ExoPlanet News
An Electronic Newsletter

No. 176, 13 February 2024

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 176 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 March 12, 2024.

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

Modeling Atmospheric Lines By the Exoplanet Community (MALBEC) version 1.0: A CUISINES radiative transfer intercomparison project

Geronimo L. Villanueva[1], *Thomas J.Fauchez*[2,1,3], *Vincent Kofman*[2,1], *Eleonora Alei*[4,5], *Elspeth K.H. Lee*[6], *Estelle Janin*[7], *Michael D. Himes*[8,9] *Jérémy Leconte*[10], *Michaela Leung*[11], *Sara Faggi*[2,1], *Mei Ting Mak*[12], *Denis E. Sergeev*[12], *Thea Kozakis*[13], *James Manners*[14], *Nathan Mayne*[12], *Edward W. Schwieterman*[15], *Alex R. Howe* [16,17] *and Natasha Batalha*[18]

[1] NASA Goddard Space Flight Center, Greenbelt, MD, USA
[2] Integrated Space Science and Technology Institute, Department of Physics, American University, Washington DC
[3] NASA GSFC Sellers Exoplanet Environments Collaboration
[4] ETH Zurich, Institute for Particle Physics & Astrophysics, Wolfgang-Pauli-Str. 27, 8093 Zurich, Switzerland
[5] National Center of Competence in Research PlanetS (www.nccr-planets.ch)
[6] Center for Space and Habitability, University of Bern, Gesellschaftsstrasse 6, CH-3012 Bern, Switzerland
[7] School of Earth and Space Exploration, Arizona State University, Tempe, AZ 85281, USA
[8] Planetary Sciences Group, Department of Physics, University of Central Florida, USA
[9] NASA Postdoctoral Program Fellow, NASA Goddard Space Flight Center, Greenbelt, MD, USA.
[10] Laboratoire dastrophysique de Bordeaux, Univ. Bordeaux, CNRS, B18N, allée Geoffroy Saint-Hilaire, 33615 Pessac, France
[11] Department of Earth and Planetary Sciences, University of California, Riverside, California, 92521
[12] Physics and Astronomy, University of Exeter, Exeter EX4 4QL, UK
[13] National Space Institute, Technical University of Denmark, Elektrovej 328, 2800 Kgs. Lyngby, Denmark
[14] Met Office, FitzRoy Road, Exeter EX1 3PB, UK
[15] Department of Earth and Planetary Sciences, University of California, Riverside, CA, USA
[16] NASA Goddard Space Flight Center, 8800 Greenbelt Rd, Greenbelt, MD 20771, USA
[17] Center for Research and Exploration in Space Science and Technology, NASA/GSFC, Greenbelt, MD 20771
[18] NASA Ames Research Center, Mountain View, CA 94035, USA

PSJ, in press (`https://arxiv.org/abs/2402.04329`*)*

Radiative transfer (RT) models are critical in the interpretation of exoplanetary spectra, in simulating exoplanet climates and when designing the specifications of future flagship observatories. However, most models differ in methodologies and input data, which can lead to significantly different spectra. In this paper, we present the experimental protocol of the MALBEC (Modeling Atmospheric Lines By the Exoplanet Community) project. MALBEC is an exoplanet model intercomparison project (exoMIP) that belongs to the CUISINES (Climates Using Interactive Suites of Intercomparisons Nested for Exoplanet Studies) framework which aims to provide the exoplanet community with a large and diverse set of comparison and validation of models. The proposed protocol tests include a large set of initial participating RT models, a broad range of atmospheres (from Hot Jupiters to temperate terrestrials) and several observation geometries, which would allow us to quantify and compare the differences between different RT models used by the exoplanetary community. Two types of tests are proposed: transit spectroscopy and direct imaging modeling, with results from the proposed tests to be published in dedicated follow-up papers. To encourage the community to join this comparison effort and as an example, we present simulation results for one specific transit case (GJ-1214 b), in which we find notable differences in how the various codes handle the discretization of the atmospheres (e.g., sub-layering), the treatment of molecular opacities (e.g., correlated-k, line-by-line) and the default spectroscopic repositories generally used by each model (e.g., HITRAN, HITEMP, ExoMol).

Download/Website: `https://arxiv.org/abs/2402.04329`

Contact: `geronimo.l.villanueva@nasa.gov`

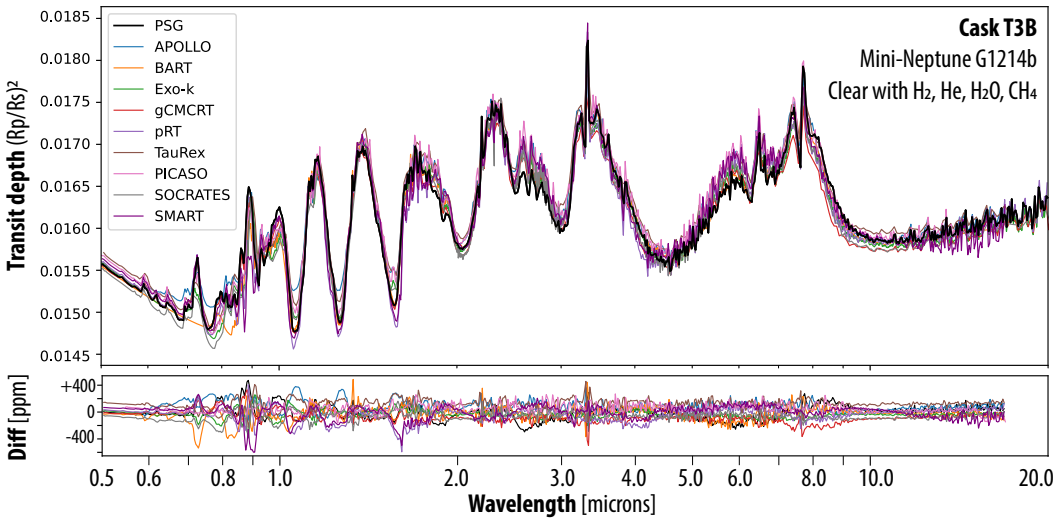

Figure 1: Comparison of preliminary simulation results for test cask T3B. The RT models were run using their typical and core functionalities (e.g., linelists, ray tracing, CIAs) with minimum adaption for this experiment, and were configured to take into account the MALBEC input parameters as close as possible. There is general agreement among the models, with the valleys/peaks in most cases being reproduced by all the models. However, there are specific features in the UV/Optical and at certain wavelengths where the models disagree, which is probably related to the employed linelists and the available CIAs for each RT model. Further revised results with improved parameterizations for each RT model will be reported in a subsequent investigation. The differences between the models as shown in the lower panel are relative to the mean of all the presented spectra.

Methane Throughout the Atmosphere of the Warm Exoplanet WASP-80b

T. J. Bell[1,2], L. Welbanks[3], E. Schlawin[4], M. R. Line[3], J. J. Fortney[5], T. P. Greene[2], K. Ohno[5,6], V. Parmentier[7], E. Rauscher[8], T. G. Beatty[9], S. Mukherjee[5], L. S. Wiser[3], M. L. Boyer[10], M. J. Rieke[4], J. A. Stansberry[10]

[1] Bay Area Environmental Research Institute, NASA's Ames Research Center, Moffett Field, CA, USA
[2] Space Science and Astrobiology Division, NASA's Ames Research Center, Moffett Field, CA, USA
[3] School of Earth and Space Exploration, Arizona State University, Tempe, AZ, USA
[4] Steward Observatory, University of Arizona, Tucson, AZ, USA
[5] Department of Astronomy and Astrophysics, University of California Santa Cruz, Santa Cruz, CA, USA
[6] Division of Science, National Astronomical Observatory of Japan, Tokyo, Japan
[7] Laboratoire Lagrange, Observatoire de la Cte dAzur, Universit Cte dAzur, Nice, France
[8] Department of Astronomy, University of Michigan, Ann Arbor, MI, USA
[9] Department of Astronomy, University of Wisconsin-Madison, Madison, WI, USA
[10] Space Telescope Science Institute, Baltimore, MD, USA

Nature, published (2023Natur.623..709B)

The abundances of major carbon and oxygen bearing gases in the atmospheres of giant exoplanets provide insights into atmospheric chemistry and planet formation processes. Thermochemistry suggests that methane should be the dominant carbon-bearing species below $\sim$1000 K over a range of plausible atmospheric compositions; this is the case for the Solar System planets and has been confirmed in the atmospheres of brown dwarfs and self-luminous directly imaged exoplanets. However, methane has not yet been definitively detected with space-based spectroscopy in the atmosphere of a transiting exoplanet, but a few detections have been made with ground-based, high-resolution transit spectroscopy including a tentative detection for WASP-80b. Here we report transmission and emission spectra spanning 2.4–4.0 micrometers of the 825 K warm Jupiter WASP-80b taken with JWST's NIRCam instrument, both of which show strong evidence for methane at greater than 6-sigma significance. The derived methane abundances from both viewing geometries are consistent with each other and with solar to sub-solar C/O and $\sim5\times$ solar metallicity, which is consistent with theoretical predictions.

