ExoPlanet News
An Electronic Newsletter

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Editors: J. Davoult, L. Schlarmann, D. Angerhausen, H. Wang & 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 175 and the first issue of 2024 for the ExoPlanet News!

We wish you a very happy new year 2024 and lots of exciting science!

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!

Also for 2024 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 February 13, 2024.

Thanks again for your support and good start in the year,

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

2 Abstracts of refereed papers

Candidates for Transiting Planets in OGLE-IV Galactic Bulge Fields

M.J. Mróz[1], *P. Pietrukowicz*[1], *R. Poleski*[1], *A. Udalski*[1], *M.K. Szymański*[1], *M. Gromadzki*[1], *K. Ulaczyk*[1], *S. Kozłowski*[1], *J. Skowron*[1], *D.M. Skowron*[1], *I. Soszyński*[1], *P. Mróz*[1], *M. Ratajczak*[1], *K.A. Rybicki*[1,3], *P. Iwanek*[1], *M. Wrona*[1]

[1] Astronomical Observatory, University of Warsaw, Al. Ujazdowskie 4, 00-478 Warszawa, Poland
[2] Department of Physics, University of Warwick, Coventry CV4 7AL, UK
[3] Department of Particle Physics and Astrophysics, Weizmann Institute of Science, Rehovot 76100, Israel

Acta Astronomica, published (2023AcA....73..127M)

We present results of a search for transiting exoplanets in 10-year long photometry with thousands of epochs taken in the direction of the Galactic bulge. This photometry was collected by the fourth phase of the Optical Gravitational Lensing Experiment (OGLE-IV). Our search covered ≈ 222000 stars brighter than $I = 15.5$ mag. Selected transits were verified using probabilistic method. The search resulted in 99 high-probability candidates for transiting exoplanets. The estimated distances to these targets are between 0.4 and 5.5 kpc, which is significantly wider range than for previous transit searches. The planets found are Jupiter-size, with the exception of one (named OGLE-TR-1003b) located in the hot Neptune desert. If the candidate is confirmed, it can be important for studies of highly irradiated intermediate-size planets. The existing long-term, high-cadence photometry of our candidates increases the chances of detecting transit timing variations at long timescales. Selected candidates will be observed by the future NASA flagship mission, the Nancy Grace Roman Space Telescope, in its search for Galactic bulge microlensing events, which will further enhance the photometric coverage of these stars.

