ExoPlanet News
An Electronic Newsletter

No. 173, 14 November 2023

Editors: H. Wang, L. Schlarmann, J. Davoult, D. Angerhausen & T.-E. Riesen
NCCR PlanetS, Gesellschaftsstrasse 6, CH-3012 Bern, Switzerland

exoplanetnews@nccr-planets.ch
http://nccr-planets.ch/exoplanetnews

Contents

1 Editorial

Welcome to Edition 173 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!

For the next month 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 (`http://nccr-planets.ch/exoplanetnews/`).

The next issue will appear on December 12, 2023.

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

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

2 Abstracts of refereed papers

Can comets deliver prebiotic molecules to rocky exoplanets?

R. J. Anslow[1], *A. Bonsor*[1], *P. B. Rimmer*[2]

[1] Institute of Astronomy, University of Cambridge, Madingley Road, Cambridge CB3 0HA, UK
[2] Astrophysics Group, Cavendish Laboratory, University of Cambridge, JJ Thomson Ave, Cambridge, CB3 0HE, UK

Proceedings of the Royal Society A, in press (arXiv:2310.12906)

In this work we consider the potential of cometary impacts to deliver complex organic molecules and the prebiotic building blocks required for life to rocky exoplanets. Numerical experiments have demonstrated that for these molecules to survive, impacts at very low velocities are required. This work shows that for comets scattered from beyond the snow-line into the habitable zone, the minimum impact velocity is always lower for planets orbiting Solar-type stars than M-dwarfs. Using both an analytical model and numerical N-body simulations, we show that the lowest velocity impacts occur onto planets in tightly-packed planetary systems around high-mass (i.e. Solar-mass) stars, enabling the intact delivery of complex organic molecules. Impacts onto planets around low-mass stars are found to be very sensitive to the planetary architecture, with the survival of complex prebiotic molecules potentially impossible in loosely-packed systems. Rocky planets around M-dwarfs also suffer significantly more high velocity impacts, potentially posing unique challenges for life on these planets. In the scenario that cometary delivery is important for the origins of life, this study predicts the presence of biosignatures will be correlated with i) decreasing planetary mass (i.e. escape velocity), ii) increasing stellar-mass, and iii) decreasing planetary separation (i.e. exoplanets in tightly-packed systems).

Download/Website: `http://arxiv.org/abs/2310.12906`

Contact: `rja92@ast.cam.ac.uk`

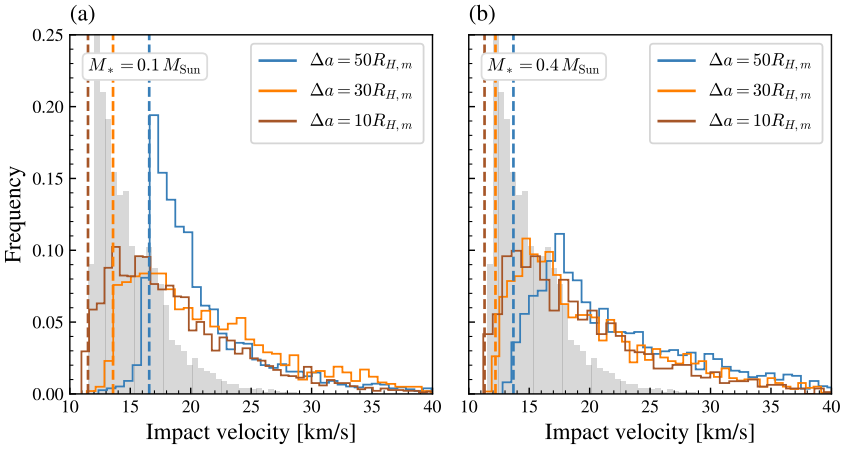

Figure 1: Impact velocity distributions from N-body test-particle simulations onto an Earth-like planet in the habitable zone of an 0.1 $M_{\rm Sun}$ M-dwarf (a) and an 0.4 $M_{\rm Sun}$ M-dwarf (b). The planetary spacing, in units of mutual Hill radius, is varied between 10 $R_{\rm H,m}$ and 50 $R_{\rm H,m}$ in each panel. This translates to between 2 and 8 planets spaced equally between the snow-line and habitable zone. The vertical dashed lines are our analytical predictions for the minimum velocity impacts. For comparison, the velocity distribution for a planet around a G-type star (1 $M_{\rm Sun}$, $\Delta a = 50 R_{\rm H,m}$) is shaded grey in the background. The overall shapes of these distributions are very sensitive to the initial distribution of the test-particles, which we describe in section 2(c).

First VLTI/GRAVITY Observations of HIP 65426 b: Evidence for a Low or Moderate Orbital Eccentricity

S. Blunt[1,2], *W. Balmer*[3,4], *J. Wang*[1], *et al.*

[1] CIERA and Department of Physics and Astronomy, Northwestern University, Evanston, IL 60208, USA
[2] Department of Astronomy, California Institute of Technology, Pasadena, CA 91125, USA
[3] Department of Physics & Astronomy, Johns Hopkins University, 3400 N. Charles Street, Baltimore, MD 21218, USA
[4] Space Telescope Science Institute, Baltimore, MD 21218, USA

The Astronomical Journal, in press (arXiv:2310.00148)

Giant exoplanets have been directly imaged over orders of magnitude of orbital separations, prompting theoretical and observational investigations of their formation pathways. In this paper, we present new VLTI/GRAVITY astrometric data of HIP 65426 b, a cold, giant exoplanet which is a particular challenge for most formation theories at a projected separation of 92 au from its primary. Leveraging GRAVITY's astrometric precision, we present an updated eccentricity posterior that disfavors large eccentricities. The eccentricity posterior is still prior-dependent, and we extensively interpret and discuss the limits of the posterior constraints presented here. We also perform updated spectral comparisons with self-consistent forward-modeled spectra, finding a best fit `ExoREM` model with solar metallicity and C/O=0.6. An important caveat is that it is difficult to estimate robust errors on these values, which are subject to interpolation errors as well as potentially missing model physics. Taken together, the orbital and atmospheric constraints paint a preliminary picture of formation inconsistent with scattering after disk dispersal. Further work is needed to validate this interpretation. Analysis code used to perform this work is available at https://github.com/sblunt/hip65426.

Download/Website: `https://arxiv.org/abs/2310.00148`

Contact: `sarah.blunt.3@gmail.com`

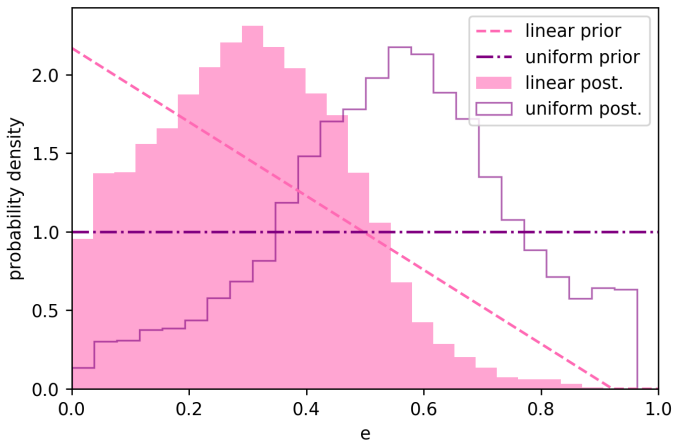

Figure 2: Eccentricity posteriors for fits with uniform (purple) and linearly decreasing (pink) priors on eccentricity. The priors themselves are also plotted as lines of the same colors. **Takeaway:** the eccentricity posterior depends on the choice of prior. However, both the linearly decreasing prior and the uniform prior result in posterior peaks at moderate eccentricity values

Dynamics of trans-Neptunian objects near the 3/1 mean-motion resonance with Neptune

A.J. Alves-Carmo[1], *T. Vaillant*[1], *A.C.M. Correia*[2,3]

[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

Astronomy & Astrophysics, published (2023A&A...677A..83A)

The complex classification of trans-Neptunian objects (TNOs) that are captured in mean-motion resonances (MMRs) and the constraint of their multiple origins are two significant open problems concerning the Solar System. The case-by-case study of the different MMRs and their characteristics provide information about their origin and dynamics, which helps us to understand the early stages of the Solar System evolution. In this paper, we study the dynamics of the detected TNOs close to a 3/1 MMR with Neptune. We initially use a semi-analytic three-body model to investigate the coplanar secular dynamics of these objects and find the stationary points. We then use surface sections and stability maps to analyse the non-averaged dynamics. These methods allow us to isolate the different stability regions and determine the extent of the chaotic regions. We show that stability maps are an extremely powerful tool for studying the resonant dynamics when they are computed in terms of the resonant angle. We then use these maps to study the non-planar three-body problem and the full dynamics in the presence of planetary perturbations. We confirm that TNOs near the 3/1 MMR regions can exist at very high inclinations. In the framework of the three-body problem, many of these objects can also be stable outside the 3/1 MMR owing to a Kozai secular resonance. However, when we take into account the perturbations of the four giant planets, the Kozai regions disappear and only the 3/1 MMR region remains, with eccentricities $e < 0.5$.