Download/Website: `https://www.nature.com/articles/s41586-023-06687-0`

Contact: `bell@baeri.org`

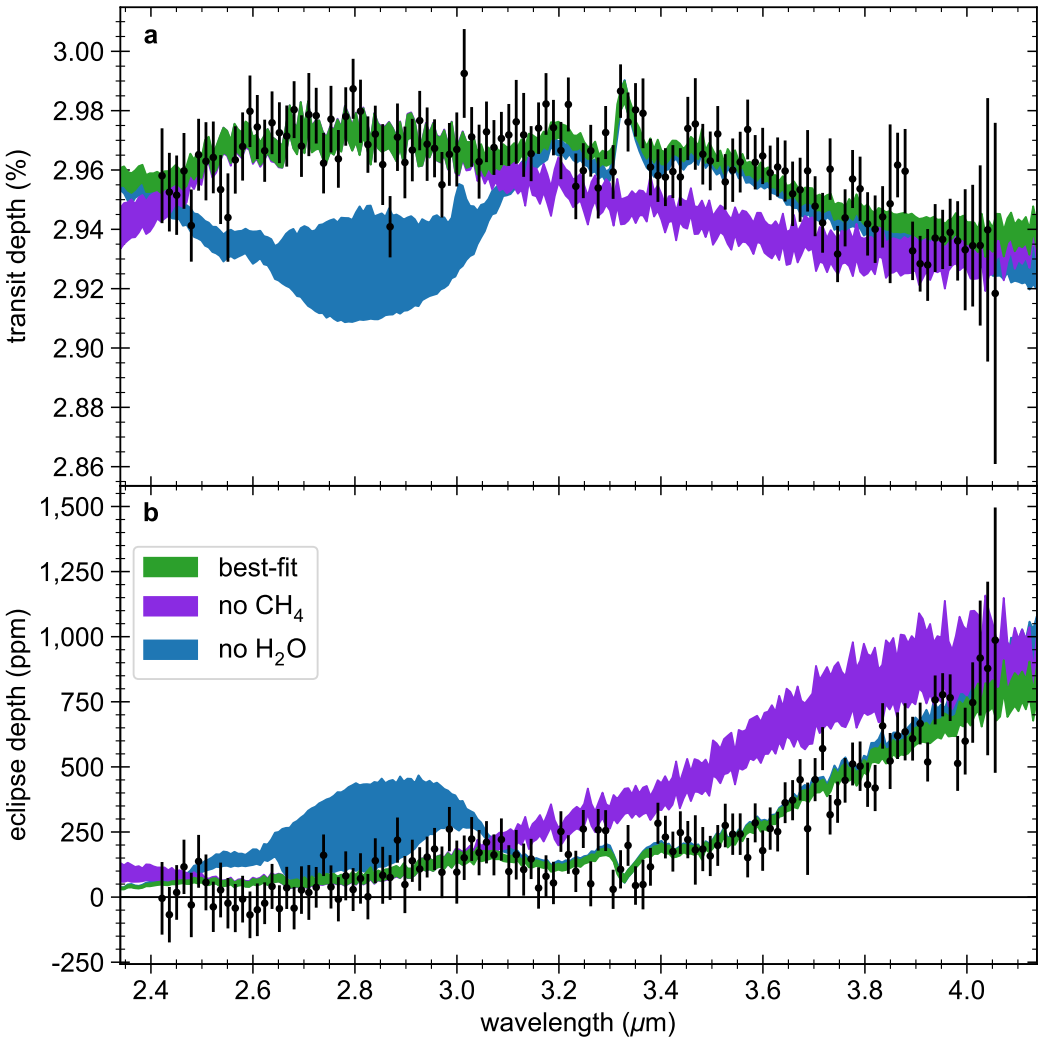

Figure 2: The observed transmission (**a**) and emission (**b**) spectrum of WASP-80b (with 1σ error bars) are compared to the best-fit free retrieval model. Coloured regions demonstrate the contribution of different molecules, demonstrated with 68% confidence intervals for the "best-Fit" free retrieval (green), with "no CH_4" opacity (purple), and with "no H_2O" opacity (blue). Both the transmission and emission spectra are strongly shaped by CH_4 and H_2O.

Revisiting the Helium and Hydrogen Accretion Indicators at TWA 27B: Weak Mass Flow at Near-Freefall Velocity

Gabriel-Dominique Marleau[1,2,3,4], *Yuhiko Aoyama*[5], *Jun Hashimoto*[6,7,8], *Yifan Zhou*[9]

[1] Fakultät für Physik, Universität Duisburg-Essen, Lotharstraße 1, 47057 Duisburg, Germany
[2] Institut für Astronomie und Astrophysik, Universität Tübingen, Auf der Morgenstelle 10, 72076 Tübingen, Germany
[3] Physikalisches Institut, Universität Bern, Gesellschaftsstr. 6, 3012 Bern, Switzerland
[4] Max-Planck-Institut für Astronomie, Königstuhl 17, 69117 Heidelberg, Germany
[5] Kavli Institute for Astronomy and Astrophysics, Peking University, Beijing 100084, Peoples Republic of China
[6] Astrobiology Center, National Institutes of Natural Sciences, 2-21-1 Osawa, Mitaka, Tokyo 181-8588, Japan
[7] Subaru Telescope, National Astronomical Observatory of Japan, Mitaka, Tokyo 181-8588, Japan
[8] Department of Astronomy, School of Science, Graduate University for Advanced Studies (SOKENDAI), Mitaka, Tokyo 181-8588, Japan
[9] Department of Astronomy, University of Virginia, 530 McCormick Rd, Charlottesville, VA 22904, USA

The Astrophysical Journal, in press (arXiv:2401.04763)

TWA 27B (2M1207b) is the first directly-imaged planetary-mass ($M_{\rm p} \approx 5\ M_{\rm J}$) companion (Chauvin et al. 2004) and was observed at 0.9–5.3 μm with JWST/NIRSpec (Luhman et al. 2023). To understand the accretion properties of TWA 27B, we search for continuum-subtracted near-infrared helium and hydrogen emission lines and measure their widths and luminosities. We detect the He I triplet at 4.3σ and all Paschen-series lines covered by NIRSpec (Pa α, Pa β, Pa γ, Pa δ) at 4–5σ. The three brightest Brackett-series lines (Br α, Br β, Br γ) as well as Pf γ and Pf δ are tentative detections at 2–3σ. We provide upper limits on the other hydrogen lines, including on H α through Hubble Space Telescope archival data. Three lines can be reliably deconvolved to reveal an intrinsic width $\Delta v_{\rm intrsc} = (67 \pm 9)\ km\ s^{-1}$, which is 60 % of the surface freefall velocity. The line luminosities seem significantly too high to be due to chromospheric activity. Converting line luminosities to an accretion rate yields $\dot{M} \approx 5 \times 10^{-9}\ M_{\rm J}\,{\rm yr}^{-1}$ when using scalings relationships for planetary masses, and $\dot{M} \approx 0.1 \times 10^{-9}\ M_{\rm J}\,{\rm yr}^{-1}$ with extrapolated stellar scalings. Several of these lines represent first detections at an accretor of such low mass. The weak accretion rate implies that formation is likely over. This analysis shows that JWST can be used to measure low line-emitting mass accretion rates onto planetary-mass objects, motivates deeper searches for the mass reservoir feeding TWA 27B, and hints that other young directly-imaged objects might–hitherto unbeknownst–also be accreting.

