ExoPlanet News
An Electronic Newsletter

No. 160, 11 October 2022

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Contents

1 Editorial

Welcome to Edition 160 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 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 8. November 2022.

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

Jeanne Davoult
Daniel Angerhausen
Eleonora Alei
Haiyang Wang
Timm-Emanuel Riesen

2 Abstracts of refereed papers

Detection of Na and K in the Atmosphere of the Hot Jupiter HAT-P-1b with P200/DBSP

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The Astronomical Journal, published (2022AJ....164..173C)

We present a new optical transmission spectrum of the hot Jupiter HAT-P-1b based on two transits observed with the Double Spectrograph (DBSP) on the Palomar 200-inch (P200) telescope. The DBSP transmission spectrum, covering a wavelength range from 3250 to 10007 Å, is consistent with that observed with the Hubble Space Telescope (HST), but the former has a finer spectral resolution. The DBSP spectrum alone reveals the presence of a pressure broadened line wing for Na, the line cores for both Na and K, and tentative evidence for H_2O. We obtain consistent results from the spectral retrieval analyses performed on the DBSP-only dataset and the DBSP, HST, and Spitzer combined data set. Our retrievals suggest a mostly clear atmosphere for HAT-P-1b, with a cloud coverage of $22^{+5}_{-3}\%$ that is dominated by enhanced haze. We derive subsolar abundances for Na, K, and C, and subsolar to solar for O. Future observations with James Webb Space Telescope and ground-based high-resolution spectrographs should be able to not only confirm the presence of these species but also stringently constrain the formation and migration pathways for HAT-P-1b.

Download/Website: `https://ui.adsabs.harvard.edu/abs/2022AJ....164..173C/abstract`

Contact: `guochen@pmo.ac.cn`

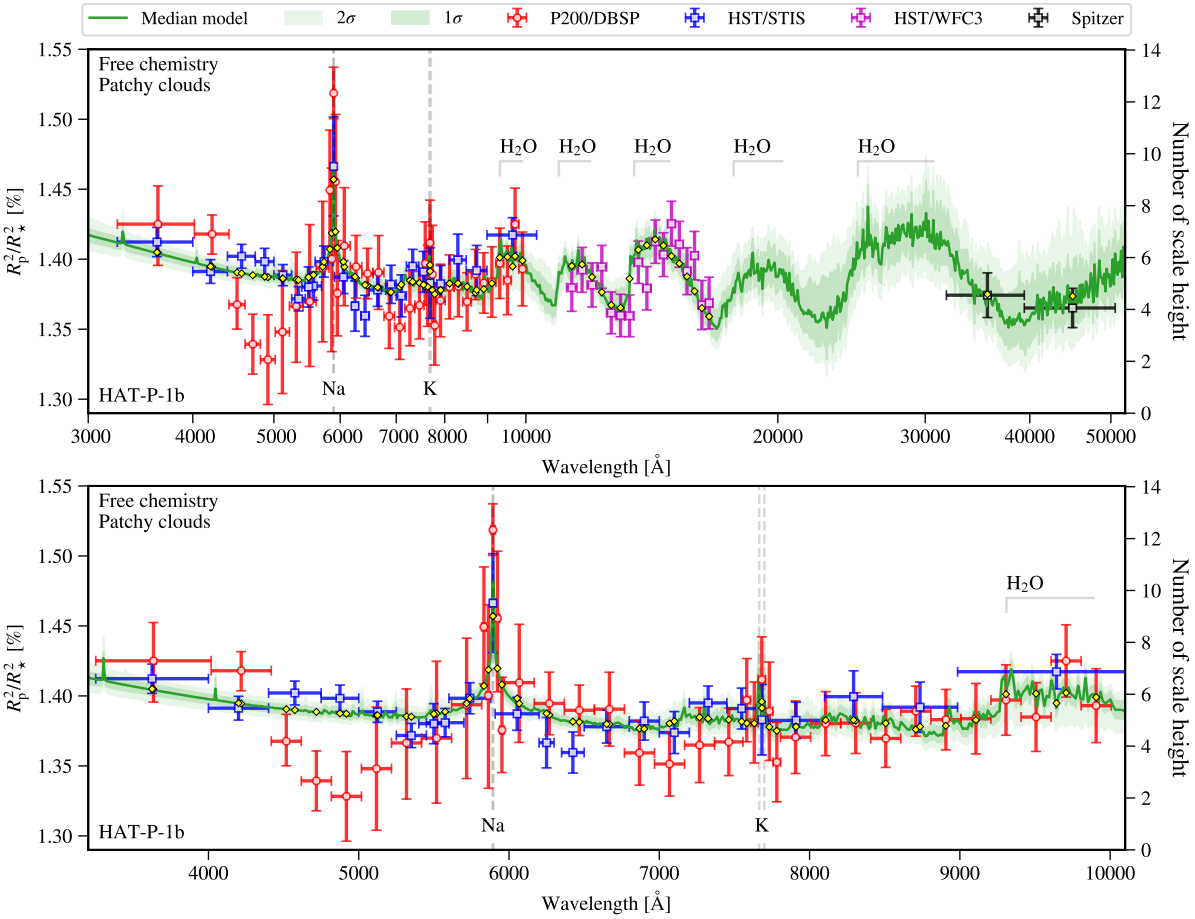

Figure 1: Top panel: the complete transmission spectrum of HAT-P-1b, with data from P200/DBSP, HST/STIS, HST/WFC3, and Spitzer. Bottom panel: the close-up view of the optical wavelength range. The shaded areas show the retrieved atmospheric models assuming free chemistry.

Dynamics of co-orbital exoplanets in a first-order resonance chain with tidal dissipation

J. Couturier[1]*, P. Robutel*[1]*, A.C.M. Correia*[2]

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Astronomy & Astrophysics, published (2022A&A...664A...1C)

Co-orbital planets (in a $1:1$ mean motion resonance) can be formed within a Laplace resonance chain. We develop a secular model to study the dynamics of the resonance chain $p:p:p+1$, where the co-orbital pair is in a first-order mean motion resonance with the outermost third planet. Our model takes into account tidal dissipation through the use of a Hamiltonian version of the constant time-lag model, which extends the Hamiltonian formalism of the point-mass case. We show the existence of several families of equilibria, and how these equilibria extend to the complete system. In one family, which we call the main branch, a secular resonance between the libration frequency of the co-orbitals and the precession frequency of the pericentres has unexpected dynamical consequences when tidal dissipation is added. We report the existence of two distinct mechanisms that make co-orbital planets much more stable within the $p:p:p+1$ resonance chain rather than outside it. The first is due to negative real parts of the eigenvalues of the linearised system with tides, in the region of the secular resonance mentioned above. The second comes from non-linear contributions of the vector field and is due to eccentricity damping. These two stabilising mechanisms increase the chances of a future detection of exoplanets in the co-orbital configuration.