Download/Website: `https://arxiv.org/abs/2311.07647`

Contact: `mmroz@astrouw.edu.pl`

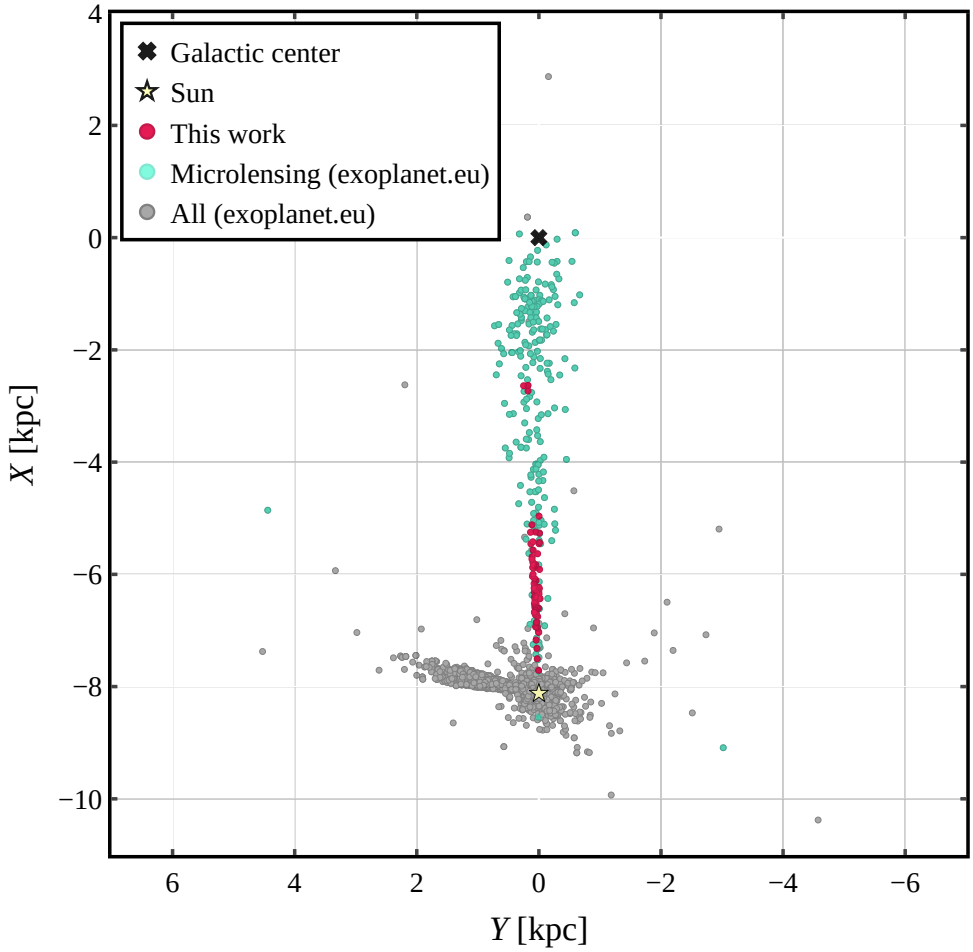

Figure 1: Galactic distribution of our planetary candidates and known confirmed exoplanets (exoplanets.eu, as for September 2023).

Spright: a probabilistic mass-density-radius relation for small planets

H. Parviainen[1,2], *R. Luque*[3], *E. Pallé*[2,1]

[1] Dept. Astrofísica, Universidad de La Laguna (ULL), E-38206 La Laguna, Tenerife, Spain
[2] Instituto de Astrofísica de Canarias (IAC), E-38200 La Laguna, Tenerife, Spain
[3] Department of Astronomy & Astrophysics, University of Chicago, Chicago, IL 60637, USA

Monthly Notices of the Royal Astronomical Society, published (2024MNRAS.527.5693P)

We present SPRIGHT, a `Python` package that implements a fast and lightweight mass-density-radius relation for small planets. The relation represents the joint planetary radius and bulk density probability distribution as a mean posterior predictive distribution of an analytical three-component mixture model. The analytical model, in turn, represents the probability for the planetary bulk density as three generalised Student's t-distributions with radius-dependent weights and means based on theoretical composition models. The approach is based on Bayesian inference and aims to overcome the rigidity of simple parametric mass-radius relations and the danger of overfitting of non-parametric mass-radius relations. The SPRIGHT package includes a set of pre-trained and ready-to-use relations based on two M dwarf catalogues, one FGK star catalogue, and two theoretical composition models for water-rich planets. The inference of new models is easy and fast, and the package includes a command line tool that allows for coding-free use of the relation, including the creation of publication-quality plots. Additionally, we study whether the current mass and radius observations of small exoplanets support the presence of a population of water-rich planets positioned between rocky planets and sub-Neptunes. The study is based on Bayesian model comparison and shows somewhat strong support against the existence of a water-world population around M dwarfs. However, the study's results depend on the chosen theoretical water-world density model. A more conclusive result requires a larger sample of precisely characterised planets and community consensus on a realistic water world interior structure and atmospheric composition model.