Download/Website: `https://arxiv.org/abs/2401.04763`

Contact: `gabriel.marleau@uni-tuebingen.de`

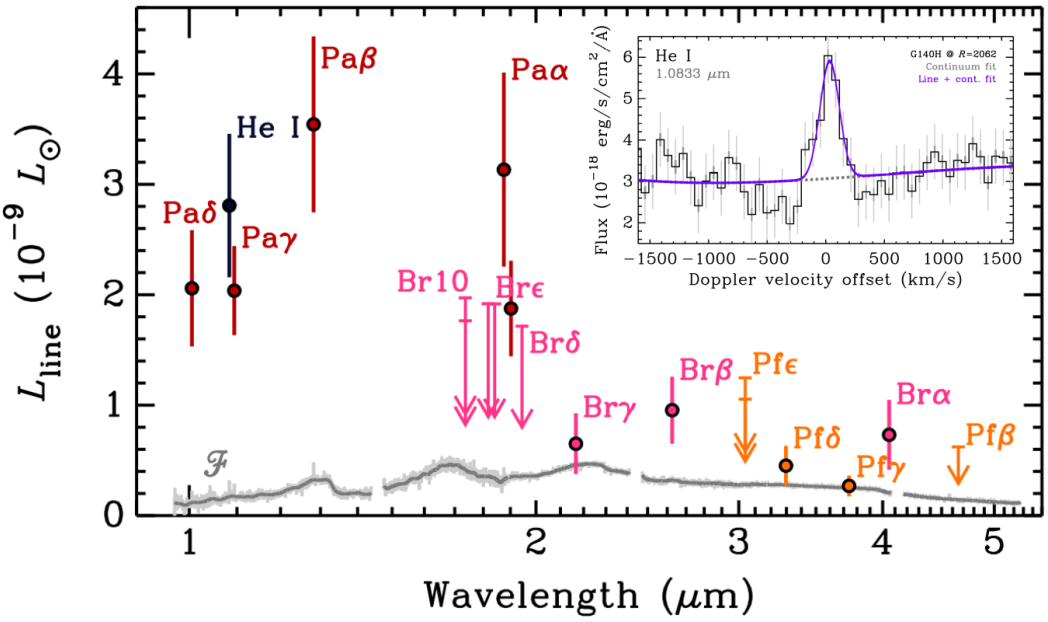

Figure 3: Summary of the line excess luminosities at TWA 27B with JWST/NIRSpec, coloured by series (*black*: He I; *red*: Paschen, *pink*: Brackett, *orange*: Pfund). Thick errorbars are for clear or tentative detections, and thin arrows for 3σ upper limits. A few lines are covered by two filters (Pa α, Br ϵ, and Br 10: G140H and G235H; Pf ϵ: G235H and G390H), with some shifted for clarity. The 3σ upper limit on H α from HST, $L_{\rm line} < 6.4 \times 10^{-9}$ $L_\odot$, is not shown. The spectral density $\mathcal{F}$ (Luhman et al. 2023) at full resolution (*pale grey*) and smoothed (*dark grey*) is shown against an arbitrary linear flux scale.
Inset: Profile of He I with fitted line (*blue*) and continuum (*grey dashed*).

3 Jobs and Positions

PostDoc Position in Exoplanet atmospheres links to observations

Prof. Christiane Helling

Space Research Institute (IWF) of the Austrian Academy of Sciences (OeAW), as early as June 01st, 2024

The Space Research Institute (IWF) of the Austrian Academy of Sciences (OeAW), Austria's leading non-university research and science institution, is offering a

POSTDOC POSITION (F/M/X)
Exoplanet atmospheres links to observations
(full-time, 40h per week)

The successful candidate will be part of Prof Christiane Helling's research group *Exoplanets: Weather & Climate* at the IWF which is part of the OeAW's effort to expand the theme of exoplanet research at the Space Research Institute (IWF) Graz.

Your tasks

- Link complex modelling results (e.g., 3D atmospheres, cloud modelling) to observations
- Scientific data interpretation (e.g., CHEOPS, JWST) and preparation for PLATO, Ariel, and other future missions
- Publication and proposal writing activities

Your profile

- PhD in the relevant fields of astrophysics
- Experiences in interpreting ground based and space instrumentation data
- Experiences in 3D retrieval, polarimetry, and/or gas-cloud radiative transfer modelling
- Experiences in scientific programming and publishing

The appointment begins as early as June 01st, 2024 and will be for 2+1 years initially.

Applications must include a cover letter in addition to (1) curriculum vitae, (2) list of publications, (3) statement of the applicant's research experience (max 2 pages) and a research plan (max 1 page), (4) certificates for full academic record, and (5) two references letters. Please send the application in one PDF file, mentioning JOB-ID: IWF153PD123 to cosima.muck@oeaw.ac.at **by April 15th, 2024**. Inquiries about the position should be directed to Prof Dr Christiane Helling.

Download/Website: `https://www.oeaw.ac.at/fileadmin/Institute/iwf/pdf/jobs/IWF153PD123.pdf`

Contact: `cosima.muck@oeaw.ac.at` or `christiane.helling@oeaw.ac.at`

Research Associate in Pulsating Binary Stars

John Southworth
Keele University, Newcastle-under-Lyme, Staffordshire, ST5 5BG, UK

We have an open position for a postdoctoral research associate to work with Dr John Southworth at Keele University on pulsations in eclipsing binary systems.

Job title:	Research Associate in Pulsating Binary Stars
Salary:	Grade 7 Starting salary £37,099 (with incremental progression)
Duration:	Fixed term for 36 months
Basis:	Full time
Job reference:	KU00003876
Closing Date:	18 February 2024
Interviews:	5 March 2024
Start date:	1 April 2024 (later dates possible)

The Opportunity:

We are looking for an ambitious individual to join a team of staff in Keele Universitys Astrophysics Research Centre in the Faculty of Natural Sciences. The successful candidate will work with Dr John Southworth and colleagues within the Astrophysics Research Centre at Keele University, as part of an STFC-funded project to use pulsating stars in eclipsing binary systems to improve our understanding of the physical processes that govern the evolution of stars.

The Research Associate will lead the determination of the physical properties of a sample of detached eclipsing binary systems, and the asteroseismic characterisation of the component stars. The pulsation types involved include γ Doradus, δ Scuti, slowly-pulsating B-stars and β Cephei variables. The analysis will involve the modelling of light curves from the *Kepler* and TESS space missions, ground-based spectroscopy, and observations from the Gaia satellite. The PDRA will also contribute to other components of the project and be encouraged to develop their own research program and leadership skills. An opportunity exists to work on a public outreach and impact project based on the main project.

Applicants should either have (or expect to obtain) a PhD in astrophysics or related subject and have demonstrated an aptitude for research. A strong publication record (commensurate with career stage), excellent communication skills, and an experience of binary stars, asteroseismology, and/or extrasolar planets will be important.

The Benefits:

The University recognises that its success depends upon the contribution and dedication of its talented staff. In return, we have a competitive benefits package available, including: competitive rate of pay with annual increments within the grade (Keele Spine); generous annual leave entitlement with opportunities to purchase additional leave; excellent staff pension scheme; access to continued personal, professional and career development; on-site 'outstanding' nursery; discounted health and fitness facilities on site; and a cycle to work scheme (subject to eligibility).

Download/Website: `https://www.keele.ac.uk/about/jobvacancies/`

Contact: `j.k.taylor@keele.ac.uk` *or* `taylorsouthworth@gmail.com`

BiSON Research Fellow

Annelies Mortier & Guy Davies
University of Birmingham, UK

Birmingham, UK, 1st April 2024

Applications are invited to join the Sun, Stars and Exoplanets Research Group in the School of Physics and Astronomy at the University of Birmingham, as part of a growing and dynamic team working in stellar astrophysics, using asteroseismology and helioseismology, and exoplanets.
We are seeking to appoint an STFC-funded Research Fellow to use the four decades of Birmingham Solar Oscillations Network (BiSON) data to investigate stellar variability phenomena across a magnetic cycle on timescales from minutes to months. The successful applicant should have expertise in the use of astronomical data and high-level statistical techniques. They will work with Dr Annelies Mortier and Dr Guy Davies.
More information on the role and the application process can be found in the included link. Deadline to apply is 3rd March 2024.