Download/Website: `https://arxiv.org/abs/2309.04256`

Contact: `acor@uc.pt`

Linking circumstellar disk lifetimes to the rotational spin-down of low-mass stars

K. Monsch[1], *J. J. Drake*[1,2], *C. Garraffo*[1], *G. Picogna*[3], *B. Ercolano*[3,4]

[1] Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge MA 02138, USA
[2] Lockheed Martin, 3251 Hanover St, Palo Alto, CA 94304
[3] Universitäts-Sternwarte, Fakultät für Physik, Ludwig-Maximilians-Universität München, Scheinerstr. 1, 81679 München, Germany
[4] Exzellenzcluster 'Origins', Boltzmannstr. 2, 85748 Garching, Germany

The Astrophysical Journal, in press (arXiv: 2311.05673)

The high-energy radiation emitted by young stars can have a strong influence on their rotational evolution at later stages. This is because internal photoevaporation is one of the major drivers of the dispersal of circumstellar disks, which surround all newly born low-mass stars during the first few million years of their evolution. Employing an internal EUV/X-ray photoevaporation model, we have derived a simple recipe for calculating realistic inner disk lifetimes of protoplanetary disks. This prescription was implemented into a magnetic morphology-driven rotational evolution model and is used to investigate the impact of disk-locking on the spin evolution of low-mass stars. We find that the length of the disk-locking phase has a profound impact on the subsequent rotational evolution of a young star, and the implementation of realistic disk lifetimes leads to an improved agreement of model outcomes with observed rotation period distributions for open clusters of various ages. However, for both young star-forming regions tested in our model, the strong bimodality in rotation periods that is observed in h Per could not be recovered. h Per is only successfully recovered, if the model is started from a double-peaked distribution with an initial disk fraction of $65\,\%$. However, at an age of only $\sim 1\,\mathrm{Myr}$, such a low disk fraction can only be achieved if an additional disk dispersal process, such as external photoevaporation, is invoked. These results therefore highlight the importance of including realistic disk dispersal mechanisms in rotational evolution models of young stars.

Download/Website: `https://arxiv.org/abs/2311.05673`

Contact: `kristina.monsch@cfa.harvard.edu`

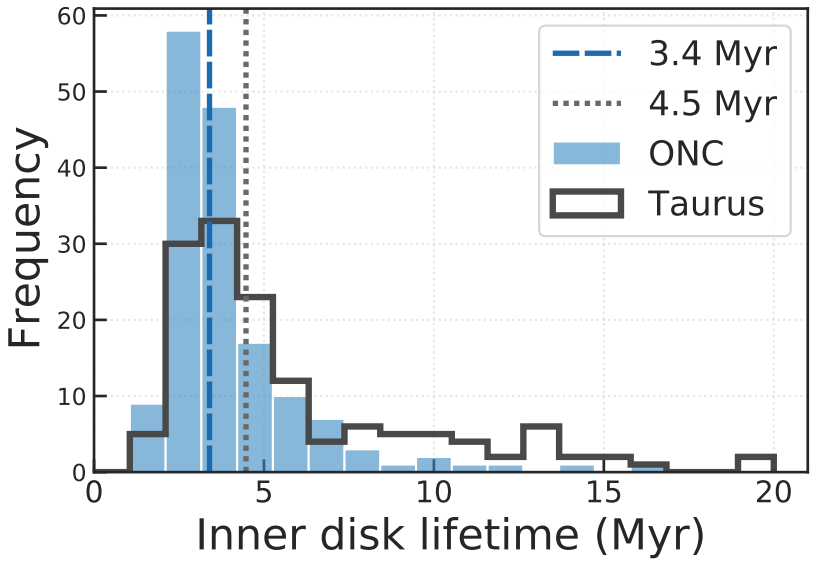

Figure 3: Distribution of calculated inner disk lifetimes for the Orion Nebula Cluster (ONC; blue) and Taurus (black).

3 Jobs and Positions

Postdoctoral position in stellar astrophysics with a focus on participation in the Plato mission

Ulrike Heiter
Department of Physics and Astronomy, Uppsala University, Sweden

Uppsala University, from 1 Feb 2024

The Department of Physics and Astronomy at Uppsala University invites applications for a postdoctoral position in stellar astrophysics, funded through a grant from the Swedish National Space Agency (SNSA) for participation in the Plato space mission. The position is hosted by the Division of Astronomy and Space Physics. Plato is an ESA mission dedicated to detect and characterise terrestrial exoplanets in the habitable zones of their host stars. The launch is planned for 2026. Science preparation and exploitation is the responsibility of the international Plato Mission Consortium, which includes a considerable part focusing on stellar science.
To qualify for an employment as a postdoctor you must have a PhD degree or a foreign degree equivalent to a PhD degree in Physics, Astronomy or equivalent. The degree needs to be obtained by the time of the decision of employment. Those who have obtained a PhD degree in the three years prior to the application deadline are primarily considered for the employment. The employment is a temporary position, minimum two years, with possibility of a third year.
Applications should be submitted via the on-line application system, following the link given in the detail ed announcement. Your application should contain a letter describing yourself and your qualifications and research interests (max 2 pages). It should also contain a CV including contact information for at least two reference persons (e-mail address and phone number), a copy of your PhD degree certificate, and a full publication list. The deadline for applying for this position is **20 December 2023**.

Download/Website: `https://www.jobb.uu.se/details/?positionId=672430`

Contact: `ulrike.heiter@physics.uu.se`

Postdoc position: ”Synthetic spectra of exoplanet atmospheres with and without biological activity”

Uffe Gråe Jørgensen

Niels Bohr Institute, University of Copenhagen, from January 1, 2024 or soon thereafter

Application deadline 1st of December 2023. Start 1st of January 2024 or soon thereafter.

The position is at our Centre for Exolife Sciences (`https://cels.nbi.ku.dk/english`) in the overlap area between astronomy, chemistry, biology, and physics. The fellowship is supported by the Novo Nordisk Foundation under the Synergy project “Effects of bacteria on atmospheres of Earth, Mars, and exoplanets”, which involve staff at University of Copenhagen from the Niels Bohr Institute, the Department of Chemistry and the Department of Biology.
The successful candidate will join a highly interdisciplinary, international and collaborative environment with the common goal of deepening our understanding of the global interaction of life with its surroundings in terrestrial and extraterrestrial environments.
The specific goal of the present postdoc will be to include and understand non-equilibrium processes in the modelling and analysis of (exo)planetary atmospheric structures and spectra caused by the existence of life forms, including the influence of gasses produced by micro-organisms in our lab experiments.
Interviews will be held online during the beginning of December 2023, with potential offers being issued immediately thereafter. Start of employment can be January 1, 2024, and the duration of the position is two years. There exist good opportunities to apply for further national and international fellowships as a continuation of the first two years of successful postdoc position. Inquiries about the position can be made to Uffe Gråe Jørgensen, email: uffegj@nbi.dk, direct phone: (+45) 61 30 66 40.

