Netherlands
[5] German Aerospace Center (DLR), Germany

Vienna, Austria, Abstract submission deadline: 15 january 2025

This session addresses recent progress in characterisation of exoplanet climate regimes based on observations including JWST, TESS, and CHEOPS. JWST for the first time observed features of solid particles which have been interpreted as signatures of mineral clouds in transition spectra of gas giant exoplanets while complementary facilities such as TESS and CHEOPS provide equally important insight into the physics of exoplanet atmospheres. TESS and CHEOPS phase curves point to the need of a magnetically coupled atmospheric gas. While all these processes have been predicted for exoplanets before they could be observed, planetary clouds and magnetic fields have been extensively studied for solar system planets in situ with diverse space missions.

This session aims to invite recent progress in exoplanet atmosphere characterisation based on a combination of observation and modelling. The session focuses on cloud and gas-phase chemistry modelling, the modelling of magnetic coupling in atmospheres and how these have and can be observed. Contributions working at the cross-over of solar system and exoplanet sciences are particularly welcomed.

This session is triggered by the recent CHEOPS atmosphere interpretation activities on incorporating complex 3D modelling in their data interpretation. This session is part of the PLATO WP/WG activities for exoplanet gas giants.

Organisational aspects: We plan to assure a diverse program as well as a diversity of speakers according to the EGU EDI labels. The program shall foster exchange by leaving enough time for questions and answers. We further plan to involve young researchers into the session handling (following the EANA example).

Download/Website: `https://meetingorganizer.copernicus.org/EGU25/sessionprogramme/5526`

Contact: `christiane.helling@oeaw.ac.at`

Conference: Binary Stars in the Space Era

John Southworth[1]
[1] Astrophysics Group, Keele University, Staffordshire, UK

Keele University, Staffordshire, UK, 30$^{\rm th}$ June to 4$^{\rm th}$ July 2025

The study of binary stars is one of the oldest areas of astrophysics. Results from binary stars are fundamental to our understanding of how stars form and evolve, galactic stellar populations, chemical evolution, and the cosmological distance scale. Wide binaries allow us to probe the properties of normal stars, including direct measurements of their masses. Eclipsing binaries are the only stars whose masses and radii can be measured to high precision. Close binaries can be used to study the physics of mass transfer, mass loss, accretion discs and how stars evolve. Binary star evolution is critical to the formation of cataclysmic variables, novae, supernovae, X-ray binaries, millisecond pulsars, gamma-ray bursts and gravitational wave events. Planets are found in binary star systems in both S-type and P-type orbits.

We are now firmly in the space-photometry era, with observations of binary stars available from the WIRE, MOST, BRITE, CoRoT, *Kepler*, TESS and CHEOPS satellites. In the near future PLATO will offer another leap forward in the quality of photometric data, and binary stars will in turn provide crucial information for the interpretation of the many planetary systems it will find. What legacy of achievements can we attribute to the study of binary systems? What is the current state of this area of astrophysics? What problems are still to be solved? How can we further improve our understanding of normal stars? What new analyses are now possible with *Kepler*, TESS and CHEOPS data? What more will PLATO allow us to do? How should we prepare? The aim of this conference is to bring together observational and theoretical astrophysicists to critique the past, understand the present, and organise the future of binary star research.

For full details please see the conference website (given below).

Scientific Organising Committee:

- John Southworth (Keele University, UK)
- Conny Aerts (KU Leuven, Belgium)
- Jan Eldridge (University of Auckland, NZ)
- Kareem El-Badry (California Institute of Technology, US)
- Pierre Maxted (Keele University, UK)
- Nikki Miller (University of Uppsala, Sweden)

Download/Website: `https://www.astro.keele.ac.uk/jkt/keelebinaries2025/`
Contact: `taylorsouthworth@gmail.com`

Detection and Dynamics of Exoplanets (DDE): Interplay between theory and observations

Alexandre C. M. Correia[1,2], *Anne-Sophie Libert*[3], *Nuno C. Santos*[4,5]