Download/Website: `https://edzz.fa.em3.oraclecloud.com/hcmUI/CandidateExperience/en/sites/CX_6001/job/4117?mode=location`

Contact: `a.mortier@bham.ac.uk`

PhD Position on Debris Disks

Alexander Krivov

Friedrich Schiller University, Jena, start date: May 2024 or later

The Astrophysical Institute and University Observatory (AIU) of the Friedrich Schiller University (FSU), Jena, Germany, is seeking a PhD student to join the "Disks and Planets" group of Prof. Alexander Krivov at the AIU. The main research interest of the group is to study debris disks in planetary systems, including their relation to exoplanets and planet formation. The group collaborates closely with other groups in Germany and is involved in a number of projects at the international level. The PhD student is expected to work on one of the numerous aspects of debris disks. These include dynamical, collisional, thermal emission, and scattered light modeling of debris disks, their interaction with planets, as well as their observations with various facilities and data analysis. The successful applicant will also have a light load of teaching duties (2 hours per week, e.g. by leading exercise classes).

The position is available for three years starting from May 1, 2024 or later. Prolongation for one more year is possible. The salary is standard for PhD positions in Germany (1/2 TV-L E-13 of the federal public service scale) and includes a number of social and family-related benefits.

The applicants should hold a Master's degree or equivalent in physics or astronomy. Previous experience with astronomical research, preferably with disk and/or exoplanet studies, would be an advantage.

Queries should be directed to Alexander Krivov (alexander.krivov@uni-jena.de). Applications must be submitted online via the FSU application system (`https://www.uni-jena.de/en/job-market`, ad 021/2024, or use the direct link below). Please make sure to include a CV, a brief research and motivation statement, and two names of referees to be contacted if shortlisted. The application deadline is March 15, 2024.

The FSU is an equal opportunity employer and does not discriminate applicants due to nationality, religion, sexual orientation, gender identity, or disability.

Download/Website: `https://jobs.uni-jena.de/jobposting/67e41f7da149005d23f4ca603b9e438f972fc3750`

Contact: `alexander.krivov@uni-jena.de`

Postdoctoral Position in Exoplanets and/or Substellar Objects

Prof. Ray Jayawardhana

Baltimore, Maryland, between July-December 2024

Applications are invited for a Postdoctoral Fellow position at the Center for Astrophysical Sciences of Johns Hopkins University. The successful candidate will work with Professor Ray Jayawardhana and his collaborators on observational studies of extra-solar planets and/or sub-stellar objects. Candidates with expertise and interests in ground-based high-resolution exoplanet spectroscopy and/or low-resolution spectroscopy of exoplanets and planetary-mass brown dwarfs with the James Webb Space Telescope (JWST) are particularly encouraged to apply.
Group members lead the on-going ExoGemS Large Program at the Gemini Observatory targeting 30+ planets that span a wide range of properties. Prof. Jayawardhana is also a member of the JWST/NIRISS science team, with 200 hours of GTO dedicated to exoplanet characterization. In addition, with Drs. Aleks Scholz and Koraljka Muzic, he co-leads a 20-hour JWST/NIRISS GTO program focused on the lowest-mass free-floating sub-stellar objects. Group members also use data from TESS, Kepler, CHEOPS, Subaru, Keck, VLT, CFHT, and other major observatories.
The position is for two years, with extension to a third year possible, and comes with a competitive salary and funds for research expenses. Start date is flexible, ideally between July-December 2024. The JHU Center for Astrophysical Sciences and the adjacent Space Telescope Science Institute form a large and lively astrophysical community.
Applicants should send their curriculum vitae, a description of research interests and plans and a list of publications, and should arrange for three letters of recommendation to be sent electronically to https://academicjobsonline.org/ajo/jobs/27145. Applications are accepted until the position is filled, and those received before March 1, 2024 will receive full consideration. Early expressions of interest and inquiries are encouraged, and should be made to rayjay@jhu.edu

Download/Website: `https://physics-astronomy.jhu.edu/`

Contact: `rayjay@jhu.edu`

4 Conferences and Workshops

2024 Sagan Summer Hybrid Workshop
Advances in Direct Imaging: From Young Jupiters to Habitable Earths

T. Chen, D. Gelino
NASA Exoplanet Science Institute, California Institute of Technology, Pasadena, CA, USA

Hybrid Workshop, July 22-26, 2024

Direct imaging and spectroscopy has become a standard tool for studying the atmospheres and orbits of young, self-luminous giant planets in wide orbits. Advances in starlight suppression and spectroscopy technologies and techniques have gradually improved sensitivity to lower-mass and closer-in young planets. Going forward, ground- and space-based observatories will have complementary roles to play in the study of mature planetary systems, whether the search for biosignatures on Earth-like planets or the characterization of the variety of planetary system architectures.

Please see the preliminary agenda and confirmed speakers posted on the workshop website. This workshop will cover the scientific questions in exoplanets motivating direct imaging. Sessions will explore basic optical principles of high-contrast imaging and the fundamentals of coronagraph and wavefront sensing technologies and high-contrast instrument design. Presentations and group exercises will cover approaches to starlight/PSF subtraction and to planet and disk recovery, determination of orbits from imaging observations, and other topics. The workshop will conclude with a look toward future facilities.

We plan to hold the 2024 workshop as a hybrid with both in-person and on-line attendance.

The Sagan Summer Workshops are aimed at advanced undergraduates, grad students, and postdocs, however all are welcome to attend. Attendees will also participate in hands-on tutorials and have the chance to meet in smaller groups with our speakers.

There is no registration fee for this workshop. Registration and the application for financial assistance to attend in person will open by mid-February. Note that we are only able to support the local costs (hotel and per diem) of successful applicants; we are not able to provide any support for airfare. Please contact us with any questions or to be added to the email list.

Download/Website: `http://nexsci.caltech.edu/workshop/2024`
Contact: `sagan_workshop@ipac.caltech.edu`

COSPAR-2024-B1.2: Unveiling planet formation and how it connects small bodies, planets, circumstellar disks, and stars

Diego Turrini & Maria Drozdovskaya

Busan, Republic of Korea, 13-21 July, 2024

The path of planet formation starts from the interstellar medium and leads to the great diversity of planetary bodies that we observe in the Solar System and among exoplanets. Stars and their circumstellar disks inherit their composition from the interstellar medium and set the chemical and physical stage for the birth of planetary bodies. The interactions between the different component of forming planetary systems and their surrounding environment shape the direction of planet formation. Dust grains grow within the disks and their interaction with the disk gas allows planetesimals to form. Planets are born from planetesimals and dust and their interaction with the gas shape their orbital evolution and their growth into giant planets. Interactions between the planets and the planetesimals create the interstellar objects like those that in recent years crossed our Solar System. The composition of the bodies populating the planetary systems, including the host stars, preserves a record of all these process and their genetic link to the interstellar gas and dust from which they started. This interdisciplinary COSPAR event is open to experts on the Solar System, its small and large bodies, exoplanets, protoplanetary disks and stars, from their formation to their post-main sequence life, to share and integrate the unique perspectives from their different fields of study. The event is organized in coordination with Commissions B1, E4 and F3, and welcomes the discussion of results from theoretical and experimental studies as well as from observations from ground and space observatories and the space missions exploring our Solar System.

Deadlines and Information

Abstract submission deadline: **9 February 2024**

More information about scientific event B1.2 can be found at:
`https://www.cospar-assembly.org/admin/session_cospar.php?session=1188`

More information about COSPAR 2024 and its many other events can be found at:
`https://www.cospar2024.org/`
`https://www.cospar-assembly.org/admin/congress.php?congress=10`

Are We a Unique Species on a Unique Planet? – or are we just the ordinary Galactic standard?

Conference in Copenhagen, Denmark, July 30 to August 2, 2024

Homo sapiens may be the only species in the entire Galaxy with an intelligence advanced enough to understand how it all arose and evolved. But we may also be so dumb that we just dont understand that the universe is already teaming with life everywhere, similar or very different from ourselves. Each of the scenarios would be equally fascinating, and the sign of a road towards a meaningful answer has never been closer than it is today. We are lucky to have convinced world-leading experts to come to Copenhagen to discuss the issue with us during four intense conference days, about how we came from the formation of protoplanetary disks and planets, to prebiological molecules and life and further to intelligence and what might come after – is it unique for Earth, or is it standard throughout the Galaxy?