Download/Website: `https://github.com/hpparvi/spright`

Contact: `hannu@iac.es`

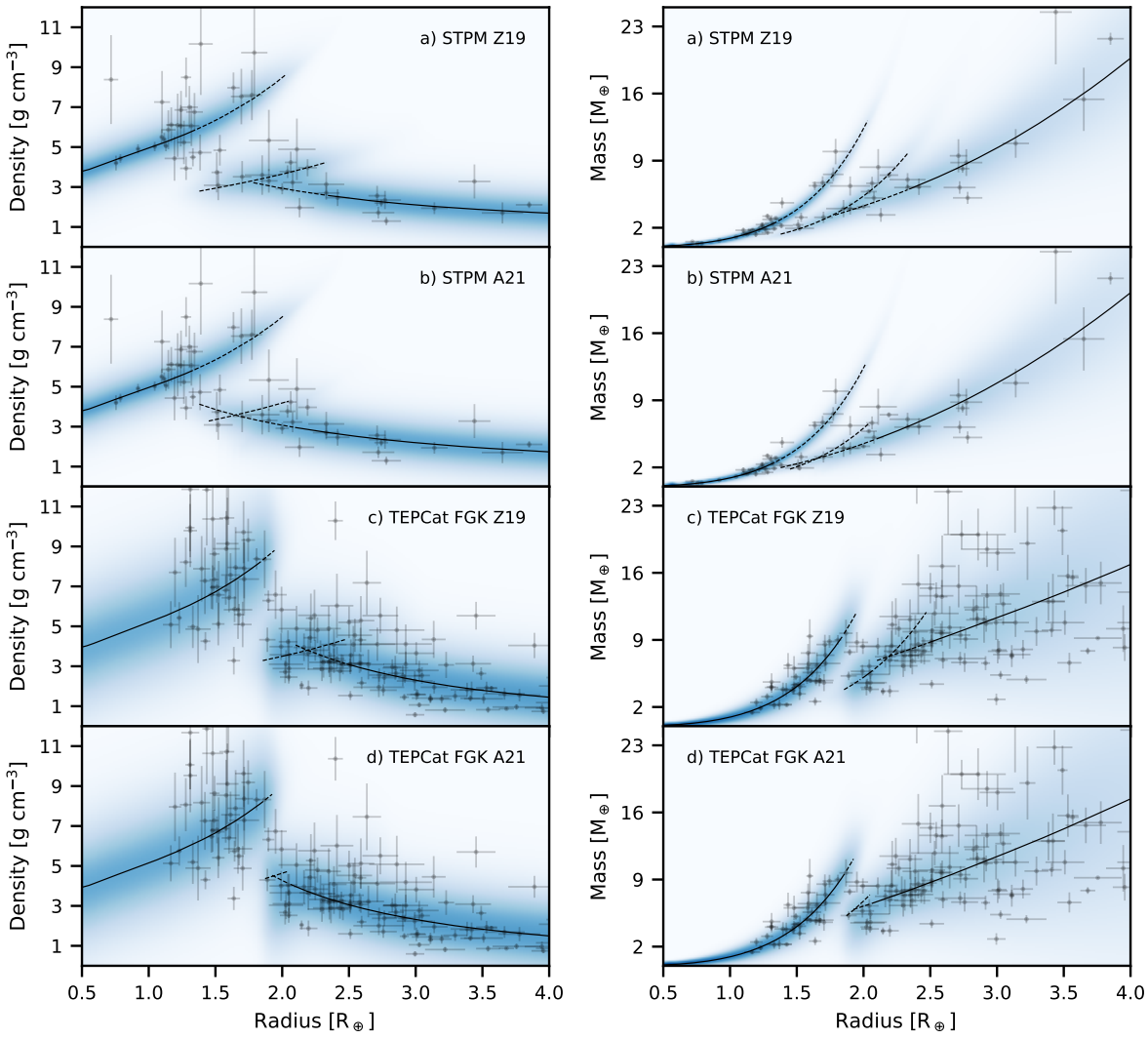

Figure 2: Numerical radius-density (left) and radius-mass (right) probability models fitted to the STPM M dwarf catalogue and the TEPCat FKG star catalogues using either Zeng et al. (2019) or Aguichine et al. (2021) water-rich planet density models to represent the density mean function for the water worlds. Grey data points show radius, density, and mass measurements with their uncertainties for all planets in each catalogue. The blue colour corresponds to the logarithm of the posterior probability, and the black lines show the posterior means for each of the three planet populations: the solid lines correspond to radius regimes where the component has a weight of unity (that is, all planets in this range belong to this component), while the dashed lines mark the transition regimes between the populations.