Download/Website: `https://cels.nbi.ku.dk/english/openings/`

Contact: `uffegj@nbi.dk`

Research Fellow in Planet Formation and Protoplanetary Discs

Dr Farzana Meru

University of Warwick, ASAP

The University of Warwick seeks to appoint a Research Fellow within the group of Dr Farzana Meru on the topic of protoplanetary discs. The appointment will be for 27 months. Applications for a part-time position and those from underrepresented minorities are particularly encouraged and welcome.

The successful candidate will work with Dr Farzana Meru on the topic that is complementary to her research interests: self-gravitating discs, protoplanetary disc evolution, dust growth, planet formation, planet-disc interactions, and connections with observed protoplanetary discs. The post is primarily expected to involve numerical simulations, but where relevant, an observational connection will certainly be encouraged. The candidate is expected to develop their own research ideas and will be encouraged to contribute to Dr Meru's wider research focus on planet formation and evolution.

Dr Meru's group is based in the University of Warwick's Astronomy & Astrophysics group – a leading UK institution for exoplanet & disc research, with 81 researchers including 16 faculty members working on discs and exoplanets. The group was recently donated $£3.5$m to spend on PhD students and postdoctoral fellowships, attracting high quality international researchers. The exoplanet research is extremely active and the vibrant discs research group spans the fields of protoplanetary, debris, white dwarf and black hole discs.

The continuing professional development of her group is of great importance to Dr Meru, including developing students and researchers in ways that give them a career boost. The candidate will have the opportunity to develop their CV, e.g. through supervising PhD and undergraduate research projects, and taking on other responsibilities that will enhance their development in positive ways for their future goals.

The candidate will have an expertise in one or more of: protoplanetary discs, planet formation, planet-disc interactions, dust evolution, accretion disc physics and numerical simulations. Areas outside these are encouraged if they complement the group's research. Applicants should demonstrate a proven research track record, be an enthusiastic communicator capable of working effectively both independently and as part of a research team, and will have excellent interpersonal skills. The candidate will possess excellent planning & time management skills to ensure their research objectives are achieved. The candidate will have a commitment to and/or lived experience of addressing Equality, Diversity and Inclusion issues in the workplace.

Candidates should submit a formal application along with all of the following: (i) an up-to-date CV complete with publication list and metrics (max 2 pages plus publications list), (ii) a concise (max 2 pages) statement of research describing their past research accomplishments, as well as their relevant scientific and technical experience, (iii) an ANONYMOUS statement of future research plans along with how they link to the advertised post (max 2 pages), (iv) a statement about Equality, Diversity and Inclusion (max 1 page). A cover letter is not needed.

For equity purposes, the panel will firstly assess the future research blindly and on the merit of scientific ideas. Please provide details of three referees (letters will only be requested if needed). All applications will be given equal consideration. Examples of how to write an anonymous research proposal can be found at the below weblink. Please direct all informal inquiries about the role and the group's Equality, Diversity and Inclusion culture to Dr Farzana Meru. Deadline: 19th November 2023

Download/Website: `https://warwick.ac.uk/fac/sci/physics/research/astro/vacancies/`

Contact: `f.meru@warwick.ac.uk`

2024 Trottier Postdoctoral Fellowship in Exoplanetary Science

Prof. René Doyon

Montréal, Canada, Starting date: May to September 2024

The Trottier Institute for Research on Exoplanets (iREx), affiliated with the Department of Physics of the Université de Montréal (UdeM), invites applications for the Trottier Postdoctoral Fellowship in experimental, observational or theoretical astrophysics applied to the study of exoplanets, which enables forefront independent research related to exoplanets. All areas of exoplanet research will be considered.

A PhD in physics, astronomy or related discipline is required at the time when the position starts. Preference will be given to applicants within 3 years of obtaining their PhD. Applicants with career interruptions due to parental, medical or family leaves, or other causes are invited to mention it in their cover letter, if so desired. The position start date is between **May and September 2024**, 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 CV, a list of publications, and a statement of research interests (max 2 pages), and should arrange to have three referees send a letter of reference to **irex-applications@umontreal.ca by December 2nd 2023 for full consideration**. This position will, however, remain open until filled.

The iREx consists of a growing team of about 60 people working on a variety of observational, theoretical and instrumental projects related to the study of exoplanets and other related fields of astrophysics. They work within several research institutions located in Quebec, Canada. Our team is actively involved in large international projects related to the detection and characterisation of exoplanets, notably the JWST and the SPIRou and NIRPS spectrographs, and have privileged access to time and data from these instruments.

The iREx advocates for diversity, inclusion and employment equity. 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: http://www.exoplanetes.umontreal.ca/?lang=en

Download/Website: `https://bit.ly/iRExTrottierPostdoc`

Contact: `irex-applications@umontreal.ca`

Exoplanet Science Internship Opportunities in ESA's Directorate of Science

European Space Agency (ESA)

Dear colleagues,

We have recently opened the call for new internship opportunities in ESA's Directorate of Science, with two special opportunities for exoplanet science:

- Topic 1: Atmospheric modeling of exoplanet phase-curves (ESTEC)
- Topic 2: Hunting for exoplanets: providing ground-based support for ESA's space fleet (ESTEC)

Both opportunities are suited for early-career scientists at the final-year Bachelor's or Master's level who wish to work for 3-6 months on a pre-defined research project at an ESA facility. Applications can now be submitted with a deadline of 31 Nov. You can find the full advertisement via the link below.

Please help us distribute this opportunity to your interested team members and colleagues.

Let's work together on data from ESA's current and upcoming space fleet (e.g., HST, Gaia, JWST, CHEOPS, and soon PLATO and Ariel) as well as ground-based telescopes!

Best regards
Dr. Maximilian N. Günther

More information:

Download/Website: `https://jobs.esa.int/job/Noordwijk-Intern-in-the-Science-Division/998529201/`

Contact: `maximilian.guenther@esa.int`

4 Conferences and Workshops

Dust Devils: Debris Disks in the Sonoran Desert

SOC: Steve Ertel, Christine Chen, Tom Esposito, Meredith Hughes, Luca Matrà, Tim Pearce, Kate Su, Alycia Weinberger, Siyi Xu

LOC: Virginie Faramaz, Cathi Duncan, András Gáspár, Hélène Rousseau, Schuyler Wolff

Tucson, Arizona, USA,
25-29 March 2024

After Victoria (2018), Budapest (2019), EAS (2021), and Jena (2022), we are delighted to host the fifth edition of the "Current and Future Trends in Debris Disc Science" meeting series in Tucson, Arizona, USA.

In the tradition of the extremely fruitful previous meetings, the goal is to strengthen collaboration and stimulate discussion among experts in the field of debris disks and zodiacal/exozodiacal dust (including the Solar System's dust and minor bodies).

Registration is now open, and will remain open until November 30th 2023 for in-person attendance (or until we have reached the 120 person cap). We are happy to announce that we have secured funding from NASA, and will make this meeting free of registration fees.

In compliance with the funding agreements, we have to ask everyone attending in-person to present their work (at least a poster). Do not worry if this is work in progress! We want to know about you and what you are working on. This workshop is meant to be a friendly setting where you actually have the opportunity to discuss work in progress and get inputs from the community.

The funds we have secured will also allow us to award travel support to people who otherwise don't have funds available to attend. We wish to support early career researchers and our colleagues from low-income countries and low-budget institutions.

Registration for remote participation will remain open until the meeting starts, though remote participants will be limited to viewing the talks and interacting with the other participants through the Slack channel.

There will also be a two-day crash course in debris disks just before the workshop (22-23 March), to get students and early career researchers in touch with more established scientists in the field, and get them to learn about debris disks while networking in a friendly setting.