[1] CFisUC, Departamento de Física, Universidade de Coimbra, 3004-516 Coimbra, Portugal
[2] IMCCE, Observatoire de Paris, PSL Université, 77 Av. Denfert-Rochereau, 75014 Paris, France
[3] naXys, Department of Mathematics, University of Namur, Rue de Bruxelles 61, 5000 Namur, Belgium
[4] Instituto de Astrofísica e Ciências do Espaço, Universidade do Porto, CAUP, Rua das Estrelas, 4150-762 Porto, Portugal
[5] Departamento de Física e Astronomia, FCUP, Rua do Campo Alegre, 4169-007 Porto, Portugal

University of Coimbra, Portugal, 7-11 July 2025

Detecting and characterizing planets in multiple systems is not an easy task, because the traces of each body overlap, and the observations can be reproduced by different orbital configurations. Additionally, in many systems, planets are involved in mean motion resonances or resonant chains, making it even more difficult to disentangle the individual contributions. In the DDE meeting, we aim to bring together communities of observers and theoreticians working on exoplanets. Through the exchange of knowledge and difficulties, we hope that it will be possible to develop common strategies to extract the maximum constraints from observational data and theoretical models.

Download/Website: `https://indico.cern.ch/event/1463154/`

Contact: `dde@uc.pt`

5 Exoplanet Archives

November 2024 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, December 10, 2024

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 within the news text.

November 21, 2024

One Planet and 17 Measured Obliquities

We've added 17 new measured obliquities from Knudstrup et al. (2024), which bring the archive's projected obliquities count to 199 and the true obliquities count to 41. This growing sample provides more information about exoplanet formation and migration history, such as distinguishing between high eccentricity migration and disk migration of hot Jupiters.

There are also several new parameters for various planets, including an update to the GJ 229 B binary system, which is now listed as GJ 229 Ba and GJ 229 Bb in the archive. Check out their System Overview page!

The systems with updated parameters are HAT-P-11 b & c, K2-7 b, K2-54 b, K2-57 b, K2-77 b, K2-97 b, K2-98 b, K2-114 b, K2-115 b, K2-147 b, K2-167 b, K2-180 b, K2-181 b, K2-182 b, K2-203 b, K2-204 b, K2-208 b, K2-211 b, K2-225 b, K2-226 b, K2-237 b, K2-250 b, K2-260 b, K2-261 b, K2-265 b, K2-277 b, K2-321 b, and Kepler-80 b, c, d, e, f, & g. You'll find the new data in the Planetary Systems and Planetary Systems Composite Data tables.

We've also added a new planet, TOI-6651 b, and a new transmission spectrum for V1298 Tau c.

November 7, 2024

Two New Planets and New Spectra for a Possible Lava World

We've added two new planets and new spectra for three planets, including spectra taken at five epochs for 55 Cnc e showing variability in atmospheric features. Check out this (possibly) volcanic exoplanet's NASA Exoplanet Travel Bureau poster!

You can access each spectrum from our Atmospheric Spectroscopy service, which captures 55 Cnc e's variability by the associated date for each spectrum. The other two planets with new spectra are COCONUTS-2 b and GJ 1214 b.

Two new planets, TOI-5713 b and TOI-6002 b, have been added to the Planetary Systems and Planetary Systems Composite Data tables.

Download/Website: `https://exoplanetarchive.ipac.caltech.edu`
Contact: `mharbut@caltech.edu`

6 As seen on astro-ph

The following list contains exoplanet related entries appearing on astro-ph in November 2024.
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.