Download/Website: `https://jeremycouturier.com/img/Couturier_etal_2022.pdf`

Contact: `jeremy.couturier@obspm.fr`

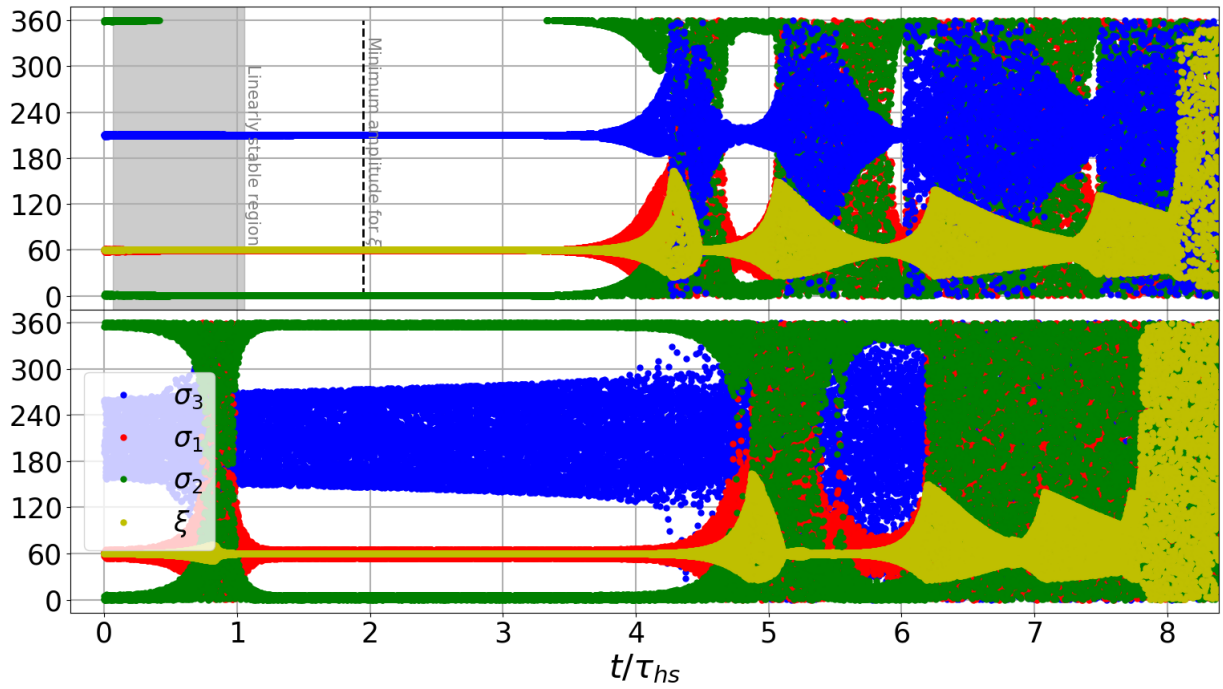

Figure 2: Time evolution of the co-orbital angle $\xi = \lambda_1 - \lambda_2$ (*yellow*) and of the three secular angles σ_j associated with the pericenters (*red, green and blue*). The top panel is a numerical integration of our secular model while the bottom panel is a direct N-body simulation. The time is normalized by $\tau_{\rm hs}$, which is the destruction time of the co-orbital pair in the absence of the third planet (see Couturier et al., 2021, 10.1007/s10569-021-10032-w). A temporary linear stability, due to a secular $1:1$ resonance between the libration of the co-orbital angle and the precession of the pericenters, is responsible for an enhanced co-orbital lifetime. Then, successive diminutions of the libration amplitude of ξ, due to eccentricity damping, allow for a co-orbital lifetime 8 times larger with the third planet.

Hot exozodis: cometary supply without trapping is unlikely to be the mechanism

T. D. Pearce[1], *F. Kirchschlager*[2], *G. Rouillé*[3], *S. Ertel*[4,5], *A. Bensberg*[6], *A. V. Krivov*[1], *M. Booth*[1], *S. Wolf*[6], *J.-C. Augereau*[7]

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Monthly Notices of the Royal Astronomical Society, in press (arXiv:2209.11219)

Excess near-infrared emission is detected around one fifth of main-sequence stars, but its nature is a mystery. These excesses are interpreted as thermal emission from populations of small, hot dust very close to their stars ('hot exozodis'), but such grains should rapidly sublimate or be blown out of the system. To date, no model has fully explained this phenomenon. One mechanism commonly suggested in the literature is cometary supply, where star-grazing comets deposit dust close to the star, replenishing losses from grain sublimation and blowout. However, we show that this mechanism alone is very unlikely to be responsible for hot exozodis. We model the trajectory and size evolution of dust grains released by star-grazing comets, to establish the dust and comet properties required to reproduce hot-exozodi observations. We find that cometary supply alone can only reproduce observations if dust ejecta has an extremely steep size distribution upon release, and the dust-deposition rate is extraordinarily high. These requirements strongly contradict our current understanding of cometary dust and planetary systems. Cometary supply is therefore unlikely to be solely responsible for hot exozodis, so may need to be combined with some dust-trapping mechanism (such as gas or magnetic trapping) if it is to reproduce observations.

Download/Website: `https://ui.adsabs.harvard.edu/abs/2022MNRAS.tmp.2574P/abstract`
Contact: `timothy.pearce@uni-jena.de`