Atmospheric carbon depletion as a tracer of water oceans and biomass on temperate terrestrial exoplanets

Amaury H.M.J. Triaud[1]*, Julien de Wit*[2]*, Frieder Klein*[3]*, Martin Turbet*[4]*, Benjamin V. Rackham*[2,5]*, Prajwal Niraula*[2]*, Ana Glidden*[2,5]*, Oliver E. Jagoutz*[2]*, Matej Peč*[2]*,Janusz J. Petkowski*[2,6,7]*, Sara Seager*[2,8,9]*, Franck Selsis*[10]

[1] School of Physics and Astronomy, University of Birmingham, Edgbaston, Birmingham B15 2TT, United Kingdom
[2] Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, Massachusetts 02139, USA
[3] Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution, Woods Hole, MA 02543, USA
[4] Laboratoire de Météorologie Dynamique/IPSL, CNRS, Sorbonne Université, École Normale Supérieure, PSL Research University, École Polytechnique, 75005 Paris, France
[5] Kavli Institute for Astrophysics and Space Research, Massachusetts Institute of Technology, Cambridge, MA 02139, USA
[6] JJ Scientific, 02-792 Warsaw, Poland
[7] Faculty of Environmental Engineering, Wroclaw University of Science and Technology, 50-370 Wroclaw, Poland
[8] Department of Physics, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139, USA
[9] Department of Aeronautics and Astronautics, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139, USA
[10] Laboratoire d'astrophysique de Bordeaux, Univ. Bordeaux, CNRS, B18N, allée Geoffroy Saint- Hilaire, 33615 Pessac, France

Nature Astronomy, published (2023arXiv231014987T)

The conventional observables to identify a habitable or inhabited environment in exoplanets, such as an ocean glint or abundant atmospheric O_2, will be challenging to detect with present or upcoming observatories. Here we suggest a new signature. A low carbon abundance in the atmosphere of a temperate rocky planet, relative to other planets of the same system, traces the presence of a substantial amount of liquid water, plate tectonics and/or biomass. Here we show that JWST can already perform such a search in some selected systems such as TRAPPIST-1 via the CO_2 band at $4.3\ \mu\mathrm{m}$, which falls in a spectral sweet spot where the overall noise budget and the effect of cloud and/or hazes are optimal. We propose a three-step strategy for transiting exoplanets: detection of an atmosphere around temperate terrestrial planets in about 10 transits for the most favourable systems; assessment of atmospheric carbon depletion in about 40 transits; and measurements of O_3 abundance to disentangle between a water- versus biomass-supported carbon depletion in about 100 transits. The concept of carbon depletion as a signature for habitability is also applicable for next-generation direct-imaging telescopes.