Subjects and list of invited speakers:

Exoplanets:
Anne-Marie Lagrange: Exoplanet discovery and evolution.
Nikku Madhusudhan: Chemical diversity of temperate exoplanets and implications for life.
Helmut Lammer: The evolution of Earth-like habitats.
Alessandro Morbidelli: Volatility transport in planetary systems (tbc).

Disk evolution and pre-biology:
Paola Caselli: Chemistry from ISM to disks to pre-biology to planets.
Bengt Gustafsson: Is the Sun an oddball and if so why? Interpretations and implications.
Pascale Ehrenfreund: Prebiotic reservoirs available to the early Earth and Mars.
Lena Noack: Planetary interior and habitability.

Terrestrial contra alien biology:
Katarzyna Adamala: Synthetic life.
Dirk Schulze-Makuch: Expectations about alien lifeforms.
David Catling: The rise of oxygen and its importance for complex life.
Kai Finster: The interaction between micro-organisms and cloud formation.
Donald Canfield: The evolution of Eukaryote ecosystems.

The future of life and humanity:
Paul Davies: Second genesis or alien life forms; are they already here? (tbc)
Steven Dick: Transforming our worldviews in a biological (or post-biological) Universe
Nick Bostrom: Are we in front or behind the great filter of evolution? (tbc)
Edward Schwieterman: Challenges for advanced life in the habitable zone.

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

Contact: `uffegj@nbi.ku.dk`

EAS Annual Meeting, Special Session 25: "Formation of giant exoplanets: models and observations"

Simone Antoniucci (Chairman), Valentina D'Orazi, Gabriel-Dominique Marleau

Padova (Italia), Centro Congressi, Special Session: Wednesday, 3 July 2024

Aims and scope

Direct imaging stands as the most effective method for studying gas giant exoplanets with orbits beyond 5 au. These massive planets wield considerable influence over the evolution of planetary systems. Therefore, delving into their formation mechanisms and initial orbital distribution is of paramount importance. This endeavour not only refines our planet formation models but also advances our understanding of migration processes, ultimately shedding light on the resulting architectural intricacies of planetary systems.

Advanced extreme Adaptive Optics (xAO)-enabled instruments now provide us the capability to directly observe giant planets in their formative stages, nestled within their birthplace protoplanetary disks during the T Tauri phase, aged less than 5–10 Myr. These observations are possible not just by detecting their thermal emissions in the near- and mid-infrared spectrum (1–5 μm) but also via H I emission lines. These lines are powerful indicators of gas accretion, granting us a direct window into the mechanism of gaseous planet formation.

In the last few years several groups worldwide have been working both on the theoretical and observational side of the planetary gas accretion process, as well as on the development of new instrumentation and techniques optimised for detecting emission from actively accreting protoplanets.

We organise a special session to foster fruitful discussions between researchers involved in this fast-developing field with the ultimate goal of stimulating collaboration and proposing new ideas, both technological and observational. This session should draw a state-of-the-art picture of gas planet accretion physics in terms of both theory and observations and identify the best research strategies for the community to improve our understanding.

Programme

We expect contributions for the following aspects of the science case:

- *Theoretical framework*: Giant planet formation models, hydrodynamical simulations, models of accretion tracer (e.g., H I) emission
- *Observations*: Extreme-AO observations of H I emission in the visible/NIR to probe accretion: e.g., with VLT (SPHERE, ERIS, MUSE), LBT (SHARKs), Magellan (MagAOx), Subaru (SCExAO+CHARIS), HST, KECK (NIRC2, KPIC), JWST (NIRSpec); evidence for circumplanetary disks in the sub-mm regime, e.g., with ALMA
- *New instruments and methods*: Recent and future facilities/techniques for pushing angular resolution and sensitivity of xAO observations at visible–IR wavelengths (e.g., VIS-X, RISTRETTO)

Scientific organisers

Simone Antoniucci *(INAF-Astronomical Observatory of Rome)*, Beth Biller *(University of Edinburgh)*, Valentina D'Orazi *(Tor Vergata University, Rome)*, Davide Fedele *(INAF-Astronomical Observatory of Turin)*, Gabriel-Dominique Marleau *(Universität Duisburg–Essen)*, Alice Zurlo *(Universidad Diego Portales, Santiago)*

Important deadlines

• Very early registration: 26 February • Abstract submission: 4 March
• Early bird registration: 29 April • Regular registration: 30 June

Download/Website: `https://eas.unige.ch/EAS_meeting/session.jsp?id=SS25`

Contact: `simone.antoniucci@inaf.it, vdorazi@roma2.infn.it, gabriel.marleau@uni-tuebingen.de`

5 Others

2024B NASA Keck Call for Proposals

Dr. Dawn M. Gelino, NASA Exoplanet Science Institute

The NASA Exoplanet Science Institute is soliciting proposals to use NASA's portion of time on the two 10m Keck Telescopes for the 2024B observing semester (August 1, 2024 - January 31, 2025).

The opportunity to propose as a Principal Investigator for NASA time on the Keck Telescopes is open to all U.S.-based astronomers (a U.S.-based astronomer has their principal affiliation at a U.S. institution). *Investigators from institutions outside of the U.S. may participate as Co-Investigators on proposals for NASA Keck time*.

NASA intends the use of the Keck telescopes to be highly strategic in support of on-going space missions and/or high priority, long-term science goals. Proposals are sought in the following discipline areas: (1) investigations in support of EXOPLANET EXPLORATION science goals and missions; (2) investigations of our own SOLAR SYSTEM; (3) investigations in support of COSMIC ORIGINS science goals and missions; and (4) investigations in support of PHYSICS OF THE COSMOS science goals and missions. Direct mission support proposals in any of these scientific areas are also encouraged.

The 2024B NASA Keck Call for Proposals will be available on February 14 and all proposals are due by March 14 at 4 pm PDT.

Download/Website: `http://nexsci.caltech.edu/missions/KeckSolicitation/index.shtml`

Contact: `KeckCFP@ipac.caltech.edu`

6 As seen on astro-ph

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

January 2024

astro-ph/2401.15686: **chemcomp: Modeling the chemical composition of planets formed in protoplanetary disks** *by Aaron David Schneider, Bertram Bitsch*
astro-ph/2401.00220: **Evidence of grain alignment by magnetically enhanced radiative torques from multi-wavelength dust polarization modeling of HL Tau** *by Thang Nguyen Tat et al.*
astro-ph/2401.00715: **Dynamics of the Beta Pictoris planetary system and its falling evaporating bodies** *by H. Beust et al.*
astro-ph/2401.01465: **Is the atmosphere of the ultra-hot Jupiter WASP-121b variable?** *by Quentin Changeat et al.*
astro-ph/2401.01400: **GJ 367b is a dark, hot, airless sub-Earth** *by Michael Zhang et al.*
astro-ph/2401.01468: **Measuring the Stellar and Planetary Properties of the 51 Eridani System** *by Ashley Elliott et al.*
astro-ph/2401.01944: **Weakened Magnetic Braking in the Exoplanet Host Star 51 Peg** *by Travis S. Metcalfe et al.*
astro-ph/2401.02004: **Shadowing in the protoplanetary disk of ZZ Tau IRS with HST** *by Jun Hashimoto et al.*
astro-ph/2401.02558: **The Morphology of Asteroidal Dust Around White Dwarf Stars: Optical and Near-infrared Pulsations in G29-38** *by T. von Hippel et al.*
astro-ph/2401.02205: **Dust growth and pebble formation in the initial stages of protoplanetary disk evolution** *by Eduard Vorobyov et al.*
astro-ph/2401.02195: **The elusive atmosphere of WASP-12 b / High-resolution transmission spectroscopy with CARMENES** *by S. Czesla et al.*
astro-ph/2401.02039: **Analytic relations assessing the impact of precursor knowledge and key mission parameters on direct imaging survey yield** *by Peter Plavchan et al.*
astro-ph/2401.03056: **The impact of spectral line wing cut-off: Recommended standard method with application to MAESTRO opacity database** *by Ehsan et al.*
astro-ph/2401.03047: **Setting the stage for the search for life with the Habitable Worlds Observatory: Properties of 164 promising planet survey targets** *by Caleb K. Harada et al.*
astro-ph/2401.03021: **Giant Outer Transiting Exoplanet Mass (GOT 'EM) Survey. IV. Long-term Doppler Spectroscopy for 11 Stars Thought to Host Cool Giant Exoplanets** *by Paul A. Dalba et al.*
astro-ph/2401.03018: **Mapping the Vertical Gas Structure of the Planet-hosting PDS 70 Disk** *by Charles J. Law et al.*
astro-ph/2401.02845: **Protoplanetary disk size under non-ideal magnetohydrodynamics: A general formalism with inclined magnetic field** *by Yueh-Ning Lee et al.*
astro-ph/2401.02849: **A new timestep criterion for N-body simulations** *by Dang Pham et al.*
astro-ph/2401.02830: **JWST/NIRCam Imaging of Young Stellar Objects. I. Constraints on Planets Exterior to The Spiral Disk Around MWC 758** *by Kevin Wagner et al.*
astro-ph/2401.02821: **Water transport through mesoporous amorphous-carbon dust** *by Romain Basalgte et al.*
astro-ph/2401.02637: **Stability of Hydrides in Sub-Neptune Exoplanets with Thick Hydrogen-Rich Atmospheres** *by Taehyun Kim et al.*
astro-ph/2401.02834: **JWST/NIRCam Imaging of Young Stellar Objects. II. Deep Constraints on Giant Planets and a Planet Candidate Outside of the Spiral Disk Around SAO 206462** *by Gabriele Cugno et al.*
astro-ph/2401.03437: **Mid-infrared evidence for iron-rich dust in the multi-ringed inner disk of HD 144432** *by J. Varga et al.*