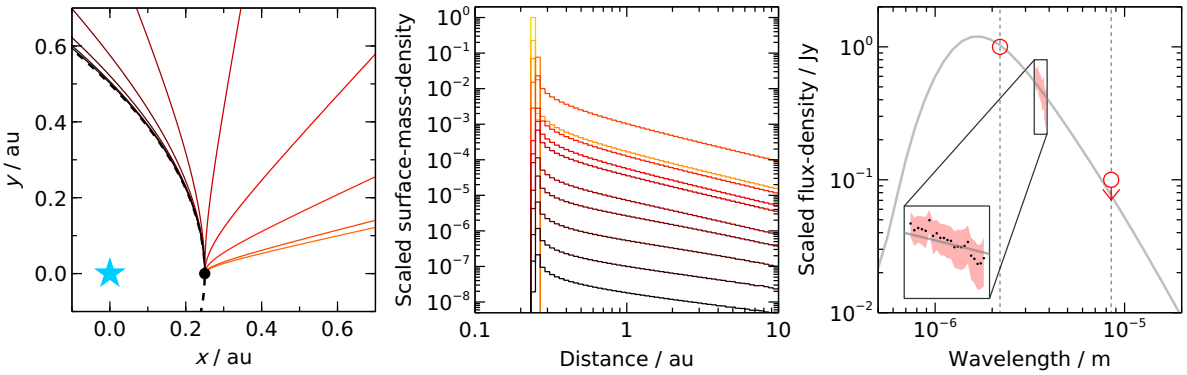

Figure 3: Simulations of grains released at pericentre by star-grazing comets around an A0V-type star, and the resulting surface densities and SED. The grains have initial radii 10^{-9} (yellow) to 10^{-3} m (black), with 13 logarithmically spaced initial grain-sizes shown. Left panel: the dotted line is the comet trajectory, the black circle the dust release point, and the star is at the origin. Solid lines are dust trajectories coloured by initial grain radius. Here ejecta with initial radii smaller than 30 nm sublimate before they travel appreciable distances, so these trajectories are not visible. Middle panel: azimuthally averaged surface-mass-density profiles in each grain-size bin, assuming new grains are continually released near the pericentre location. Grains were released with a very steep size distribution going as size$^{-5.5}$. Right panel: scaled SED produced by the dust population (stellar flux is omitted). To reproduce hot-dust observations, the flux at 2.2 μm (red circle) should be > 10 times that at 8.5 μm (red circle with arrow). Scaled MATISSE data for κ Tuc are also shown around 3.5 μm (Kirchschlager et al. 2020); the inset shows these data enlarged. The SED can only reproduce observations if dust ejecta has an extremely steep size distribution upon release.

Inside-Out Planet Formation. VII. Astrochemical Models of Protoplanetary Disks and Implications for Planetary Compositions

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Monthly Notices of the Royal Astronomical Society, in press (arXiv:2202.02483v2)

Inside-Out Planet Formation (IOPF) proposes that the abundant systems of close-in Super-Earths and Mini-Neptunes form *in situ* at the pressure maximum associated with the Dead Zone Inner Boundary (DZIB). We present a model of physical and chemical evolution of protoplanetary disk midplanes that follows gas advection, radial drift of pebbles and gas-grain chemistry to predict abundances from ~ 300 au down to the DZIB near 0.2 au. We consider typical disk properties relevant for IOPF, i.e., accretion rates $10^{-9} < \dot{m}/(M_\odot\,\mathrm{yr}^{-1}) < 10^{-8}$ and viscosity parameter $\alpha = 10^{-4}$, and evolve for fiducial duration of 10^5 yrs. For outer, cool disk regions, we find that C and up to 90% of O nuclei start locked in CO and O_2 ice, which keeps abundances of CO_2 and H_2O one order of magnitude lower. Radial drift of icy pebbles is influential, with gas-phase abundances of volatiles enhanced up to two orders of magnitude at ice-lines, while the outer disk becomes depleted of dust. Disks with decreasing accretion rates gradually cool, which draws in icelines closer to the star. At < 1 au, advective models yield water-rich gas with C/O ratios < 0.1, which may be inherited by atmospheres of planets forming here via IOPF. For planetary interiors built by pebble accretion, IOPF predicts volatile-poor compositions. However, advectively-enhanced volatile mass fractions of $\sim 10\%$ can occur at the water ice line.

Download/Website: `https://arxiv.org/abs/2202.02483`

Contact: `cevala1@unlv.nevada.edu`

VLT/CRIRES science verification observations: A hint of $C^{18}O$ in the young brown dwarf 2M0355

Yapeng Zhang [1], *Ignas A.G. Snellen*[1], *Matteo Brogi*[2,3,4], *Jayne L. Birkby* [5]

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Research Notes of the AAS, Volume 6, Number 9

Chemical and isotopic composition provide insights into the formation and evolution history of planets and brown dwarfs. Recent measurements of $^{12}CO/^{13}CO$ abundance ratios in the atmosphere of the young super-Jupiter YSES-1b and the isolated brown dwarf 2MASS J03552337+1133437 may point to distinct formation pathways. Here we present our analysis of 0.5 hrs of science verification observations using the recently upgraded CRIRES spectrograph at ESO's Very Large Telescope on the same brown dwarf, with the aim to detect $C^{18}O$ and determine the $^{16}O/^{18}O$ isotope ratio. Our free retrieval analyses confirm the previous measurement of the carbon isotope ratio, and the inclusion of the $C^{18}O$ molecule in our models enables an initial tentative constraint of $^{16}O/^{18}O = 1489^{+1027}_{-426}$ on the oxygen isotope ratio, but this requires more data to be confirmed. These short observations showcase the prospect of studying the isotope inventory in brown dwarfs and super-Jovian exoplanets with high-dispersion spectroscopy.