Download/Website: `https://www.as.arizona.edu/DustDevils2024/`
Contact: `vfaramaz@arizona.edu`

EGU General Assembly 2024 Session on Characterizing the Diversity of Sub-Neptunes, Super-Earths, and Rocky Worlds

M. Thompson[1], *F. Seidler*[1], *H. Wang*[1], *A. Falco*[2]
[1] ETH Zürich, Zürich, Switzerland
[2] Institut de Physique du Globe de Paris, Paris, France

Vienna, Austria, 14-19 April, 2024

With over 5,000 exoplanets discovered to date, exoplanet science is in an observational revolution as large-aperture telescopes like JWST and the upcoming ground-based ELT will allow us to characterize the diversity of planetary systems in our galaxy. Based on our current understanding, the most common types of planets are sub-Neptunes and super-Earths, planets with masses in between those of Earth and Neptune, for which we have no analog in our Solar System. However, as instrument sensitivity increases, we will be able to determine if low-mass, rocky worlds may instead be the most abundant type of planet. Sub-Neptune, super-Earth and rocky exoplanets are all expected to be diverse in terms of their compositions, system architectures, interior dynamics and the relationship between their interiors and atmospheres. In this session, we invite contributions spanning observational, theoretical and experimental research that seeks to improve our understanding of these worlds. Suggested topics include, but are not limited to, recent progress on understanding these planets' atmospheres, potential causes of the radius gap (i.e., the observed dearth of exoplanets with radii between 1.5 and 2 Earth radii), interior-atmosphere connections, lava worlds (planets that have extensive lava or magma oceans on their surfaces), and the plausibility of water worlds (planets for which water makes up a significant fraction of the planet). Comprehensively characterizing these types of planets is an essential step towards developing a generalized theory of planet formation and evolution and will provide crucial information to inform the design of next-generation missions like the Habitable Worlds Observatory and Large Interferometer for Exoplanets (LIFE). **All researchers working on these topics are encouraged to submit an abstract to this session. The deadline is 10 January 2024.**

Download/Website: `https://meetingorganizer.copernicus.org/EGU24/session/48152`

Contact: `maggie.thompson@erdw.ethz.ch`

5 Exoplanet Archives

October 2023 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 7, 2023

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. Data may also be found in the (Microlensing Planets Table and the Direct Imaging Planets Table. Emission and transmission spectra are served from the Atmospheric Spectroscopy Table.

October 26, 2023

Seven New Planets and Spectra of a Hycean Candidate

This week's update includes seven new planets and planet candidate AU Mic e, as well as spectra by NASA's James Webb Space Telescope for K2-18 b and LHS 475 b.

The K2-18 b spectra are noteworthy because they reveal an abundance of methane and carbon dioxide, as well as a shortage of ammonia. This supports the hypothesis the planet is a Hycean world, with a water ocean beneath a hydrogen-rich atmosphere. More information on the K2-18 b discovery is in NASA's media release and the published paper; use our new Atmospheric Spectroscopy Table to access and plot the data.

The planets added this week are HIP 66074 b, Kepler-1513 c, TOI-5126 b & c, TOI-1801 b, GJ 724 b, and GJ 3988 b.

Share Your Thoughts In Our User Survey!

The NASA Exoplanet Archive and ExoFOP are collecting feedback on what you like and what could be improved about the two archives. This short survey should take approximately 10 minutes to complete. Whether this is your first time on our site or you're a regular user, we want to hear from you!

October 12, 2023

Five Giant Planets and TRAPPIST-1 h Spectrum

We've added five giant planets that have temperatures ranging from hot to cold, plus atmospheric spectra for seven planets—including TRAPPIST-1 h!

The new planets are HAT-P-2 c, TOI-199 b & c, TOI-858 B b, and TOI-1408 b. The planets with new atmospheric spectra are HAT-P-41 b, HD 189733 b, KELT-9 b, KELT-20 b, WASP-79 b, WASP-178 b, and TRAPPIST-1 h.

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 October 2023.
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 2023

astro-ph/2310.00148: **First VLTI/GRAVITY Observations of HIP 65426 b: Evidence for a Low or Moderate Orbital Eccentricity** *by S. Blunt et al.*
astro-ph/2310.00089: **Spectral Retrieval with JWST Photometric data: a Case Study for HIP 65426 b** *by Ji Wang*
astro-ph/2310.00088: **Early Accretion of Large Amount of Solids for Directly-Imaged Exoplanets** *by Ji Wang*
astro-ph/2310.04435: **A Fast second-order solver for stiff multifluid dust and gas hydrodynamics** *by Leonardo Krapp et al.*
astro-ph/2310.00072: **The Comprehensive Archive of Substellar and Planetary Accretion Rates** *by S. K. Betti et al.*
astro-ph/2310.00067: **Solvent constraints for biopolymer folding and evolution in extraterrestrial environments** *by Ignacio E. Sánchez et al.*
astro-ph/2310.00453: **MRI turbulence in vertically stratified accretion discs at large magnetic Prandtl numbers** *by Loren E. Held et al.*
astro-ph/2310.00459: **Warps and Breaks in Circumbinary Discs** *by Ian Rabago et al.*
astro-ph/2310.00719: **Bayesian test of the strong equivalence principle in Brans-Dicke theories with planetary ephemerides** *by Vincenzo Mariani et al.*
astro-ph/2310.01567: **Hot Jupiters Have Giant Companions: Evidence for Coplanar High-Eccentricity Migration** *by Jon Zink, Andrew Howard*
astro-ph/2310.01527: **Reading Between the Lines: Investigating the Ability of JWST to Identify Discerning Features in exoEarth and exoVenus Transmission Spectra** *by Colby Ostberg et al.*
astro-ph/2310.01488: **Sandwiched planet formation: restricting the mass of a middle planet** *by Matthew Pritchard et al.*
astro-ph/2310.01227: **Reconstructing Atmospheric Parameters of Exoplanets Using Deep Learning** *by Flavio Giobergia et al.*
astro-ph/2310.01031: **Hydrodynamical modelling of tidal dissipation in gas giant planets at the time of space missions** *by Hachem Dhouib et al.*
astro-ph/2310.00860: **Surrounded by Giants: Habitable Zone Stability Within the HD 141399 System** *by Stephen R. Kane*
astro-ph/2310.01231: **Jupiter Mass Binary Objects in the Trapezium Cluster** *by Samuel G Pearson, Mark J McCaughrean*
astro-ph/2310.02465: **Disk Cooling and Wind Lines As Seen In the Spectral Line Evolution of V960 Mon** *by Adolfo S. Carvalho et al.*
astro-ph/2310.02452: **Extended habitability of exoplanets due to subglacial water** *by Amri Wandel*
astro-ph/2310.02327: **GJ 357 d: Potentially Habitable World or Agent of Chaos?** *by Stephen R. Kane, Tara Fetherolf*
astro-ph/2310.02332: **Plausibility of Capture into High-Obliquity States for Exoplanets in the M Dwarf Habitable Zone** *by Natalia M. Guerrero, Sarah A. Ballard*
astro-ph/2310.02241: **High Angular Resolution Imaging of the V892 Tau Binary System: A New Circumprimary Disk Detection and Updated Orbital Constraints** *by Christina Vides et al.*
astro-ph/2310.02028: **Outgassing Composition of the Murchison Meteorite: Implications for Volatile Depletion of Planetesimals and Interior-atmosphere Connections for Terrestrial Exoplanets** *by Maggie A. Thompson et al.*