astro-ph/2401.04279: **Simple Model for Temporal Variations of H Spectrum by an Eruptive Filament from a Superflare on a Solar-type Star** *by Kai Ikuta, Kazunari Shibata*

astro-ph/2401.04256: **Systematic KMTNet Planetary Anomaly Search. XI. Complete Sample of 2016 Sub-Prime Field Planets** *by In-Gu Shin et al.*

astro-ph/2401.04173: **The Orbital Geometries and Stellar Obliquities of Exoplanet-Hosting Multi-Star Systems** *by Malena Rice et al.*

astro-ph/2401.04093: **Testing magnetospheric accretion as an H emission mechanism of embedded giant planets: The case study for the disk exhibiting meridional flow around HD 163296** *by Yasuhiro Hasegawa et al.*

astro-ph/2401.03962: **The enigmatic dance of the HD 189733A system: Does the planet accrete onto the star?** *by Salvatore Colombo et al.*

astro-ph/2401.04172: **Equations of State, Thermodynamics, and Miscibility Curves for Jovian Planet and Giant Exoplanet Evolutionary Models** *by Roberto Tejada Arevalo et al.*

astro-ph/2401.03809: **ARES VI: Viability of one-dimensional retrieval models for transmission spectroscopy characterization of exo-atmospheres in the era of JWST and Ariel** *by Adam Yassin Jaziri et al.*

astro-ph/2401.03859: **Modeling the day-night temperature variations of ultra-hot Jupiters: confronting non-grey general circulation models and observations** *by Xianyu Tan et al.*

astro-ph/2401.03715: **Simultaneous multicolour transit photometry of hot Jupiters HAT-P-19b, HAT-P-51b, HAT-P-55b, and HAT-P-65b** *by Huiyi Kang et al.*

astro-ph/2401.03733: **Dynamics Near the Inner Dead-Zone Edges in a Proprotoplanetary Disk** *by Kazunari Iwasaki et al.*

astro-ph/2401.04168: **FlopPITy: Enabling self-consistent exoplanet atmospheric retrievals with machine learning** *by Francisco Ardvol Martnez et al.*

astro-ph/2401.03767: **Probing initial distributions of orbital eccentricity and disc misalignment via polar discs** *by Simone Ceppi et al.*

astro-ph/2401.03775: **Low-mass stars: Their Protoplanetary Disc Lifetime Distribution** *by Susanne Pfalzner, Furkan Dincer*

astro-ph/2401.03783: **A physical picture for the acoustic resonant drag instability** *by Nathan Magnan et al.*

astro-ph/2401.03789: **Aggregation and charging of mineral cloud particles under high-energy irradiation** *by Nanna Bach-Mller et al.*

astro-ph/2401.04785: **TESS Hunt for Young and Maturing Exoplanets (THYME) XI: An Earth-sized Planet Orbiting a Nearby, Solar-like Host in the 400Myr Ursa Major Moving Group** *by Benjamin K. Capistrant et al.*

astro-ph/2401.04763: **Revisiting the Helium and Hydrogen Accretion Indicators at TWA 27B: Weak Mass Flow at Near-Freefall Velocity** *by Gabriel-Dominique Marleau et al.*

astro-ph/2401.04708: **Astrobiological Potential of Venus Atmosphere Chemical Anomalies and Other Unexplained Cloud Properties** *by Janusz J. Petkowski et al.*

astro-ph/2401.04503: **Ground-Based Photometric Follow-up for Exoplanet Detections with the PLATO Mission** *by H. J. Deeg, R. Alonso*

astro-ph/2401.04380: **A radius valley between migrated steam worlds and evaporated rocky cores** *by Remo Burn et al.*

astro-ph/2401.04294: **A solution for the density dichotomy problem of Kuiper Belt objects with multi-species streaming instability and pebble accretion** *by Manuel H. Caas et al.*

astro-ph/2401.04517: **Stability of Dusty Rings in Protoplanetary Discs** *by Kevin Chan, Sijme-Jan Paardekooper*

astro-ph/2401.05491: **Atmospheric properties of AF Lep b with forward modeling** *by P. Palma-Bifani et al.*

astro-ph/2401.05540: **Evaporation of Close-in Sub-Neptunes by Cooling White Dwarfs** *by Elena Gallo et al.*

astro-ph/2401.05528: **Modelling stellar variability in archival HARPS data: I – Rotation and activity properties with multi-dimensional Gaussian Processes** *by Haochuan Yu et al.*

astro-ph/2401.05271: **JWST-TST High Contrast: Asymmetries, dust populations and hints of a collision in**

the Pictoris disk with NIRCam and MIRI *by Isabel Rebollido et al.*

astro-ph/2401.05101: **Formation of flattened planetesimals by gravitational collapse of rotating pebble clouds** *by Sebastian Lorek, Anders Johansen*

astro-ph/2401.05047: **Evidence for transit-timing variations of the 11 Myr exoplanet TOI-1227 b** *by J. M. Almenara et al.*

astro-ph/2401.05036: **Can the giant planets of the Solar System form via pebble accretion in a smooth protoplanetary disc?** *by Tommy Chi Ho Lau et al.*

astro-ph/2401.05120: **The Kinematic and Chemical Properties of the Close-in Planet Host Star 8 UMi** *by Huiling Chen et al.*

astro-ph/2401.06276: **The compact multi-planet system GJ 9827 revisited with ESPRESSO** *by V. M. Passegger et al.*

astro-ph/2401.06217: **Earths are not Super-Earths, Saturns are not Jupiters: Imprints of pressure-bump planet formation on planetary architectures** *by Wenrui Xu, Songhu Wang*

astro-ph/2401.06269: **Studying habitability of the exoplanets Kepler-504 b, Kepler-315 b, and Kepler-315 c** *by Sattik Bhaumik, Geetanjali Sethi*

astro-ph/2401.06213: **Synthetic Observations of the Infalling Rotating Envelope: Links between the Physical Structure and Observational Features** *by Shoji Mori et al.*

astro-ph/2401.05864: **Distinguishing oceans of water from magma on mini-Neptune K2-18b** *by Oliver Shorttle et al.*

astro-ph/2401.06043: **JWST/NIRCam Transmission Spectroscopy of the Nearby Sub-Earth GJ 341b** *by James Kirk et al.*

astro-ph/2401.05923: **Migration and Evolution of giant ExoPlanets (MEEP) I: Nine Newly Confirmed Hot Jupiters from the TESS Mission** *by Jack Schulte et al.*