Download/Website: `https://doi.org/10.3847/2515-5172/ac9309`

Contact: `yzhang@strw.leidenuniv.nl`

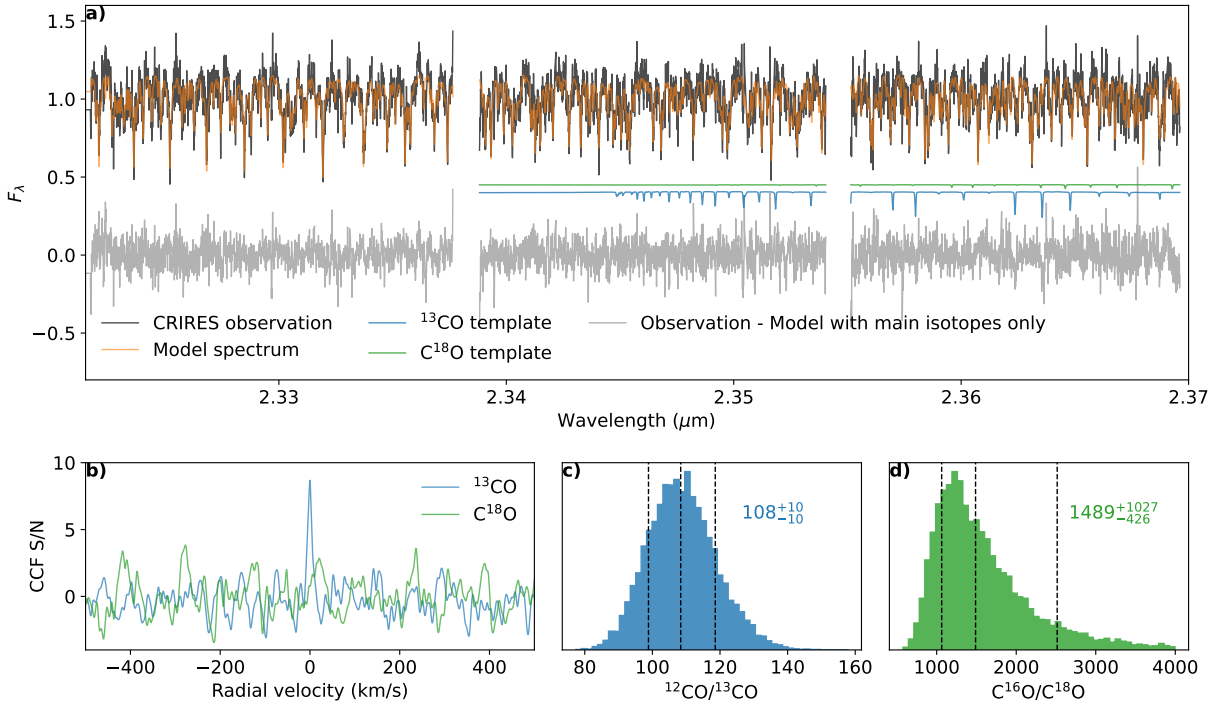

Figure 4: *Panel a):* K-band (2.32-2.37 μm) spectrum of the brown dwarf 2M0355 taken with VLT/CRIRES. The orange line shows the best-fit model obtained through the retrieval analysis. The blue and green lines are the template spectra of ^{13}CO and C^{18}O. The observational residuals (namely, observations minus the model with main isotopes only) are shown in gray. *Panel b):* Cross-correlation functions of the observational residuals with the ^{13}CO or C^{18}O template. *Panel c):* Posterior distribution of the carbon isotope abundance ratio constrained by the retrieval. The vertical dashed lines denote the 1σ interval. *Panel d):* Same as *panel c)*, but for the oxygen isotope ratio.

3 Jobs and Positions

Tenure-track Assistant Professor

Eric Agol and Mario Juric, co-chairs of search committee

Location: Seattle, Washington, USA, Deadline: October 21, 2022; to start September 2023

Deadline: October 21, 2021.
The Astronomy Department of the University of Washington seeks to fill two full-time, tenure-track, 9-month faculty positions at the level of Assistant Professor, starting in September 2023. We encourage applications from candidates in all areas of astronomy or astrophysics. University of Washington (UW) faculty engage in teaching, research, and service. Responsibilities include developing a vigorous program of externally-funded, original research in astronomy, mentoring PhD students, and teaching astronomy at the undergraduate and graduate levels. Current UW Astronomy faculty are involved in observational, theoretical, and data-intensive research on the solar system, exoplanets, stars, Galactic and extragalactic astronomy, high-energy astrophysics, and cosmology. Faculty, postdocs, and students are frequent observers across the electromagnetic spectrum at national facilities, and regularly use local, national and international facilities for computational astrophysics. The Department has founding and continuing roles in the Astrophysical Research Consortium's 3.5m telescope and the Sloan Digital Sky Survey (including SDSS-V), both located at Apache Point Observatory in New Mexico. UW astronomy is home to the Virtual Planet Laboratory, which studies exoplanet habitability with both simulations and data from ground- and space-based facilities (including JWST). VPL faculty also lead the UW Astrobiology Program (a dual-title Ph.D. program). UW Astronomy's DiRAC Institute is a leader in data-intensive astrophysics, co-founder of the Rubin Observatory project, and the Legacy Survey of Space and Time (LSST). DiRAC hosts Rubin's solar system, time-domain pipeline, and other project teams, gearing up to lead early LSST science efforts in a number of areas. UW's Dark Universe Science Center (DUSC) hosts a group active in cosmology and astroparticle physics. The department maintains a strong presence in theoretical astrophysics including numerical and analytical methods. Current faculty are involved in leadership, research, and outreach through the NASA Washington Space Grant, housed in the Aeronautics & Astronautics department. The department is actively developing novel instrumentation for ground and space, and collaborating across departments to develop cubesat and small sat capabilities. Interdisciplinary research is strongly encouraged with other programs on campus, including the Physics Department, as well as units engaged in astrobiology, computer science and engineering, and the University's eScience Institute (supporting data-intensive research across campus).
Diversity is a core value of the Astronomy Department. The department is dedicated to the goal of building a culturally diverse and pluralistic faculty and staff committed to teaching and working in a multicultural and inclusive environment. The student body of the University of Washington is growing ever more diverse, and we encourage applications from minoritized candidates. The successful applicant will be expected to advise and mentor students. The department is invested in mentorship and equity work across career stages, and values community-building, teaching, peer-support, and lived experience. All faculty are strongly encouraged to actively contribute to the diversity, equity and inclusivity goals of the department, and the University as articulated in the UW Diversity Blueprint and Astronomy Departments diversity statement.
For more information, see the job ad posting link below.

Download/Website: `https://jobregister.aas.org/ad/877c312d`

Contact: `uwastro@uw.edu`

Post-doc position (3 years) on magnetism in exoplanets

Daniele Viganò

Institute of Space Sciences, Early 2022 (Flexible)

The Institute of Space Sciences (Institut de Ciències de l'Espai, ICE - CSIC/IEEC), Barcelona, Spain, www.ice.csic.es, invites applications for one senior post-doctoral position, to start end 2022/beginning 2023 (flexible).
The post-doc position will fit within the new IMAGINE group, whose project (funded by an ERC Starting Grant, https://www.ice.csic.es/erc-imagine/) aims at considering the magnetic imprints on exoplanets from observational and theoretical perspectives. The successful candidate is expected to contribute to theoretical and numerical studies regarding either: (i) dynamo / star-planet interaction; (ii) long-term thermal and magnetic evolution; (iii) internal structure. Partial dedication to other topics of research will of course be possible.

We collaborate with other groups at ICE, in particular the exoplanet group led by Ignasi Ribas and including a dozen people, among which Guillem Anglada-Escudé, and the star formation group, led by J.M. Girart.

Applicants are expected to have a strong background and experience in one or more of the three topics mentioned above. The position is preferentially (but not exclusively) oriented to a senior profile (3 years or more of post-doctoral experience). The successful candidate, if interested to stay longer, will receive support and advise in applying to national and European calls (Ramon y Cajal, Marie-Curie Fellowships, ERC Grants...).

The expressions of interest for this position have to be sent to Daniele Viganò, vigano (at) ice.csic.es , providing the following:
• CV (maximum 3 pages)
• Two reference providers (name, affiliation, relation with the candidate and e-mail), who will be contacted if the candidate is shortlisted
• Research statement (maximum 2 pages)

The 3-years contract will cover the costs of the National Social Security (the Spanish public healthcare system), with a gross salary of about 42.000 euros per year ("Doctor FC3" in the CSIC salary scheme). Budget for material and attendance to conferences and visits will be granted by the project. Once selected, the ICE administration will assist the candidate, within their possibilities, with the required bureaucratic steps, like title equivalence, work permit and visa application, if applicable.

The expressions of interest will be reviewed after October, 20th 2022, but the position will remain open until filled. Inquiries can be sent to the above e-mail. Women and members of under-represented groups are particularly encouraged to apply.