astro-ph/2310.01985: **Hall-magnetohydrodynamic simulations of X-ray photoevaporative protoplanetary disc winds** *by Eleftheria Sarafidou et al.*
astro-ph/2310.01725: **Super-Earth LHS3844b is tidally locked** *by Xintong Lyu et al.*
astro-ph/2310.02305: **Wrinkles in Time – I: Rapid Rotators Found in High Eccentricity Orbits** *by Rayna Rampalli et al.*
astro-ph/2310.03117: **Growing Planet Envelopes in Spite of Recycling Flows** *by Avery Bailey, Zhaohuan Zhu*
astro-ph/2310.03116: **A Systematic Study of Planetary Envelope Growth with 3D Radiation-Hydrodynamics Simulations** *by Avery Bailey et al.*
astro-ph/2310.03097: **FRIED v2. A new grid of mass loss rates for externally irradiated protoplanetary discs** *by Thomas J. Haworth et al.*
astro-ph/2310.05980: **Do nonlinear effects disrupt tidal dissipation predictions in convective envelopes?** *by Aurélie Astoul, Adrian J. Barker*
astro-ph/2310.02886: **Composition of giant planets: the roles of pebbles and planetesimals** *by Claudia Danti et al.*
astro-ph/2310.02795: **Protoplanetary and debris disks in the η Chamaeleontis Association: A sub-millimeter survey obtained with APEX/LABOCA** *by V. Roccatagliata et al.*
astro-ph/2310.02758: **Exploring the Brown Dwarf Desert with Precision Radial Velocities and Gaia DR3 Astrometric Orbits** *by N. Unger et al.*
astro-ph/2310.02695: **Combing the Brown Dwarf Desert with Gaia DR3** *by Adam T. Stevenson et al.*
astro-ph/2310.02681: **Stable accretion in young stars: The cases of EX Lupi and TW Hya** *by A. Sicilia-Aguilar et al.*
astro-ph/2310.02634: **Earth as an Exoplanet. III. Using Empirical Thermal Emission Spectra as Input for Atmospheric Retrieval of an Earth-Twin Exoplanet** *by Jean-Noël Mettler et al.*
astro-ph/2310.02613: **Monitoring the young planet host V1298 Tau with SPIRou: planetary system and evolving large-scale magnetic field** *by B. Finociety et al.*
astro-ph/2310.02514: **Closed-Loop Until Further Notice: Comparing Predictive Control Methods in Closed-Loop** *by J. Fowler et al.*
astro-ph/2310.02822: **3D Global Simulations of Accretion onto Gap-opening Planets: Implications for Circumplanetary Disc Structures and Accretion Rates** *by Ya-Ping Li et al.*
astro-ph/2310.03802: **Not So Fast Kepler-1513: A Perturbing Planetary Interloper in the Exomoon Corridor** *by Daniel A. Yahalomi et al.*
astro-ph/2310.03792: **Characterizing the Near-infrared Spectra of Flares from TRAPPIST-1 During JWST Transit Spectroscopy Observations** *by Ward S. Howard et al.*
astro-ph/2310.03733: **Bringing 2D Eclipse Mapping out of the Shadows with Leave-one-out Cross-validation** *by Ryan C. Challener et al.*
astro-ph/2310.03713: **Methods for Incorporating Model Uncertainty into Exoplanet Atmospheric Analysis** *by Matthew C. Nixon et al.*
astro-ph/2310.03593: **Where are the Water Worlds? Identifying the Exo-water-worlds Using Models of Planet Formation and Atmospheric Evolution** *by Aritra Chakrabarty, Gijs D. Mulders*
astro-ph/2310.03553: **On the effect of tidal deformation on planetary phase curves** *by Babatunde Akinsanmi et al.*
astro-ph/2310.03327: **Formation of misaligned second-generation discs through flyby encounters** *by Jeremy L. Smallwood et al.*
astro-ph/2310.03299: **Dynamical Architectures of S-type Transiting Planets in Binaries I: Target Selection using Hipparcos and Gaia proper motion anomalies** *by Jingwen Zhang et al.*
astro-ph/2310.03245: **JWST transmission spectroscopy of HD 209458b: a super-solar metallicity, a very low C/O, and no evidence of CH4, HCN, or C2H2** *by Qiao Xue et al.*
astro-ph/2310.04611: **Rapid Dust Growth During Hydrodynamic Clumping Due to Streaming Instability** *by Ryosuke T. Tominaga, Hidekazu Tanaka*

astro-ph/2310.04505: **Hydrocarbon chemistry in inner regions of planet forming disks** *by Jayatee Kanwar et al.*

astro-ph/2310.04588: **Tidal migration of exoplanets around M-dwarfs: frequency-dependent tidal dissipation** *by Samantha C. Wu et al.*

astro-ph/2310.04302: **Living with a Red Dwarf: X-ray, UV, and Ca II Activity-Age Relationships of M Dwarfs** *by Scott G. Engle*

astro-ph/2310.04095: **Volatiles in the H_2O and CO_2 ices of comet 67P/Churyumov-Gerasimenko** *by Martin Rubin et al.*

astro-ph/2310.03998: **First Near-IR Spectroscopic Survey of Neptune Trojans with JWST: Distinct Surface Compositions of Red vs Ultra-Red Neptune Trojans** *by Larissa Markwardt et al.*

astro-ph/2310.04497: **Correlations between laboratory line lists for FeH, CrH, and NiH and M-star spectra collected with ESPaDOnS and SPIRou** *by P. Crozet et al.*

astro-ph/2310.06035: **Planetary system architectures with low-mass inner planets: Direct imaging exploration of mature systems beyond 1 au** *by Celia Desgrange et al.*

astro-ph/2310.06013: **The Not-So Dramatic Effect of Advective Flows on Gas Accretion** *by Vincent Savignac, Eve J. Lee*

astro-ph/2310.05890: **Solaris photometric survey: Search for circumbinary companions using eclipse timing variations** *by Ayush Moharana et al.*

astro-ph/2310.05778: **WD0141-675: A case study on how to follow-up astrometric planet candidates around white dwarfs** *by Laura K. Rogers et al.*

astro-ph/2310.06016: **Floating binary planets from ejections during close stellar encounters** *by Yihan Wang et al.*

astro-ph/2310.05465: **Investigation on the Orbital Period Variations of NN Ser: Implications for the Hypothetical Planets, the Applegate Mechanism and the Orbital Stability** *by Aykut Özdönmez et al.*

astro-ph/2310.05363: **Follow-up radio observations of the τ Boötis exoplanetary system: Preliminary results from NenuFAR** *by Jake D. Turner et al.*

astro-ph/2310.05359: **A Complex Systems Approach to Exoplanet Atmospheric Chemistry: New Prospects for Ruling Out the Possibility of Alien Life-As-We-Know-It** *by Theresa Fisher et al.*

astro-ph/2310.05599: **Planetary companions orbiting the M dwarfs GJ 724 and GJ 3988. A CARMENES and IRD collaboration** *by P. Gorrini et al.*

astro-ph/2310.06985: **PlatoSim: An end-to-end PLATO camera simulator for modelling high-precision space-based photometry** *by N. Jannsen et al.*

astro-ph/2310.06957: **An Investigation of New Brown Dwarf Spectral Binary Candidates From the Backyard Worlds: Planet 9 Citizen Science Initiative** *by Alexia Bravo et al.*

astro-ph/2310.06922: **Tracing the Snowball bifurcation of aquaplanets through time reveals a fundamental shift in critical-state dynamics** *by Georg Feulner et al.*

astro-ph/2310.06796: **Using a quench level approximation to estimate the effect of metallicity on N-bearing species abundances in H2-dominated atmospheres** *by Vikas Soni, Kinsuk Acharyya*

astro-ph/2310.06681: **An ESPRESSO view of HD 189733 system. Broadband transmission spectrum, differential rotation, and system architecture** *by E. Cristo et al.*

astro-ph/2310.06635: **Can one hear supercontinents in the tides of ocean planets?** *by Pierre Auclair-Desrotour et al.*

astro-ph/2310.06276: **GPI 2.0: Performance Evaluation of the Wavefront Sensor's EMCCD** *by Clarissa R. Do Ó et al.*

astro-ph/2310.06818: **3D simulations of the Archean Earth including photochemical haze profiles** *by M. T. Mak et al.*

astro-ph/2310.07936: **Verification of Gaia DR3 Single-lined Spectroscopic Binary Solutions With Three Transiting Low-mass Secondaries** *by Stephen P. Schmidt et al.*

astro-ph/2310.07827: **Astrometry and Precise Radial Velocities Yield a Complete Orbital Solution for the**