Download/Website: `https://rdcu.be/duEFO`

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

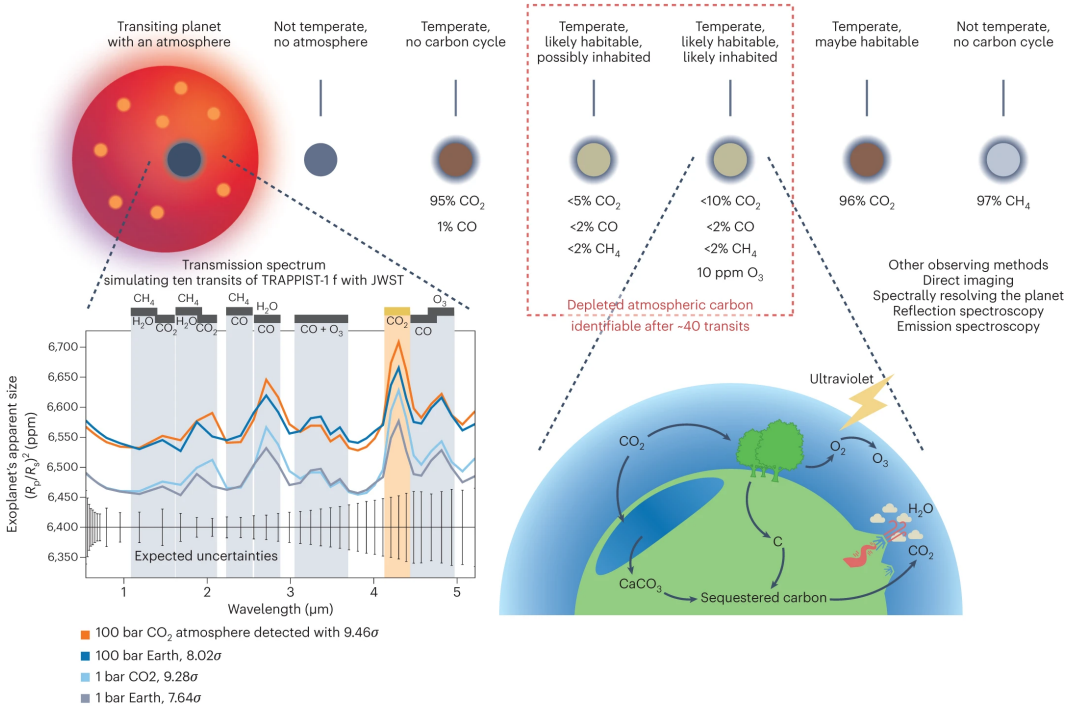

Figure 3: The main concept of a habitability signature illustrated. Each planet to the right-hand side of the star describes a different scenario discussed in the paper (along with illustrative atmospheric concentrations). The bottom-left panel depicts a simulation of the transmission spectrum of the temperate terrestrial planet TRAPPIST-1f. We explore the detectability of an atmosphere with about ten JWST/NIRSpec Prism transit observations–the minimum needed to produce a reliable diagnostic. Note that the deviation from a flat signal (no atmosphere) is primarily supported by the strong absorption features of CO_2, notably at $4.3\ \mu$m (highlighted). On the bottom right, we illustrate a simplified view of a carbon cycle involving surface liquid water and a biology sequestering cycle, producing a depletion in atmospheric carbon. Atmospheric concentrations given near the planets are illustrative.

3 Jobs and Positions

Pre-advertisement for upcoming position at the European Space Agency: Science Communication and Education Manager

European Space Agency (ESA)

Pre-advertisement for upcoming position at the European Space Agency:
Science Communication and Education Manager

Location: ESAC, Villanueva de la Cañada, Spain
Eligibility: Open to nationals from an ESA Member State
Timeframe of ad: Applications portal for this position will open at jobs.esa.int on 8 January 2024 and applications will be accepted until ∼26 January. Please contact gaitee.hussain@esa.int if you have further questions about the role.

Description
The European Space Agency maintains a world-leading Science Programme with missions in heliophysics, planetary science, astrophysics and fundamental physics. Its mission is to 'empower Europe to lead space science'. The Office of Science Engagement and Oversight (SCI-E) oversees the scientific output of all the Space Science missions across all mission phases. The Office also manages engagement, communication and education efforts for the Directorate of Science, with the aim of ensuring that external stakeholders (ranging from advisory bodies, media, scientists, general public and future generations) are informed, engaged and inspired. In this role, you will be responsible for implementing the Directorate of Science's strategy for communication and education, as well as serving as Communication Programme Officer for the Science Directorate.

Duties
Your tasks and responsibilities will include: Strategy: as Science Engagement and Communication Manager you will be responsible for the definition and implementation of the science engagement, communication and education strategy and its connection to ESA's strategy in these areas; Internal coordination: as Science Communication Programme Officer you will ensure the smooth integration of science communications into ESA's communications teams and coordinate education activities in collaboration with the ESA Education Office; Campaigns: you will oversee your team's work in planning, leading and executing individual campaigns related to science missions and milestones and including the Directorate's annual communication plan. This involves working closely and coordinating with the offices and departments across the Directorate of Science, the Communication Department and other communication stakeholders across ESA; Media relations: you will ensure collaboration with the ESA Media Relations team on behalf of the Directorate of Science, including briefing spokespersons, delivery of talking points, briefing cards, media kits and presentation materials; Empowering your team: you will work with small teams of dedicated, creative and experienced professionals and empower them to build engaging narratives to ignite excitement around the world-leading science enabled by the cutting-edge technology developed for ESA Science missions; Performance metrics: in addition, you will oversee the collection of key performance indicators to monitor impact of the Science Programme in different stakeholder contexts for regular reporting to Science management as needed. These metrics will be used to inform and update the wider engagement, communication and education strategy of the Directorate.

Experience in international communications, particularly in space science, would be an asset.

Relevant technical competencies: experience in science communication, experience in project management, communication strategy and planning, experience in designingand delivering communication campaigns, understanding/experience in relevant communication platforms and channels.

More information:
Contact: gaitee.hussain@esa.int

125 Anniversary Fellows & Anniversary Chairs at the University of Birmingham

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

Deadline, 30 January 2024

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

The recruitment drive will last until 2025, but its first phase will lead to approximately 30 new positions. The deadline to apply for this first phase is 30 January 2024.