Currently, ICE's staff is growing and counts about 25 faculty members, 25 post-doc fellows, 25 PhD students and 30 engineers. The areas of research vary, from engineering applied to several space missions to fundamental physics, from high-energy astronomy to theoretical astrophysics. ICE has been awarded with the national excellence seal Maria de Maetzu, which will imply a growth of job opportunities and collaborations in the next few years. ICE pertains to the "Consejo Superior de Investigaciones Científicas" (CSIC, the Spanish National Research Council). CSIC is the largest public institution dedicated to research in Spain and the third largest in Europe. ICE is also part of the consortium "Catalan Institute of Space Studies" (Institut d'Estudis Espacials de Catalunya). Our institute is committed to building a culturally diverse and safe community of researchers, dedicated to contributing to an inclusive environment. ICE is located in the campus of the Autonomous University of Barcelona in Bellaterra, just outside Barcelona. The campus is well served by public transportation (railways and buses), and a variety of temporary and long-term accommodation options can be found both in Barcelona city and in the smaller towns close to the campus.

Download/Website: `https://eas.unige.ch/jobs.jsp?id=1577`

Contact: vigano@ice.csic.es

Postdoctoral position in planet formation theory

Dr. Joanna Drążkowska

Göttingen, Germany, September 2023 or before

The Max Planck Institute for Solar System Research (MPS) in Göttingen, Germany, invites applications for a postdoctoral position to work on planet formation theory. The position is offered within the project "Formation of planetary building blocks throughout time and space" led by Dr. Joanna Drążkowska funded by the ERC Starting Grant PLANETOIDS. The successful applicant will develop computational models of planet-forming processes such as dust coagulation, planetesimal formation via the streaming instability, and planetary core growth by planetesimal and pebble accretion. Prior experience in protoplanetary disk or planet formation modeling is highly desirable.
MPS Göttingen conducts fundamental research in the field of Solar System physics. With its approximately 300 staff members, it is one of the leading institutes in the field of solar physics and planetary research. In particular, the institute is involved in numerous international space missions.
Applicants should have or be close to obtaining a PhD in astronomy, astrophysics, or related field. The starting date is flexible, preferably between January and September 2023. The appointment will be initially for three years with the possibility of an extension for one additional year. Generous funding for publications and travel is available. Remuneration will be on the German public sector scale (100% E 13 TV-L, the exact salary will depend on qualification and previous experience). Social security benefits are in accordance with the public service regulations.
How to apply:
Interested candidates should send a cover letter, a brief statement of research interests and achievements (max. 3 pages), curriculum vitae including the publication list, and at least two reference contacts. The reference persons will only be contacted for the shortlisted candidates. The application must be submitted via the online application portal. Applications submitted by November 1st, 2022 will receive full consideration. For any questions regarding the application please contact Dr. Joanna Drążkowska.
The Max Planck Society strives for gender equity and diversity. We welcome applications from all backgrounds. The Max Planck Society is committed to employing more severely disabled people. Applications from severely disabled persons are explicitly encouraged.

Download/Website: `https://www.mps.mpg.de/7435309/job_full_offer_19201683`

Contact: `drazkowska@mps.mpg.de`

Exoplanets PhD position in Geneva: planet formation in binary star systems

Julia Venturini

Department of Astronomy of the University of Geneva, position to start on April 1st, 2023

The Exoplanets Team of the University of Geneva has an opening for a PhD position to work on the modelling of planet formation in binary star systems under the supervision of Dr. Julia Venturini and Prof. Emeline Bolmont. The successful applicant is expected to co-develop a numerical code to simulate the accretion and orbital evolution of forming planets in a binary star system. This project aims at investigating how the processes of planet formation, rather well known in the case of single star systems, change due to the presence of a stellar companion. The number of planets detected in binaries and the lack of tools to study these systems makes this question very relevant in the community.
In particular, the student will work on the modelling of planetesimal accretion, which is an important phase in planetary formation, deeply impacted by the presence of the stellar binary companion. The student will be able to use existing codes, such as the Bern Model for population synthesis of exoplanets and investigate the adaptability of the Mercury code and the Posidonius code for the orbital evolution of N-body systems.

The Geneva Observatory offers one of the most vibrant environments worldwide for exoplanet research. Nearly 60 people contribute to the Exoplanets Team (www.exoplanets.ch), currently including 10 faculty members, 15 postdoctoral researchers, 17 PhD students, and 22 project staff members. Research topics include exoplanet detection, exoplanet characterization (atmospheres, interiors), planetary system dynamics, and instrumentation. Team members are directly involved into a large number of projects, including photometric instruments (CHEOPS, TESS, PLATO, NGTS), high-resolution spectrographs (HARPS, HARPS-North, NIRPS and ESPRESSO) and direct imaging (SPHERE@VLT). The exoplanet team is also part of PlanetS (www.nccr-planets.ch), a Swiss research network focused on planetary science, which includes 130 scientists from the Universities of Geneva, Bern, Zurich and ETH Zurich. The successful applicant will be able to take advantage of this unique collaborative framework and also participate in at least one observational run per year.

The applicants are required to have a Master in Astrophysics, Planetary Sciences, or related fields. Proficiency in Python and Fortran programming, and background on dynamics of planetary systems are considered as a plus. This four-year PhD position is funded by the Swiss National Science Foundation with a gross salary of 48,000 CHF a year. The position is available from 01.04.2023. The **application deadline is 01.11.2022**. The University is actively seeking to increase the numbers of women in physics and hence women are strongly encouraged to apply.

The following application materials should be sent as a single pdf file to julia.venturini@unige.ch:

1. A motivation letter including contact details, information on skills and previous experience, and the names of 2 references/referees (max. 2 pages).

2. A curriculum vitae (max. 2 pages), including a list of publications (if applicable).

3. Academic transcripts of master and bachelor grades.

It is the responsibility of the applicant to ensure that 2 letters of recommendation are sent directly by the referees to J.Venturini by the application deadline.

Download/Website: `https://www.unige.ch/sciences/astro/exoplanets/en/vacancies/`

Contact: `julia.venturini@unige.ch`

4 Conferences and Workshops

Abstract Submission for The Fifth Workshop on Extremely Precise Radial Velocities

J. Burt, B. J. Fulton

Conference, March 27-30, 2023

We are pleased to announce that abstract submission for The Fifth Workshop on Extremely Precise Radial Velocities (EPRV 5) is now open!

We are soliciting abstracts for contributed talks, posters, and splinter sessions, and participants may make multiple submissions within / across these categories. The deadline for both contributed talks and splinter sessions is Thursday, November 17th 2022 at 11:59p Pacific US time. Poster submissions will be accepted until February 17th 2022, and all talk abstracts that are not selected for the main conference program will automatically be considered for a poster.

You can find more information and links to the submission forms on the EPRV 5 website on the Abstract Submission page.