Nearby Eccentric Brown Dwarf LHS 1610 b *by Evan Fitzmaurice et al.*

astro-ph/2310.07714: **Clouds and Clarity: Revisiting Atmospheric Feature Trends in Neptune-size Exoplanets** *by Jonathan Brande et al.*

astro-ph/2310.07701: **The sulphur species in hot rocky exoplanet atmospheres** *by L. J. Janssen et al.*

astro-ph/2310.07527: **New methods for radial-velocity measurements of double-lined binaries, and detection of a circumbinary planet orbiting TIC 172900988** *by Lalitha Sairam et al.*

astro-ph/2310.07502: **Exoplanet Occurrence Rates from Microlensing Surveys** *by P. Mroz, R. Poleski*

astro-ph/2310.07332: **Dust Coagulation Reconciles Protoplanetary Disk Observations with the Vertical Shear Instability – Part I: Dust Coagulation and the VSI Dead Zone** *by Thomas Pfeil et al.*

astro-ph/2310.07134: **The Slicer Combined with Array of Lenslets for Exoplanet Spectroscopy (SCALES): driving science cases and expected outcomes** *by Steph Sallum et al.*

astro-ph/2310.07575: **Stability of coorbital planets around binaries** *by Stefan Adelbert et al.*

astro-ph/2310.08724: **When the horseshoe fits: Characterizing 2023 FY3 with the 10.4 m Gran Telescopio Canarias and the Two-meter Twin Telescope** *by R. de la Fuente Marcos et al.*

astro-ph/2310.08707: **The California Legacy Survey IV. Lonely, Poor, and Eccentric: A Comparison Between Solitary and Neighborly Gas Giants** *by Lee J. Rosenthal et al.*

astro-ph/2310.08673: **PyMsOfa: A Python Package for the Standards of Fundamental Astronomy (SOFA) Service** *by Jianghui Ji et al.*

astro-ph/2310.08637: **JWST-TST DREAMS: Quartz Clouds in the Atmosphere of WASP-17b** *by David Grant et al.*

astro-ph/2310.08589: **Protoplanetary disks in K_s-band total intensity and polarized light** *by Bin B. Ren et al.*

astro-ph/2310.08360: **A planetary collision afterglow and transit of the resultant debris cloud** *by Matthew Kenworthy et al.*

astro-ph/2310.08202: **Modelling Non-Condensing Compositional Convection for Applications to Super-Earth and Sub-Neptune Atmospheres** *by Namrah Habib, Raymond T. Pierrehumbert*

astro-ph/2310.08561: **An extensively validated C/H/O/N chemical network for hot exoplanet disequilibrium chemistry** *by R. Veillet et al.*

astro-ph/2310.09399: **Interstellar Meteors from Tidal Disruption of Rocky Planets on Eccentric Orbits Around M Dwarfs** *by Abraham Loeb, Morgan MacLeod*

astro-ph/2310.09355: **The first white dwarf debris disk observed by JWST** *by Andrew Swan et al.*

astro-ph/2310.09352: **The PEPSI Exoplanet Transit Survey (PETS) IV: Assessing the atmospheric chemistry of KELT-20b** *by Sydney Petz et al.*

astro-ph/2310.09187: **Planet migration in massive circumbinary discs** *by Matthew Teasdale, Dimitris Stamatellos*

astro-ph/2310.08995: **Scaling slowly rotating asteroids by stellar occultations** *by A. Marciniak et al.*

astro-ph/2310.09132: **Shaping the CO snowline in protoplanetary disks** *by S. Gavino et al.*

astro-ph/2310.09077: **Dust evolution in protoplanetary disks** *by Nienke van der Marel, Paola Pinilla*

astro-ph/2310.08953: **Searching for Candidates of Orbital Decays among Transit Exoplanets** *by Li-Chin Yeh et al.*

astro-ph/2310.08890: **TOI-5126: A hot super-Neptune and warm Neptune pair discovered by *TESS* and *CHEOPS*** *by Tyler R. Fairnington et al.*

astro-ph/2310.09472: **An Information Theory Approach to Identifying Signs of Life on Transiting Planets** *by Sara Vannah et al.*

astro-ph/2310.09524: **CWISE J105512.11+544328.3: A Nearby Y Dwarf Spectroscopically Confirmed with Keck/NIRES** *by Grady Robbins et al.*

astro-ph/2310.09572: **Wind erosion and transport on planetesimals** *by A. C. Quillen et al.*

astro-ph/2310.09902: **JWST-TST High Contrast: Achieving direct spectroscopy of faint substellar companions next to bright stars with the NIRSpec IFU** *by Jean-Baptiste Ruffio et al.*

astro-ph/2310.10067: **Comparative Study of Planetary Atmospheric Uncertainties and Design Rules for Ae-**

rocapture Missions *by Athul Pradeepkumar Girija*

astro-ph/2310.10244: **TOI-1801 b: A temperate mini-Neptune around a young M0.5 dwarf** *by M. Mallorquín et al.*

astro-ph/2310.10332: **No random transits in CHEOPS observations of HD 139139** *by R. Alonso et al.*

astro-ph/2310.10335: **Exploring the Sun's birth radius and the distribution of planet building blocks in the Milky Way galaxy: A multi-zone Galactic chemical evolution approach** *by Junichi Baba et al.*

astro-ph/2310.10521: **Reproducing Bayesian Posterior Distributions for Exoplanet Atmospheric Parameter Retrievals with a Machine Learning Surrogate Model** *by Eyup B. Unlu et al.*

astro-ph/2310.10711: **Double Trouble: Two Transits of the Super-Earth GJ 1132 b Observed with JWST NIRSpec G395H** *by E. M. May et al.*

astro-ph/2310.11613: **No Evidence for More Earth-sized Planets in the Habitable Zone of Kepler's M versus FGK Stars** *by Galen J. Bergsten et al.*

astro-ph/2310.11583: **Dynamical evolution of second-generation circumstellar/protoplanetary disks in evolved wide binary systems** *by Raffaele S. Cattolico, Hagai B. Perets*

astro-ph/2310.11508: **The *JWST* Early Release Science Program for Direct Observations of Exoplanetary Systems III: Aperture Masking Interferometric Observations of the star HIP 65426 at $3.8\,\mu\mathrm{m}$** *by Shrishmoy Ray et al.*

astro-ph/2310.11433: **Prebiotic Vitamin B_3 Synthesis in Carbonaceous Planetesimals** *by Klaus Paschek et al.*

astro-ph/2310.11302: **Gaia FGK Benchmark Stars: fundamental Teff and log g of the third version** *by Caroline Soubiran et al.*

astro-ph/2310.11499: **The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems IV: NIRISS Aperture Masking Interferometry Performance and Lessons Learned** *by Steph Sallum et al.*

astro-ph/2310.11190: **Jupiter-like planets might be common in a low-density environment** *by Raffaele Gratton et al.*

astro-ph/2310.11164: **Experimental Investigation of the Photochemical Production of Hydrocarbons in Warm Gas Giant Exoplanet Atmospheres** *by Benjamin Fleury et al.*

astro-ph/2310.11074: **XUE. Molecular inventory in the inner region of an extremely irradiated Protoplanetary Disk** *by María Claudia Ramirez-Tannus et al.*

astro-ph/2310.11007: **Dual-Band Observations of the Asymmetric Ring around CIDA 9A: Dead or Alive?** *by Daniel Harsono et al.*

astro-ph/2310.12380: **Refutation of K2-256b and Rejection of 130 Unconfirmed Transiting Planet Candidates with Gaia DR3 NSS** *by Thomas Tarrants, Elvis Mendes*

astro-ph/2310.12336: **RZ Piscium Hosts a Compact and Highly Perturbed Debris Disk** *by Kate Y. L. Su et al.*

astro-ph/2310.12193: **Simulating medium-spectral-resolution exoplanet characterization with SCALES angular/reference differential imaging** *by Aditi Desai et al.*

astro-ph/2310.12125: **Comprehensive High-resolution Chemical Spectroscopy of Barnard's Star with SPIRou** *by Farbod Jahandar et al.*

astro-ph/2310.11888: **Analyze Mass Spectrometry data with Artificial Intelligence to assist the understanding of past habitability of Mars and provide insights for future missions** *by Ioannis Nasios*

astro-ph/2310.11999: **IRAS4A1: Multi-wavelength continuum analysis of a very flared Class 0 disk** *by O. M. Guerra-Alvarado et al.*