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

Information about the Anniversary scheme can be found at `https://fellowsandchairs.birmingham.ac.uk/` and `https://www.jobs.ac.uk/job/DEJ347/anniversary-fellow`.

Applications to the scheme should include:

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

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

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

Download/Website: `https://fellowsandchairs.birmingham.ac.uk/`

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

PostDoc Position in *Exoplanet Atmosphere Cloud Modelling*

Prof. Christiane Helling

Space Research Institute (IWF) of the Austrian Academy of Sciences (OeAW), as early as April 1st, 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)
in *Exoplanet Atmosphere Cloud Modelling*
(full-time, 40h per week)

The successful candidate will be part of Prof Christiane Helling's research group *Exoplanets: Weather & Climate (Complex Atmosphere Modelling)* 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 profile

- The applicant must hold a PhD in physics, astrophysics, or geoscience.
- The successful candidate is expected to have a background in exoplanet and/or solar system cloud formation modelling in diverse chemical environment (including, for example, Venus and the outer solar system planets). A track record of applying this knowledge in complex modelling environments will be welcome.
- Experiences in programming, including non-python languages, are required.
- Past experiences in working with students will be beneficial.

Your tasks

- The post holder will play a crucial role in extending our kinetic cloud formation model as part of our efforts in providing physical interpretations of observational data for space missions, for example, CHEOPS, JWST, PLATO, and ARIEL.

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

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 page) and a research plan (max 1 pages), (4) certificates for full academic record, and (5) two etters of references. Please send the application in one PDF file, mentioning Job ID: IWF143PD123 to cosima.muck@oeaw.ac.at **no later than February 29th, 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/IWF143PD123_Corre.pdf`

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

4 Conferences and Workshops

PLATO Planetary systems - formation to observed architectures

Don Pollacco on behalf of the SOC

Catana, Sicily, Italy, 14-16 May 2024

With the PLATO Mission due for launch in 2026 this is a good time to review the present state of knowledge of exoplanet systems and the objectives of the mission. PLATO is optimized for the detection and characterization of small planets in the habitable zones of Sun-like stars. By combining two cutting-edge approaches: planetary transits and the study of the internal structure of stars using stellar seismology, supported by a dedicated ground-based observation programme. PLATO will provide accurate and complete planetary parameters (including age) for a large sample of exoplanets, allowing to address a variety of scientific questions: planet occurrences, trends in composition, dynamical evolution, favoured evolutionary paths, etc.

The aim of this conference is to review the current state of the art in the field and to examine the range of scientific questions PLATO data could prove useful. Themed sessions will examine planetary systems at all stages of their evolution as well as give an overview of the PLATO mission, its future data, and how to become involved. The conference web site is now open for pre-registration. Full registration will commence mid-January 2024.

Download/Website: `https://indico.ict.inaf.it/event/2702/`

Contact: `isabella.pagano@inaf.it, d.pollacco@warwick.ac.uk, paul.strom@warwick.ac.uk`

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.

Workshop Topics include:

- High-contrast Imaging Theory/Fourier Optics
- Properties of Planetary Systems
- Exoplanet Atmosphere Studies
- Ground-based AO Surveys
- Wavefront Sensing and Control
- Orbit-fitting from Direct Imaging Measurements
- Designing a Coronagraphic System
- PSF Subtraction/Post Processing
- Space vs. Ground: JWST Case Studies
- Future Instruments and Science Cases

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. It is unclear at this time what, if any, public health restrictions will be in place in July 2024 due to COVID.

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 and registration will open in mid-February 2024. 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`