If you have any questions, contact the conference co-chairs Jennifer Burt (jennifer.burt@jpl.nasa.gov) and BJ Fulton (bjfulton@ipac.caltech.edu) or email us at eprv5@lists.astro.caltech.edu

Registration and hotel information will be available in early November 2022.

Download/Website: `https://conference.ipac.caltech.edu/eprv5/`
Contact: `eprv5@lists.astro.caltech.edu`

2023 Sagan Summer Hybrid Workshop
Characterizing Exoplanet Atmospheres: The Next Twenty Years

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

Hybrid Workshop, July 24-28, 2023

Observations of an exoplanets atmosphere provide the best hope for distinguishing the makeup of its outer layers, and the only hope for understanding the interplay between formation, natal composition, chemical and disequilibrium processes, and dynamics & circulation. The field is entering a revolution in our understanding of exoplanet atmospheres thanks to measurements from the ground, from space, and particularly from the new JWST the superlative facility for exoplanet studies. In the longer term, such observations will also be essential for seeking signs of biosignature gasses in nearby exoplanets using future, next-generation observatories.

This year's workshop will cover theoretical modeling, interpretation, and observations of exoplanets using a variety of telescopes, techniques, and hands-on exercises, presented by leading experts in the field.

We currently plan to hold the 2023 workshop as a hybrid with both in-person and on-line attendance. It is unclear at this time (October 2022) what, if any, public health restrictions will be in place in July 2023 due to COVID.

The Sagan Summer Workshops are aimed at advanced undergraduates, grad students, and postdocs, however all are welcome to attend and there is no registration fee. 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 February 2023.

Please contact us with any questions or to be added to the email list.

Download/Website: `http://nexsci.caltech.edu/workshop/2023`
Contact: `sagan_workshop@ipac.caltech.edu`

5 Exoplanet Archives

September 2022 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, October 11, 2022

Note: Unless otherwise noted, all planetary and stellar data mentioned in the news are in the Planetary Systems Table (`https://bit.ly/PlanetarySystems`), which provides a single location for all self-consistent planetary solutions, and its companion table the Planetary Systems Composite Parameters (`https://bit.ly/PSCompPars`), which offers a more complete table of parameters combined from multiple references and calculations. Data may also be found in the Microlensing Planets Table (`https://bit.ly/newMicrolensing`) and the Direct Imaging Planets Table (`https://bit.ly/DirectImagingTable`).

September 26, 2022

84 Giant Planets Added

From ice giants to gas giants, we have 84 new planets for you! These include 80 planets discovered by combining radial velocity and astrometric measurements, three TESS planets, and a microlensing planet.

As an added bonus, many of this week's RV-detected planets are ripe for follow-up study with existing direct imaging facilities. The new microlensing planet has also been added to the Microlensing Planet table.

We've also demoted three planets, HD 114762 b, GJ 832 c, and HD 131664 b, to False Positive Planet status based on published refutations. Their dispositions have been updated on their System Overview pages, which will continue to serve their data.

September 16, 2022

Six New Planets, Including Two Nearby Super-Earths

This week's new planets include two temperate super-Earths that transit LP 890-9, a very cool star that is 100 light-years from Earth. Read the Delrez et al. 2022 discovery paper (`https://bit.ly/3fRkknI`) and the University of Liège media release (`https://bit.ly/3EtUrES`).

This week's new planets are GJ 0896 A b, GJ 3090 b, HD 56414 b, LP 890-9 b & c (a.k.a. TOI-4306 b & c), and TOI-2048 b.

September 1, 2022

Seventeen Planets, Including a Possible Water World

Fifteen of this week's 17 new planets were discovered by NASA's TESS mission and include TOI-1452 b, a super-Earth orbiting a red-dwarf star roughly 100 light-years from Earth that may be covered by an ocean. Read

NASA's Discovery Alert (https://go.nasa.gov/3CDlGvt) and check out the TOI-1452 System Overview page (https://exoplanetarchive.ipac.caltech.edu/overview/TOI-1452).

The other new planets are TOI-712 b, c, & d, TOI-3757 b, KMT-2021-BLG-0171L b, KMT-2021-BLG-1689L b, TOI-2193 A b, TOI-2207 b, TOI-2236 b, TOI-2421 b, TOI-2567 b, TOI-2570 b, TOI-3331 A b, TOI-3540 A b, TOI-3693 b, and TOI-4137 b.

In addition, four planets were demoted to False Positive Planet (FPP) status based on published refutations: Kepler-840 b, Kepler-854 b, Kepler-699 b, and GJ 9066 b. All of their data are still located on their respective System Overview pages with their FPP disposition noted. They have also been added to our Excluded Targets page (http://bit.ly/2ToWIXN).

A New Way to Look Up Exoplanet System Names

In response to user requests, we've rolled out a new System Aliases lookup service. This query-based tool returns lists of all known aliases for an exoplanet or host that is currently in the Exoplanet Archive.

The service can be accessed programmatically, or by simply entering a query string in a web browser's address bar. The output is a JSON-structured text file. To get started, read the System Aliases help documentation (https://exoplanetarchive.ipac.caltech.edu/docs/sysaliases.html).

Pro Tip: You can also access a list of a planet or host's aliases from its System Overview page. Click on the card icon next to the Stellar Parameters or Planetary Parameters headings.

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 September 2022.

August 2022

astro-ph/2209.00112: **KMT-2017-BLG-0673Lb and KMT-2019-BLG-0414Lb: Two microlensing planets detected in peripheral fields of KMTNet survey** by *Cheongho Han et al.*

astro-ph/2209.00120: **New Dynamical State and Habitability of the HD 45364 Planetary System** by *Zhexing Li et al.*

astro-ph/2209.00597: **Hot Exoplanet Atmospheres Resolved with Transit Spectroscopy (HEARTS) VII. Detection of sodium on the long-transiting inflated sub-Saturn KELT-11 b** by *Dany Mounzer et al.*

astro-ph/2209.00620: **The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems II: A 1 to 20 Micron Spectrum of the Planetary-Mass Companion VHS 1256-1257 b** by *Brittany E. Miles et al.*

astro-ph/2209.00637: **ACCESS: Tentative detection of H2O in the ground-based optical transmission spectrum of the low-density hot Saturn HATS-5b** by *Natalie H. Allen et al.*

astro-ph/2209.00706: **Rethinking the role of the giant planet instability in terrestrial planet formation models** by *Matthew S. Clement, Rogerio Deienno, Andre Izidoro*

astro-ph/2209.00747: **Estimation of space weathering timescale on (25143) Itokawa: Implications on its rejuvenation process** by *Sunho Jin, Masateru Ishiguro*

astro-ph/2209.00856: **Characterization of the MASCOT landing area by Hayabusa2** by *Stefan Schröder et al.*