astro-ph/2401.05798: **Correlation between accretion rate and free-free emission in protoplanetary disks – A multi-wavelength analysis of central mm/cm emission in transition disks** *by Alessia A. Rota et al.*

astro-ph/2401.06212: **Organic hazes as a source of life's building blocks to warm little ponds on the Hadean Earth** *by Ben K. D. Pearce et al.*

astro-ph/2401.06608: **A 3D picture of moist-convection inhibition in hydrogen-rich atmospheres: Implications for K2-18 b** *by Jrmy Leconte et al.*

astro-ph/2401.06616: **Quantitative grain size estimation on airless bodies from the negative polarization branch. II. Dawn mission targets (4) Vesta and (1) Ceres** *by Yoonsoo P. Bach et al.*

astro-ph/2401.06767: **Circumstellar disk accretion across the Lagoon Nebula: the influence of environment and stellar mass** *by L. Venuti et al.*

astro-ph/2401.07083: **Near-mid infrared spectroscopy of carbonaceous chondrites: Insights into spectral variation due to aqueous alteration and thermal metamorphism in asteroids** *by Jinfei Yu et al.*

astro-ph/2401.07113: **Multiple timestep reversible N-body integrators** *by David M. Hernandez*

astro-ph/2401.07296: **Alternative solvents for life: framework for evaluation, current status and future research** *by William Bains et al.*

astro-ph/2401.12180: **AI can identify Solar System instability billions of years in advance** *by Dorian S. Abbot et al.*

astro-ph/2401.07715: **The PRL 2.5m Telescope and its First Light Instruments: FOC & PARAS-2** *by Abhijit Chakraborty et al.*

astro-ph/2401.07528: **Automatic characterization of boulders on planetary surfaces from high-resolution satellite images** *by Nils C. Prieur et al.*

astro-ph/2401.07901: **Hunt for complex cyanides in protostellar ices with JWST: Tentative detection of CH_3CN and C_2H_5CN** *by P. Nazari et al.*

astro-ph/2401.08722: **Early Planet Formation in Embedded Disks (eDisk) XIV: Flared Dust Distribution and Viscous Accretion Heating of the Disk around R CrA IRS 7B-a** *by Shigehisa Takakuwa et al.*

astro-ph/2401.08492: **Large Interferometer For Exoplanets (LIFE): XII. The Detectability of Capstone Biosig-**

natures in the Mid-Infrared – Sniffing Exoplanetary Laughing Gas and Methylated Halogens *by Daniel Angerhausen et al.*

astro-ph/2401.08767: **The evolution and delivery of rocky extra-solar materials to white dwarfs** *by Dimitri Veras et al.*

astro-ph/2401.08773: **Orbital Stability and Secular Dynamics of the Proxima Centauri Planetary System** *by Joseph R. Livesey et al.*

astro-ph/2401.08904: **KMT-2023-BLG-0416, KMT-2023-BLG-1454, KMT-2023-BLG-1642: Microlensing planets identified from partially covered signals** *by Cheongho Han et al.*

astro-ph/2401.09086: **Motion of Planetesimals in the Hill Sphere of the Star Proxima Centauri** *by S. I. Ipatov*

astro-ph/2401.09380: **The Role of Drag and Gravity on Dust Concentration in a Gravitationally Unstable Disc** *by Sahl Rowther et al.*

astro-ph/2401.09535: **A Volume-Limited Sample of Ultracool Dwarfs. II. The Substellar Age and Mass Functions in the Solar Neighborhood** *by William M. J. Best et al.*

astro-ph/2401.09550: **CARMENES input catalog of M dwarfs: VII. New rotation periods for the survey stars and their correlations with stellar activity** *by Yutong Shan et al.*

astro-ph/2401.09589: **Behind the Mask: can HARMONI@ELT detect biosignatures in the reflected light of Proxima b?** *by Sophia R. Vaughan et al.*

astro-ph/2401.10377: **Grain Size Effects on UV-MIR (0.2-14 micron) Spectra of Carbonaceous Chondrite Groups** *by David C. Cantillo et al.*

astro-ph/2401.10333: **A Reply to: Large Exomoons unlikely around Kepler-1625 b and Kepler-1708 b** *by David Kipping et al.*

astro-ph/2401.10072: **PLATO on the shoulders of TESS: analyzing mono-transit planet candidates in TESS data as a prior knowledge for PLATO observations** *by Christian Magliano et al.*

astro-ph/2401.10167: **The Mass Dependence of Hα Emission and Stellar Spindown for Fully Convective M Dwarfs** *by Emily K. Pass et al.*

astro-ph/2401.09976: **Contamination of spectroscopic observations by satellite constellations** *by Olivier R. Hainaut Sabine Moehler*

astro-ph/2401.09873: **Ammonia or methanol would enable subsurface liquid water in the Martian South Pole** *by Isabel Egea-Gonzlez et al.*

astro-ph/2401.09701: **Formation of Retrograde Hot Jupiter Triggered by Close Encounter with Tidal Circularization** *by Wenshuai Liu*

astro-ph/2401.09657: **A long-period transiting substellar companion in the super-Jupiters to brown dwarfs mass regime and a prototypical warm-Jupiter detected by TESS** *by Matias I. Jones et al.*

astro-ph/2401.10058: **The discovery of two new benchmark brown dwarfs with precise dynamical masses at the stellar-substellar boundary** *by Emily L. Rickman et al.*

astro-ph/2401.10430: **Dust-gas dynamics driven by the streaming instability with various pressure gradients** *by Stanley A. Baronett et al.*

astro-ph/2401.10782: **A HITRAN-formatted UV line list of S_2 containing transitions involving $X\,^3_g^-$, $B\,^3_u^-$, and $B''\,^3_u$ electronic states** *by Frances M. Gomez et al.*

astro-ph/2401.10808: **Orbital evolution of close binary systems: comparing viscous and wind-driven circumbinary disc models** *by George Turpin, Richard Nelson*

astro-ph/2401.10864: **The California-Kepler Survey. XI. A Survey of Chromospheric Activity Through the Lens of Precise Stellar Properties** *by Howard Isaacson et al.*

astro-ph/2401.11038: **Predicting Cloud Conditions in Substellar Mass Objects Using Ultracool Dwarf Companions** *by Emily Calamari et al.*

astro-ph/2401.11082: **JWST observations of K2-18b can be explained by a gas-rich mini-Neptune with no habitable surface** *by Nicholas F. Wogan et al.*

astro-ph/2401.11329: **MOA-2022-BLG-563Lb, KMT-2023-BLG-0469Lb, and KMT-2023-BLG-0735Lb: Three sub-Jovian-mass microlensing planets** *by Cheongho Han et al.*