5 As seen on astro-ph

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

December 2023

astro-ph/2312.00062: **Atmospheric Escape From Three Terrestrial Planets in the L 98-59 System** *by Emeline F. Fromont et al.*
astro-ph/2312.00141: **Atmospheric metallicity and C/O of HD 189733 b from high-resolution spectroscopy** *by Luke Finnerty et al.*
astro-ph/2312.01278: **OGLE-2019-BLG-1180Lb: Discovery of a Wide-orbit Jupiter-mass Planet around a Late-type Star** *by Sun-Ju Chung et al.*
astro-ph/2312.01300: **Chemistry of Complex Organic Molecules in the V883 Ori Disk Revealed by ALMA Band 3 Observations** *by Yoshihide Yamato et al.*
astro-ph/2312.01388: **Two long-period giant planets around two giant stars: HD 112570 and HD 154391** *by Guang-Yao Xiao et al.*
astro-ph/2312.02381: **WASP-69b's Escaping Envelope is Confined to a Tail Extending at Least Seven Planet Radii** *by Dakotah Tyler et al.*
astro-ph/2312.02349: **Statistical Distribution Function of Orbital Spacings in Planetary Systems** *by Jeremy Dietrich et al.*
astro-ph/2312.02301: **Aerosols are not Spherical Cows: Using Discrete Dipole Approximation to Model the Properties of Fractal Particles** *by Matt G. Lodge et al.*
astro-ph/2312.02260: **Kepler-discovered Multiple-planet Systems Near Period Ratios Suggestive of Mean-motion Resonances Are Young** *by Jacob H. Hamer, Kevin C. Schlaufman*
astro-ph/2312.02092: **Robust Detrending of Spatially Correlated Systematics in Kepler Light Curves Using Low-Rank Methods** *by Jamila Taaki et al.*
astro-ph/2312.02063: **The GPU Phase Folding and Deep Learning Method for Detecting Exoplanet Transits** *by Kaitlyn Wang et al.*
astro-ph/2312.02038: **Insight from laboratory measurements on dust in debris discs** *by Julien Milli et al.*
astro-ph/2312.02001: **The Carbon-to-Oxygen Ratio in Cool Brown Dwarfs and Giant Exoplanets. I. The Benchmark Late-T dwarfs GJ 570D, HD 3651B and Ross 458C** *by Mark W. Phillips et al.*
astro-ph/2312.02000: **The polarisation properties of the HD 181327 debris ring. Evidence for sub-micron particles from scattered light observations** *by Julien Milli et al.*
astro-ph/2312.01948: **Self-consistent Conditions for $\hat{}\{26\}$Al Injection into Protosolar Disk from a Nearby Supernova** *by Ryo Sawada et al.*
astro-ph/2312.01924: **Saltire – A model to measure dynamical masses for high-contrast binaries and exoplanets with high-resolution spectroscopy** *by Daniel Sebastian et al.*
astro-ph/2312.01903: **Substellar science in the wake of the ESA Euclid space mission** *by Eduardo L. Martín et al.*
astro-ph/2312.01893: **Water content of rocky exoplanets in the habitable zone** *by Ádám Boldog et al.*
astro-ph/2312.01856: **Surviving the Heat: multi-wavelength analysis of V883 Ori reveals that dust aggregates survive the sublimation of their ice mantles** *by Adrien Houge et al.*
astro-ph/2312.03068: **Precise Radial Velocities Using Line Bisectors** *by Drake Deming et al.*
astro-ph/2312.02413: **High-resolution transmission spectroscopy of ultra-hot Jupiter WASP-33b with NEID** *by Yuanheng Yang et al.*
astro-ph/2312.02504: **Ring Gap Structure around Class I Protostar WL 17** *by Ayumu Shoshi et al.*
astro-ph/2312.02460: **Optimal Proposal Particle Filters for Detecting Anomalies and Manoeuvres from Two Line Element Data** *by David P. Shorten et al.*