astro-ph/2209.01125: **RVSPY – Radial Velocity Survey for Planets around Young Stars. Target characterization and high-cadence survey** by *O. Zakhozhay et al.*

astro-ph/2209.01220: **TESS search for substellar companions through pulsation timing of δ Scuti stars. I. Discovery of companions around Chang 134 and V393 Car** by *V. Vaulato, V. Nascimbeni, G. Piotto*

astro-ph/2209.01240: **Constraining the Origin of Giant Exoplanets via Elemental Abundance Measurements** by *Henrik Knierim, Sho Shibata, Ravit Helled*

astro-ph/2209.01296: **Automatic model-based telluric correction for the ESPRESSO data reduction software. Model description and application to radial velocity computation** by *R. Allart et al.*

astro-ph/2209.01472: **Extremely Inclined Orbit of S-type Planet γ Cep Ab Induced by Eccentric Kozai-Lidov Mechanism** by *Xiumin Huang, Jianghui Ji*

astro-ph/2209.01854: **Detection of Paschen β absorption in the atmosphere of KELT-9 b: A new window into the atmospheres of ultra-hot Jupiters** by *A. Sánchez-López et al.*

astro-ph/2209.02090: **Revisiting the Iconic Spitzer Phase Curve of 55 Cancri e: Hotter Dayside, Cooler Nightside and Smaller Phase Offset** by *Samson J. Mercier et al.*

astro-ph/2209.02265: **The resonance perturbations of the (39991) Iochroma family** by *Alexey Rosaev*

astro-ph/2209.02294: **Smaller Sensitivity of Precipitation to Surface Temperature under Massive Atmospheres** by *Junyan Xiong et al.*

astro-ph/2209.02437: **A search for transiting planets around hot subdwarfs II. Supplementary methods and results from TESS Cycle 1** by *Antoine Thuillier et al.*

astro-ph/2209.02483: **Impact of stellar flares on the chemical composition and transmission spectra of gaseous exoplanets orbiting M dwarfs** by *Thomas Konings, Robin Baeyens, Leen Decin*

astro-ph/2209.02754: **A Comparative L-dwarf Sample Exploring the Interplay Between Atmospheric Assumptions and Data Properties** by *Eileen C. Gonzales et al.*

astro-ph/2209.02831: **Two temperate super-Earths transiting a nearby late-type M dwarf** by *L. Delrez et al.*

astro-ph/2209.02860: **Life on Exoplanets In the Habitable Zone of M-Dwarfs?** by *Anna C. Childs, Rebecca G. Martin, Mario Livio*

astro-ph/2209.02875: **High-Resolution spectral models of TRAPPIST-1e seen as a Pale Blue Dot for ELT and JWST observations** by *Zifan Lin, Lisa Kaltenegger*

astro-ph/2209.02897: **Turbulence in outer protoplanetary disks: MRI or VSI?** by *Can Cui, Xue-Ning Bai*
astro-ph/2209.03105: **Hot Earth or Young Venus? A nearby transiting rocky planet mystery** by *L. Kaltenegger et al.*
astro-ph/2209.03365: **Making BEASTies: dynamical formation of planetary systems around massive stars** by *Richard J. Parker (1), Emma C. Daffern-Powell (1) (1. University of Sheffield, UK)*
astro-ph/2209.03367: **Discovery of Line Pressure Broadening and Direct Constraint on Gas Surface Density in a Protoplanetary Disk** by *Tomohiro C. Yoshida et al.*
astro-ph/2209.03502: **Non-detection of He I in the atmosphere of GJ1214b with Keck/NIRSPEC, at a time of minimal telluric contamination** by *Jessica J. Spake et al.*
astro-ph/2209.03669: **The Study of Atmosphere of Hot Jupiters and Their Host Stars** by *M. C. Maimone, A. Chiavassa, J. Leconte*
astro-ph/2209.03677: **Constraining planetary mass-loss rates by simulating Parker wind profiles with Cloudy** by *Dion Linssen, Antonija Oklopčić, Morgan MacLeod*
astro-ph/2209.03871: **Density, not radius, separates rocky and water-rich small planets orbiting M dwarf stars** by *R. Luque, E. Pallé*
astro-ph/2209.03886: **Mass Production of 2021 KMTNet Microlensing Planets III: Analysis of Three Giant Planets** by *In-Gu Shin et al.*
astro-ph/2209.03889: **Dynamics of young stellar clusters as planet forming environments** by *Megan Reiter, Richrd J. Parker*
astro-ph/2209.03890: **CHEOPS finds KELT-1b darker than expected in visible light: Discrepancy between the CHEOPS and TESS eclipse depths** by *H. Parviainen et al.*
astro-ph/2209.04005: **The Exoplanet Modeling and Analysis Center at NASA Goddard** by *Joe P. Renaud et al.*
astro-ph/2209.04047: **The Demographics of Kepler's Earths and super-Earths into the Habitable Zone** by *Galen J. Bergsten et al.*
astro-ph/2209.04065: **Testing the third body hypothesis in the Cataclysmic Variables LU Camelopardalis, QZSerpentis, V1007 Herculis and BK Lyncis** by *Carlos E. Chavez et al.*
astro-ph/2209.04080: **Revisiting the Transit Timing Variations in the TrES-3 and Qatar-1 systems with TESS data** by *Vineet Kumar Mannaday et al.*
astro-ph/2209.04255: **Sulfuric acid as a cryofluid and oxygen isotope reservoir of planetesimals** by *Akihiko Hashimoto, Yuki Nakano*
astro-ph/2209.04324: **A photochemical model of Triton's atmosphere with an uncertainty propagation study** by *B. Benne et al.*
astro-ph/2209.04408: **Multifractal charactarization as a function of timescale in the light curves with planetary signal observed by the kepler mission** by *F. J. S. Lima Filho et al.*
astro-ph/2209.04542: **The orbital architecture and stability of the μ Arae planetary system** by *Krzysztof Goździewski*
astro-ph/2209.04583: **Exoatmospheric detection of a meter-sized Earth impactor** by *David L. Clark et al.*
astro-ph/2209.05138: **Effects of Planetesimal Scattering: Explaining the Observed Offsets from Period Ratios 3:2 and 2:1** by *Tuhin Ghosh, Sourav Chatterjee*
astro-ph/2209.05205: **The KOBE experiment: K-dwarfs Orbited By habitable Exoplanets. Project goals, target selection and stellar characterization** by *J. Lillo-Box et al.*
astro-ph/2209.05303: **The phase curve and the geometric albedo of WASP-43b measured with CHEOPS, TESS and HST WFC3/UVIS** by *G. Scandariato et al.*
astro-ph/2209.05381: **53Mn-53Cr chronology and ϵ54Cr-$\triangle$17O genealogy of Erg Chech 002: the oldest andesite in the Solar System** by *Aryavart Anand, Pascal M. Kruttasch, Klaus Mezger*
astro-ph/2209.05417: **Effects of Radiative Diffusion on the Dynamical Corotation Torque in Three-Dimensional Protoplanetary Disks** by *Han-Gyeol Yun et al.*
astro-ph/2209.05516: **Joint Constraints on Exoplanetary Orbits from Gaia DR3 and Doppler Data** by *Joshua N. Winn*