astro-ph/2401.11613: **Hot Jupiter Formation in Dense Star Clusters** *by Leonard Benkendorff et al.*
astro-ph/2401.11454: **Hot interiors of ice giant planets inferred from electrical conductivity of dense H2O fluid** *by Kenta Oka et al.*
astro-ph/2401.11703: **An effective geometric distortion solution and its implementation** *by F. R. Lin et al.*
astro-ph/2401.12408: **The variable magnetic field of V889 Her and the challenge of detecting exoplanets around young Suns using Gaussian process regression** *by E. L. Brown et al.*
astro-ph/2401.12378: **Shallower radius valley around low-mass hosts provides evidence for icy planets or collisions** *by Cynthia S. K. Ho et al.*
astro-ph/2401.12276: **Characterization of K2-167 b and CALM, a new stellar activity mitigation method** *by Zo L. de Beurs et al.*
astro-ph/2401.12204: **Inner Edge Habitable Zone Limits Around Main Sequence Stars: Cloudy Estimates** *by James D. Windsor et al.*
astro-ph/2401.12177: **Control of OSIRIS-REx OTES Observations using OCAMS TAG Images** *by Kris J. Becker, Kenneth L. Edmundson*
astro-ph/2401.12296: **Chemical signatures of planet engulfment events in Sun-like stars** *by Lorenzo Spina*
astro-ph/2401.12142: **Accuracy of ALMA estimates of young disk radii and masses. Predicted observations from numerical simulations** *by Ngo-Duy Tung et al.*
astro-ph/2401.11938: **Mysterious non-detection of HeI (23S) transit absorption of GJ436b** *by M. S. Rumenskikh et al.*
astro-ph/2401.11883: **Viscous Dissipation and Dynamics in Simulations of Rotating, Stratified Plane-layer Convection** *by Simon R. W. Lance et al.*
astro-ph/2401.11879: **TOI-2266 b: a keystone super-Earth at the edge of the M dwarf radius valley** *by Hannu Parviainen et al.*
astro-ph/2401.11815: **TRAPPIST-1 and its compact system of temperate rocky planets** *by Michal Gillon*
astro-ph/2401.12150: **Wolf 327b: A new member of the pack of ultra-short-period super-Earths around M dwarfs** *by F. Murgas et al.*
astro-ph/2401.12810: **An updated modular set of synthetic spectral energy distributions for young stellar objects** *by Theo Richardson et al.*
astro-ph/2401.13027: **Nightside clouds and disequilibrium chemistry on the hot Jupiter WASP-43b** *by Taylor J. Bell et al.*
astro-ph/2401.13041: **Gaussian Processes and Nested Sampling Applied to Kepler's Small Long-period Exoplanet Candidates** *by Michael R. B. Matesic et al.*
astro-ph/2401.13635: **Observations of scattered light from exoplanet atmospheres** *by Brett M. Morris et al.*
astro-ph/2401.13574: **Revisiting the warm sub-Saturn TOI-1710b** *by J. Orell-Miquel et al.*
astro-ph/2401.13293: **Detecting and Characterizing Exomoons and Exorings (Handbook of Exoplanets, 2nd Edition)** *by Alex Teachey*
astro-ph/2401.13153: **JWST Directly Images Giant Planet Candidates Around Two Metal-Polluted White Dwarf Stars** *by Susan E. Mullally et al.*
astro-ph/2401.13723: **Emerging Researchers in Exoplanetary Science (ERES): Lessons Learned in Conference Organization for Early-Career Researchers** *by W. Garrett Levine et al.*
astro-ph/2401.14083: **The radiative and dynamical impact of clouds in the atmosphere of the hot Jupiter WASP-43 b** *by Lucas Teinturier et al.*
astro-ph/2401.14180: **Magnetic fields of protoplanetary disks** *by Sergey A. Khaibrakhmanov*
astro-ph/2401.14315: **Circumbinary discs for stellar population models** *by Robert G. Izzard, Adam S. Jermyn*
astro-ph/2401.14459: **Heating of the Atmospheres of Short-orbit Exoplanets by Their Rapid Orbital Motion Through an Extreme Space Environment** *by Ofer Cohen et al.*
astro-ph/2401.15177: **Fermi Resonance and the Quantum Mechanical Basis of Global Warming** *by Robin Wordsworth et al.*
astro-ph/2401.15153: **Can Isotopologues Be Used as Biosignature Gases in Exoplanet Atmospheres?** *by Ana*

Glidden et al.

astro-ph/2401.14924: **Characterisation of FG-type stars with an improved transport of chemical elements** *by Nuno Moedas et al.*

astro-ph/2401.14897: **Unveiling hidden companions in post-common-envelope binaries: A robust strategy and uncertainty exploration** *by Cristian A. Giuppone et al.*

astro-ph/2401.14747: **Rotational evolution of young-to-old stars with data-driven three-dimensional wind models** *by D. Evensberget, A. A. Vidotto*

astro-ph/2401.14744: **Hydrogenated atmospheres of lava planets: atmospheric structure and emission spectra** *by Aurlien Falco et al.*

astro-ph/2401.14703: **The POKEMON Speckle Survey of Nearby M Dwarfs. III. The Stellar Multiplicity Rate of M Dwarfs within 15 pc** *by Catherine A. Clark et al.*

astro-ph/2401.14891: **Why dust pressure matters in debris discs** *by Elliot M. Lynch et al.*

astro-ph/2401.15419: **Photoevaporation from Inner Protoplanetary Disks Confronted with Observations** *by Yiren Lin et al.*

astro-ph/2401.15438: **Relations of rotation and chromospheric activity to stellar age for FGK dwarfs from Kepler and LAMOST** *by Lifei Ye et al.*

astro-ph/2401.15548: **Muted Features in the JWST NIRISS Transmission Spectrum of Hot-Neptune LTT 9779 b** *by Michael Radica et al.*

astro-ph/2401.15709: **Discovery of two warm mini-Neptunes with contrasting densities orbiting the young K3V star TOI-815** *by Angelica Psaridi et al.*

astro-ph/2401.16474: **A High-Resolution Non-Detection of Escaping Helium In The Ultra-Hot Neptune LTT 9779b: Evidence for Weakened Evaporation** *by Shreyas Vissapragada et al.*

astro-ph/2401.16394: **Majority of water hides deep in the interiors of exoplanets** *by Haiyang Luo et al.*

astro-ph/2401.16490: **Airy worlds or barren rocks? On the survivability of secondary atmospheres around the TRAPPIST-1 planets** *by Gwenal Van Looveren et al.*

astro-ph/2401.16361: **MIRI MRS Observations of Beta Pictoris I. The Inner Dust, the Planet, and the Gas** *by Kadin Worthen et al.*

astro-ph/2401.16003: **Alpha Centauri: Disc Dynamics, Planet Stability, Detectability** *by Nicols Cuello, Mario Sucerquia*

astro-ph/2401.16211: **Role of Planetary Radius on Atmospheric Escape of Rocky Exoplanets** *by Laura Chin et al.*

astro-ph/2401.16203: **FargoCPT: A 2D Multi-Physics Code for Simulating the Interaction of Disks with Stars, Planets and Particles** *by Thomas Rometsch et al.*

astro-ph/2401.16155: **Which stars can form planets: Planetesimal formation at low metallicities** *by Geoffrey Andama et al.*

astro-ph/2401.15981: **Formation of the Trappist-1 system in a dry protoplanetary disk** *by Antoine Schneeberger et al.*

astro-ph/2401.16451: **Planet Occurrence from Doppler and transit surveys, 2nd ed** *by Joshua N. Winn, Erik Petigura*

astro-ph/2401.17303: **Unraveling Variability and Estimating Mass Loss of Exoplanets in the Triplet Star System LTT 1445** *by S. Rukdee et al.*

astro-ph/2401.17302: **The high-energy environment of the heavy sub-Earth GJ 367 b indicates likely complete evaporation of its atmosphere** *by K. Poppenhaeger et al.*

astro-ph/2401.17415: **Revised Architecture and Two New Super-Earths in the HD 134606 Planetary System** *by Zhexing Li et al.*

astro-ph/2401.17356: **A New Database of Giant Impacts over a Wide Range of Masses and with Material Strength: A First Analysis of Outcomes** *by Alexandre Emsenhuber et al.*

astro-ph/2401.17287: **Simultaneous X-ray and optical variability of M dwarfs observed with eROSITA and TESS** *by W. M. Joseph et al.*

astro-ph/2401.17225: **The Binary Broadening Function** *by Tuan Yi*

astro-ph/2401.17142: **The inner disk rim of HD 163296: linking radiative hydrostatic models with infrared interferometry** *by Ondej Chrenko et al.*

astro-ph/2401.17272: **Signs of magnetic star-planet interactions in HD 118203. TESS detects stellar variability that matches the orbital period of a close-in eccentric Jupiter-sized companion** *by A. Castro-Gonzlez et al.*

astro-ph/2401.17549: **Precise mass measurement of OGLE-2013-BLG-0132/MOA-2013-BLG-148: a Saturn mass planet orbiting an M-dwarf** *by Natalia E. Rektsini et al.*

astro-ph/2401.17557: **A simple method to measure numax for asteroseismology: application to 16,000 oscillating Kepler red giants** *by K. R. Sreenivas et al.*

astro-ph/2401.17764: **The GRAVITY young stellar object survey XIII. Tracing the time-variable asymmetric disk structure in the inner AU of the Herbig star HD98922** *by GRAVITY Collaboration et al.*

astro-ph/2401.17876: **The GAPS Programme at TNG. LIII. New insights on the peculiar XO-2 system** *by A. Ruggieri et al.*

astro-ph/2401.18020: **Massive Debris Disks May Hinder Secular Stirring by Planetary Companions: An Analytic Proof of Concept** *by Antranik A. Sefilian*