November 2024

astro-ph/2411.00245: **The Search for the Inbetweeners: How packed are TESS planetary systems?** *by Jonathan Horner et al.*
astro-ph/2411.00952: **Light Scattering Measurements of KCl Particles as an Exoplanet Cloud Analog** *by Colin D. Hamill et al.*
astro-ph/2411.00277: **Dust mass in protoplanetary disks with porous dust opacities** *by Yao Liu et al.*
astro-ph/2411.00674: **Magnetic Field Evolution of Hot Exoplanets** *by Konstantinos Kilmetis et al.*
astro-ph/2411.01150: **Our Solar System Neighborhood: Three Diverging Tales of Planetary Habitability and Windows to Earth's Past and Future** *by Stephen R. Kane et al.*
astro-ph/2411.01356: **Origins of Super Jupiters: TOI-2145b Has a Moderately Eccentric and Nearly Aligned Orbit** *by Jiayin Dong et al.*
astro-ph/2411.02529: **On the local formation of the TRAPPIST-1 exoplanets** *by Matthew S. Clement et al.*
astro-ph/2411.02521: **The impact of observing cadence and undetected companions on the accuracy of planet mass measurements from radial velocity monitoring** *by Joseph M. Akana Murphy et al.*
astro-ph/2411.02518: **HD 119130 b is not an "ultra-dense" sub-Neptune** *by Joseph M. Akana Murphy et al.*
astro-ph/2411.01920: **Improving the parametrization of transport and mixing processes in planetary atmospheres: the importance of implementing the full Coriolis acceleration** *by Camille Moisset et al.*
astro-ph/2411.03453: **Formation of Terrestrial Planets** *by Matthew S. Clement et al.*
astro-ph/2411.03549: **Redshifting the Study of Cold Brown Dwarfs and Exoplanets: the Mid-Infrared Wavelength Region as an Indicator of Surface Gravity and Mass** *by S. K. Leggett, Pascal Tremblin*
astro-ph/2411.03467: **A high resolution simulation of protoplanetary disk turbulence driven by the vertical shear instability** *by Karim Shariff, Orkan M. Umurhan*
astro-ph/2411.03454: **Host-star and exoplanet composition: Polluted white dwarf reveals depletion of moderately refractory elements in planetary material** *by Claudia Aguilera-Gómez et al.*
astro-ph/2411.03421: **Exo-Daisy World: Revisiting Gaia Theory through an Informational Architecture Perspective** *by Damian R Sowinski et al.*
astro-ph/2411.03154: **JWST COMPASS: The first near- to mid-infrared transmission spectrum of the hot super-Earth L 168-9 b** *by Munazza K. Alam et al.*
astro-ph/2411.03089: **SPIRou observations of the young planet-hosting star PDS 70** *by J. -F. Donati et al.*
astro-ph/2411.03418: **MARFA: An Effective Line-by-line Tool for Calculating Absorption Coefficients and Cross-sections in Planetary Atmospheres** *by Mikhail Razumovskiy et al.*
astro-ph/2411.04192: **A Planet Candidate Orbiting near the Hot Jupiter TOI-2818 b Inferred through Transit Timing** *by Brendan J. McKee et al.*
astro-ph/2411.04091: **Temporal and chromatic variation of polarized scattered light in the outer disk of PDS 70** *by J. Ma et al.*
astro-ph/2411.04218: **Probabilities of collisions of bodies ejected from forming Earth with the terrestrial planets** *by S. I. Ipatov*
astro-ph/2411.04164: **MAUVE: An Ultraviolet Astrophysics Probe Mission Concept** *by Mayura Balakrishnan et al.*
astro-ph/2411.04078: **Limits to dynamic range in GHz-THz single-dish planetary spectra** *by J S Greaves*
astro-ph/2411.04781: **A new pathway to SO_2: Revealing the NUV driven sulfur chemistry in hot gas giants** *by Wiebe de Gruijter et al.*

astro-ph/2411.05066: **The cold Jupiter eccentricity distribution is consistent with EKL driven by stellar companions** *by Grant C. Weldon et al.*

astro-ph/2411.05203: **Sites of Planet Formation in Binary Systems. II. Double the Disks in DF Tau** *by Taylor Kutra et al.*

astro-ph/2411.05954: **Migration of bodies in the Proxima Centauri and Trappist 1 planetary systems** *by S. I. Ipatov*

astro-ph/2411.05917: **VLTI/GRAVITY Observations of AF Lep b: Preference for Circular Orbits, Cloudy Atmospheres, and a Moderately Enhanced Metallicity** *by William O. Balmer et al.*

astro-ph/2411.05476: **Examining the rotation of the planet-hosting M dwarf GJ 3942** *by Andrew Fonseca, Sarah Dodson-Robinson*

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