astro-ph/2310.11898: **Constraining the formation history of the TOI-1338/BEBOP-1 circumbinary planetary system** *by Gavin A. L. Coleman et al.*

astro-ph/2310.11851: **The evolution of collision debris near the μ_6 secular resonance and its role in the origin of terrestrial water** *by Á. Süli, E. Forgács-Dajka*

astro-ph/2310.11775: **TOI-2015b: A Warm Neptune with Transit Timing Variations Orbiting an Active mid M Dwarf** *by Sinclaire E. Jones et al.*

astro-ph/2310.11757: **The dependence of the structure of planet-opened gaps in protoplanetary disks on ra-**

diative cooling *by Minghao Zhang et al.*

astro-ph/2310.13171: **Survival in the Neptune desert: LTT 9779 b kept its atmosphere thanks to an unusually X-ray faint host star** *by Jorge Fernández Fernández et al.*

astro-ph/2310.13066: **OGLE-2014-BLG-0221Lb: A Jupiter Mass Ratio Companion Orbiting either a Late-Type Star or a Stellar Remnant** *by Rintaro Kirikawa et al.*

astro-ph/2310.13052: **Self-Consistent Modeling of Metastable Helium Exoplanet Transits** *by Federico Biassoni et al.*

astro-ph/2310.12906: **Can comets deliver prebiotic molecules to rocky exoplanets?** *by Richard J. Anslow et al.*

astro-ph/2310.12673: **Oort cloud perturbations as a source of hyperbolic Earth impactors** *by Eloy Peña-Asensio et al.*

astro-ph/2310.12749: **Age and genetic relationships among CB, CH and CR chondrites** *by Elias Wölfer et al.*

astro-ph/2310.12453: **Early Planet Formation in Embedded Disks (eDisk). VIII. A Small Protostellar Disk around the Extremely Low-Mass and Young Class 0 Protostar, IRAS 15398-3359** *by Travis J. Thieme et al.*

astro-ph/2310.12458: **Confirmation of a Sub-Saturn-size transiting exoplanet orbiting a G dwarf: TOI-1194 b and a very low mass companion star: TOI-1251 B from TESS** *by Jia-Qi Wang et al.*

astro-ph/2310.12797: **Constraining the formation history of the HAT-P-11 system by atmospheric abundances** *by Lena Chatziastros et al.*

astro-ph/2310.13690: **Planet Gap-opening Feedback on Disk Thermal Structure and Composition** *by Kan Chen et al.*

astro-ph/2310.13644: **Achieving Single-Electron Sensitivity at Enhanced Speed in Fully-Depleted CCDs with Double-Gate MOSFETs** *by Miguel Sofo-Haro et al.*

astro-ph/2310.13623: **A hot mini-Neptune and a temperate, highly eccentric sub-Saturn around the bright K-dwarf TOI-2134** *by F. Rescigno et al.*

astro-ph/2310.13496: **Masses, Revised Radii, and a Third Planet Candidate in the "Inverted" Planetary System Around TOI-1266** *by Ryan Cloutier et al.*

astro-ph/2310.13414: **Imaging detection of the inner dust belt and the four exoplanets in the HR8799 system with JWST's MIRI coronagraph** *by Boccaletti A. et al.*

astro-ph/2310.13412: **Direct evidence of helium rain in Jupiter and Saturn** *by Xiaoju Chang et al.*

astro-ph/2310.13205: **Water-Rich Disks around Late M-stars Unveiled: Exploring the Remarkable Case of Sz114** *by Chengyan Xie et al.*

astro-ph/2310.13525: **Latitudinal variations in methane abundance, aerosol opacity and aerosol scattering efficiency in Neptune's atmosphere determined from VLT/MUSE** *by Patrick G. J. Irwin et al.*

astro-ph/2310.13873: **Revolutionary Solar System Science Enabled by the Line Emission Mapper X-ray Probe** *by Willaim R. Dunn et al.*

astro-ph/2310.13929: **The Intensity of Diffuse Galactic Emission Reflected by Meteor Trails** *by Feiyu Zhao et al.*

astro-ph/2310.14245: **An analytic theory for the resolution attainable using eclipse mapping of exoplanets** *by Sasha Boone et al.*

astro-ph/2310.14311: **Post-Keplerian variations of astrometric angular observables in orbital motions** *by Lorenzo Iorio*

astro-ph/2310.15039: **The Potential of Detecting Nearby Terrestrial Planets in the HZ with Different Methods** *by Qiaoyang Hao et al.*

astro-ph/2310.15028: **Searching for Planets Orbiting Fomalhaut with JWST/NIRCam** *by Marie Ygouf et al.*

astro-ph/2310.15118: **Separated twins or just siblings? A multi-planet system around an M dwarf including a cool sub-Neptune** *by Mallory Harris et al.*

astro-ph/2310.15267: **Heat-Flux Limited Cloud Activity and Vertical Mixing in Giant Planet Atmospheres with an Application to Uranus and Neptune** *by Huazhi Ge et al.*

astro-ph/2310.15231: **Direct detection and characterization of exoplanets using imaging Fourier transform**

spectroscopy *by Jingwen Zhang et al.*

astro-ph/2310.15255: **An ALMA Survey of M-dwarfs in the Beta Pictoris Moving Group with Two New Debris Disc Detections** *by Patrick F. Cronin-Coltsmann et al.*

astro-ph/2310.15219: **The giant nature of WD 1856 b implies that transiting rocky planets are rare around white dwarfs** *by David Kipping*

astro-ph/2310.14987: **Atmospheric carbon depletion as a tracer of water oceans and biomass on temperate terrestrial exoplanets** *by Amaury H. M. J. Triaud et al.*

astro-ph/2310.15068: **HD152843 b & c: the masses and orbital periods of a sub-Neptune and a super-puff Neptune** *by B. A. Nicholson et al.*

astro-ph/2310.14908: **TOI-544 b: a potential water-world inside the radius valley in a two-planet system** *by H. L. M. Osborne et al.*

astro-ph/2310.14476: **Effect of Equation of State and Cutoff Density in Smoothed Particle Hydrodynamics Simulations of the Moon-Forming Giant Impact** *by Scott D. Hull et al.*

astro-ph/2310.14568: **Gaia Astrometry and MIKE+PFS Doppler Data Joint Analysis Reveals that HD 175167b is a Massive Cold Jupiter** *by Tianjun Gan*

astro-ph/2310.14950: **Near-Infrared Transmission Spectroscopy of HAT-P-18 b with NIRISS: Disentangling Planetary and Stellar Features in the Era of JWST** *by Marylou Fournier-Tondreau et al.*

astro-ph/2310.14617: **Early Planet Formation in Embedded Disks (eDisk) XII: Accretion streamers, protoplanetary disk, and outflow in the Class I source Oph IRS63** *by Christian Flores et al.*

astro-ph/2310.14715: **The CARMENES search for exoplanets around M dwarfs. Telluric absorption corrected high S/N optical and near-infrared template spectra of 382 M dwarf stars** *by E. Nagel et al.*

astro-ph/2310.14588: **AESOPUS 2.0: Low-Temperature Opacities with Solid Grains** *by P. Marigo et al.*

astro-ph/2310.16227: **Dynamical aspects of Galactic habitability in N-body simulations** *by A. Mitrašinović et al.*

astro-ph/2310.16104: **Planetary Engulfment Prognosis within the ρ CrB System** *by Stephen R. Kane*

astro-ph/2310.16026: **Retrievals of Protoplanetary Disk Parameters using Thermochemical Models: I. Disk Gas Mass from Hydrogen Deuteride Spectroscopy** *by Young Min Seo et al.*

astro-ph/2310.15926: **Stellar surface information from the Ca II H&K lines I. Intensity profiles of the solar activity components** *by M. Cretignier et al.*

astro-ph/2310.16124: **Dwindling Surface Cooling of a Rotating Jovian Planet Leads to a Convection Zone that Grows to a Finite Depth** *by Bradley W. Hindman, J. R. Fuentes*