astro-ph/2312.03888: **On the required mass for exoplanetary radio emission** *by Jean-Mathias Grießmeier et al.*
astro-ph/2312.03835: **Constraining the gas mass of Herbig disks using CO isotopologues** *by L. M. Stapper et al.*
astro-ph/2312.03671: **Direct Exoplanet Detection Using Deep Convolutional Image Reconstruction (ConStruct): A New Algorithm for Post-Processing High-Contrast Images** *by Trevor N. Wolf et al.*
astro-ph/2312.03852: **The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems V: Do Self-Consistent Atmospheric Models Represent JWST Spectra? A Showcase With VHS 1256 b** *by Simon Petrus et al.*
astro-ph/2312.03319: **Search for Planets in Hot Jupiter Systems with Multi-Sector TESS Photometry. IV. Null Detections in 12 Systems** *by G. Maciejewski et al.*
astro-ph/2312.03786: **Large Exomoons unlikely around Kepler-1625 b and Kepler-1708 b** *by René Heller, Michael Hippke*
astro-ph/2312.03424: **Physico-chemical Processes in Planet-forming Discs** *by Peter Woitke*
astro-ph/2312.04682: **The effects of planetary day-night temperature gradients on He 1083 nm transit spectra** *by Fabienne Nail et al.*
astro-ph/2312.04645: **The origin and evolution of wide Jupiter Mass Binary Objects in young stellar clusters** *by Simon Portegies Zwart, Erwan Hochart*
astro-ph/2312.04635: **The TESS-Keck Survey XVII: Precise Mass Measurements in a Young, High Multiplicity Transiting Planet System using Radial Velocities and Transit Timing Variations** *by Corey Beard et al.*
astro-ph/2312.05271: **Auroras on planets around pulsars** *by Ruchi Mishra et al.*
astro-ph/2312.04299: **The Extremely Large Telescope** *by Paolo Padovani, Michele Cirasuolo*
astro-ph/2312.06672: **Spin and orbital dynamics of planets undergoing thermal atmospheric tides using a vectorial approach** *by Ema F. S. Valente, Alexandre C. M. Correia*
astro-ph/2312.03971: **TOI-4641b: An Aligned Warm Jupiter Orbiting a Bright (V=7.5) Rapidly Rotating F-star** *by Allyson Bieryla et al.*
astro-ph/2312.04618: **High turbulence in the IM Lup protoplanetary disk: Direct observational constraints from CN and C_2H emission** *by T. Paneque-Carreño et al.*
astro-ph/2312.04873: **Distinguishing exoplanet companions from field stars in direct imaging using Gaia astrometry** *by Philipp Herz et al.*
astro-ph/2312.05254: **Disentangling CO Chemistry in a Protoplanetary Disk Using Explanatory Machine Learning Techniques** *by Amina Diop et al.*
astro-ph/2312.05310: **HIP 65426 is a High-Frequency Delta Scuti Pulsator in Plausible Spin-Orbit Alignment with its Directly Imaged Exoplanet** *by Aldo G. Sepulveda et al.*
astro-ph/2312.05672: **Dynamics and Clouds in Planetary Atmospheres from Telescopic Observations** *by Agustín Sánchez-Lavega et al.*
astro-ph/2312.05627: **Exploring the collinear Lagrangian points of exoplanet systems with P-R drag and oblateness** *by Ibtisam Shaikh et al.*
astro-ph/2312.05809: **Variations in the Radius Distribution of Single and Compact Multiple Transiting Planets** *by Benjamin T. Liberles et al.*
astro-ph/2312.06000: **The bouncing barrier revisited: Impact on key planet formation processes and observational signatures** *by Carsten Dominik, Cornelis Dullemond*
astro-ph/2312.06890: **Vertical shear instability in two-moment radiation-hydrodynamical simulations of irradiated protoplanetary disks II. Secondary instabilities and stability regions** *by Julio David Melon Fuksman et al.*
astro-ph/2312.06882: **Vertical shear instability in two-moment radiation-hydrodynamical simulations of irradiated protoplanetary disks I. Angular momentum transport and turbulent heating** *by Julio David Melon Fuksman et al.*
astro-ph/2312.06866: **Probing Disk Ice Content and PAH Emission Through Multiband MagAO+Clio Images**

of HD 141569 *by Jay K. Kueny et al.*

astro-ph/2312.06586: **ESO/HARPS Radial Velocities Catalog** *by Mauro Barbieri*

astro-ph/2312.07135: **MINDS. JWST-MIRI Reveals a Dynamic Gas-Rich Inner Disk Inside the Cavity of SY Cha** *by Kamber R. Schwarz et al.*

astro-ph/2312.07161: **One-dimensional Convolutional Neural Networks for Detecting Transiting Exoplanets** *by Santiago Iglesias Álvarez et al.*

astro-ph/2312.07236: **Precise photoionisation treatment and hydrodynamic effects in atmospheric modelling of warm and hot Neptunes** *by Daria Kubyshkina et al.*

astro-ph/2312.07648: **Outcomes of Sub-Neptune Collisions** *by Tuhin Ghosh et al.*

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