astro-ph/2310.15992: **A New 2D Energy Balance Model For Simulating the Climates of Rapidly- and Slowly-Rotating Terrestrial Planets** *by Ramses M. Ramirez*

astro-ph/2310.15833: **The positional probability and true host star identification of TESS exoplanet candidates** *by Andreas Hadjigeorghiou, David J. Armstrong*

astro-ph/2310.15671: **Quality flags for GSP-Phot Gaia DR3 astrophysical parameters with machine learning: Effective temperatures case study** *by Aleksandra S. Avdeeva et al.*

astro-ph/2310.15603: **Tilted circumbinary planetary systems as efficient progenitors of free-floating planets** *by Cheng Chen et al.*

astro-ph/2310.15491: **Early Planet Formation in Embedded Disks (eDisk) X: Compact Disks, Extended Infall, and a Fossil Outburst in the Class I Oph IRS43 Binary** *by Suchitra Narayanan et al.*

astro-ph/2310.15490: **New Mass and Radius Constraints on the LHS 1140 Planets – LHS 1140 b is Either a Temperate Mini-Neptune or a Water World** *by Charles Cadieux et al.*

astro-ph/2310.15430: **A Companion in V1247 Ori Supported by Spiral Arm Pattern Motion** *by Bin B. Ren et al.*

astro-ph/2310.15895: **A roadmap to the efficient and robust characterization of temperate terrestrial planet atmospheres with JWST** *by TRAPPIST-1 JWST Community Initiative et al.*

astro-ph/2310.17057: **Post-main sequence thermal evolution of planetesimals** *by Yuqi Li et al.*

astro-ph/2310.17043: **Quantifying the Transit Light Source Effect: Measurements of Spot Temperature and**

Coverage on the Photosphere of AU Microscopii with High-Resolution Spectroscopy and Multi-Color Photometry *by William Waalkes et al.*

astro-ph/2310.16873: **Disk Evolution Study Through Imaging of Nearby Young Stars (DESTINYS): HD 34700 A unveils an inner ring** *by G. Columba et al.*

astro-ph/2310.16733: **Breaking up with the continuous exoplanet mass-radius relation** *by Kathryn Edmondson et al.*

astro-ph/2310.16888: **The GAPS programme at TNG XLIX. TOI-5398, the youngest compact multi-planet system composed of an inner sub-Neptune and an outer warm Saturn** *by G. Mantovan et al.*

astro-ph/2310.17767: **Formation of giant planets around intermediate-mass stars** *by Heather Johnston et al.*

astro-ph/2310.17751: **Global Chemical Transport on Hot Jupiters: Insights from 2D VULCAN photochemical model** *by Shang-Min Tsai et al.*

astro-ph/2310.17733: **Kepler Bonus: Light Curves of Kepler Background Sources** *by Jorge Martinez-Palomera et al.*

astro-ph/2310.17575: **Synthetic Detections of Interstellar Objects with The Rubin Observatory Legacy Survey of Space and Time** *by Dušan Marčeta, Darryl Z. Seligman*

astro-ph/2310.17681: **Feature Extraction and Classification from Planetary Science Datasets enabled by Machine Learning** *by Conor Nixon et al.*

astro-ph/2310.17275: **NIGHT: a compact, near-infrared, high-resolution spectrograph to survey helium in exoplanet systems** *by C. Farret Jentink et al.*

astro-ph/2310.17268: **TESS Duotransit Candidates from the Southern Ecliptic Hemisphere** *by Faith Hawthorn et al.*

astro-ph/2310.17225: **Long-term Orbital Period Variation of Hot Jupiters from Transiting Time Analysis using TESS Survey Data** *by Wenqin Wang et al.*

astro-ph/2310.17158: **CosmosDSR – a methodology for automated detection and tracking of orbital debris using the Unscented Kalman Filter** *by Daniel S. Roll et al.*

astro-ph/2310.17322: **The rate of satellite glints in ZTF and LSST sky surveys** *by Sergey Karpov, Julien Peloton*

astro-ph/2310.18486: **Using Lyman-α transits to constrain models of atmospheric escape** *by Ethan Schreyer et al.*

astro-ph/2310.18484: **Kinematic signatures of planet-disk interactions in VSI-turbulent protoplanetary disks** *by Marcelo Barraza-Alfaro et al.*

astro-ph/2310.18445: **Signs of Similar Stellar Obliquity Distributions for Hot and Warm Jupiters Orbiting Cool Stars** *by Marvin Morgan et al.*

astro-ph/2310.18253: **Effects of general relativity on habitable zone particles under the presence of an inner perturber around solar-mass stars** *by Coronel Carla Florencia et al.*

astro-ph/2310.18426: **Age-dating the young open cluster UBC 1 with g-mode asteroseismology, gyrochronology, and isochrone fitting** *by D. J. Fritzewski et al.*

astro-ph/2310.18219: **SWASTi-CME: A physics-based model to study CME evolution and its interaction with Solar Wind** *by Prateek Mayank et al.*

astro-ph/2310.18017: **Some properties of plasma surrounding brown dwarfs** *by Dmitry Kobyakov*

astro-ph/2310.18252: **Dynamical feasibility of (3) Juno as a parent body of the H chondrites** *by John W. Noonan et al.*

astro-ph/2310.18754: **Secular Orbital Dynamics of the Possibly Habitable Planet K2-18 b with and without the Proposed Inner Companion** *by Valeri V. Makarov, Alexey Goldin*

astro-ph/2310.18876: **Thermal conductivity of MgO in giant planetary interior conditions predicted by deep potential** *by Rong Qiu et al.*

astro-ph/2310.19672: **Synthetic populations of protoplanetary disks. Impact of magnetic fields and radiative transfer** *by U. Lebreuilly et al.*

astro-ph/2310.19934: **Spectroscopic Links Among Giant Planet Irregular Satellites and Trojans** *by Benjamin N. L. Sharkey et al.*

astro-ph/2310.19790: **Detection and Preliminary Characterisation of Polluted White Dwarfs from Gaia EDR3 and LAMOST** *by Mariona Badenas-Agusti et al.*

astro-ph/2310.19615: **The impact of the free-floating planet (FFP) mass function on the event rate for the accurate microlensing parallax determination: application to Euclid and Roman parallax observation** *by Makiko Ban*

astro-ph/2310.19320: **A Near-Field Treatment of Aperture Synthesis Techniques using the Murchison Wide-field Array** *by Steve Prabu et al.*

astro-ph/2310.19497: **Interstellar carbonaceous dust erosion induced by X-ray irradiation of water ice in star-forming regions** *by K. -J. Chuang et al.*

astro-ph/2310.19476: **Radiative Transfer and Inversion codes for characterizing planetary atmospheres: an overview** *by Miriam Rengel, Jakob Adamczewski*

astro-ph/2310.19431: **Inviscid protostellar disc ring formation and high density ring edges due to the ejection and subsequent infall of material onto a protostellar disc** *by Kurt Liffman*

astro-ph/2310.19265: **Magnetic activity variability of nearby bright Sun-like stars by 4-year intensive Hα line monitoring** *by Sanghee Lee et al.*

astro-ph/2310.19600: **AC Her: Evidence of the first polar circumbinary planet** *by Rebecca G. Martin et al.*

astro-ph/2310.20113: **Planets Across Space and Time (PAST) IV: The Occurrence and Architecture of Kepler Planetary Systems as a Function of Kinematic Age Revealed by the LAMOST-Gaia-Kepler Sample** *by Jia-Yi Yang et al.*

astro-ph/2310.20214: **The external photoevaporation of structured protoplanetary disks** *by Matías Gárate et al.*

astro-ph/2310.20374: **Ncorpi$\mathcal{O}$N : A $\mathcal{O}(N)$ software for N-body integration in collisional and fragmenting systems** *by Jérémy Couturier et al.*

astro-ph/2310.20398: **A hybrid approach for solving the gravitational N-body problem with Artificial Neural Networks** *by Veronica Saz Ulibarrena et al.*

astro-ph/2310.20634: **TOI-5344 b: A Saturn-like planet orbiting a super-Solar metallicity M0 dwarf** *by Te Han et al.*