astro-ph/2209.05535: **ALMA Detection of Dust Trapping around Lagrangian Points in the LkCa 15 Disk** by *Feng Long et al.*

astro-ph/2209.05765: **Color Dependence of the Transit Detectability for Young Active M-dwarfs** by *Kohei Miyakawa et al.*

astro-ph/2209.05814: **The CARMENES search for exoplanets around M dwarfs: Stable radial-velocity variations at the rotation period of AD Leonis – A test case study of current limitations to treating stellar activity** by *D. Kossakowski et al.*

astro-ph/2209.05845: **Gaia-TESS synergy: Improving the identification of transit candidates** by *Aviad Panahi et al.*

astro-ph/2209.05860: **The influence of host star activity evolution on the population of super-Earths and mini-Neptunes** by *Laura Ketzer, Katja Poppenhaeger*

astro-ph/2209.05907: **Amorphous ice in comets: evidence and consequences** by *Dina Prialnik, David Jewitt*

astro-ph/2209.05910: **The Climate and Compositional Variation of the Highly Eccentric Planet HD 80606 b – the rise and fall of carbon monoxide and elemental sulfur** by *Shang-Min Tsai et al.*

astro-ph/2209.06199: **Convective outgassing efficiency in planetary magma oceans: insights from computational fluid dynamics** by *Arnaud Salvador, Henri Samuel*

astro-ph/2209.06680: **Geometric albedos at short optical wavelengths for the hot Jupiters WASP-43b, WASP-103b, and TrES-3b** by *Matthias Mallonn, Enrique Herrero, Carolina von Essen*

astro-ph/2209.06781: **A millimeter-multiwavelength continuum study of VLA 1623 West** by *Arnaud Michel et al.*

astro-ph/2209.06784: **Nonlinear evolution of streaming instabilities in accreting protoplanetary disks** by *Chun-Yen Hsu (ASIAA), Min-Kai Lin (ASIAA, NCTS Physics Division)*

astro-ph/2209.06810: **Global dynamics and architecture of the Kepler-444 system** by *M. Stalport et al.*

astro-ph/2209.06937: **A CHEOPS-enhanced view of the HD3167 system** by *V. Bourrier et al.*

astro-ph/2209.06958: **TESS-Keck Survey XIV: 2 giant exoplanets from the Distant Giants Survey** by *Judah E. Van Zandt et al.*

astro-ph/2209.07197: **Different degrees of nitrogen and carbon depletion in the warm molecular layers of protoplanetary disks** by *Kenji Furuya, Seokho Lee, Hideko Nomura*

astro-ph/2209.07377: **Meteorite petrology versus genetics: Toward a unified binominal classification** by *Emmanuel Jacquet*

astro-ph/2209.07464: **The Impending Opacity Challenge in Exoplanet Atmospheric Characterization** by *Prajwal Niraula et al.*

astro-ph/2209.07566: **Variability due to climate and chemistry in observations of oxygenated Earth-analogue exoplanets** by *Gregory Cooke et al.*

astro-ph/2209.07931: **The impact of dynamic pressure bumps on the observational properties of protoplanetary disks** by *Jochen Stadler et al.*

astro-ph/2209.08182: **The Interstellar Interlopers** by *David Jewitt, Darryl Z. Seligman*

astro-ph/2209.08216: **The kinematics and excitation of infrared water vapor emission from planet-forming disks: results from spectrally-resolved surveys and guidelines for JWST spectra** by *Andrea Banzatti et al.*

astro-ph/2209.09266: **An Exploration of Systematic Errors in Transiting Planets and Their Host Stars** by *Alison Duck et al.*

astro-ph/2209.09286: **Disentangling protoplanetary disk gas mass and carbon depletion through combined atomic and molecular tracers** by *J.A. Sturm et al.*

astro-ph/2209.09426: **A Trio of Giant Planets Orbiting Evolved Star HD 184010** by *Huan-Yu Teng et al.*

astro-ph/2209.09597: **TESS discovery of a super-Earth and two sub-Neptunes orbiting the bright, nearby, Sun-like star HD 22946** by *Luca Cacciapuoti et al.*

astro-ph/2209.09673: **ExoClock Project III: 450 new exoplanet ephemerides from ground and space observations** by *A. Kokori et al.*

astro-ph/2209.09830: **Single Fluid vs. Multifluid: Comparison between single fluid and multifluid dust models for disc planet interactions** by *Kevin Chan, Sijme-Jan Paardekooper*

astro-ph/2209.10480: **The Sparse Atmospheric MOdel Sampling Analysis (SAMOSA) intercomparison: Motivations and protocol version 1.0. A CUISINES model intercomparison project** by *Jacob Haqq-Misra et al.*

astro-ph/2209.10582: **Photometry and transit modelling of exoplanet WASP-140b** by *Allen North, Timothy Banks*

astro-ph/2209.10597: **Planet-star interactions with precise transit timing. III. Entering the regime of dynamical tides** by *G. Maciejewski et al.*

astro-ph/2209.10618: **Atmospheric characterization of the ultra-hot Jupiter WASP-33b: Detection of Ti and V emission lines and retrieval of a broadened line profile** by *D. Cont et al.*

astro-ph/2209.10752: **Evidence of Long-Term Period Variations in the Exoplanet Transit Database (ETD)** by *Simone R. Hagey, Billy Edwards, Aaron C. Boley*

astro-ph/2209.11160: **TOI-5205b: A Jupiter transiting an M dwarf near the Convective Boundary** by *Shubham Kanodia et al.*

astro-ph/2209.11203: **FRECKLL: Full and Reduced Exoplanet Chemical Kinetics distiLLed** by *Ahmed Faris Al-Refaie et al.*

astro-ph/2209.11205: **Turbulence in particle laden midplane layers of planet forming disks** by *Debanjan Sengupta, Orkan M. Umurhan*

astro-ph/2209.11219: **Hot exozodis: cometary supply without trapping is unlikely to be the mechanism** by *Tim D. Pearce et al.*

astro-ph/2209.11375: **Tidally-induced migration of TESS gas giants orbiting M dwarfs** by *Jaime A. Alvarado-Montes*

astro-ph/2209.11506: **Detecting H2O with CRIRES+: the case of WASP-20b** by *M. C. Maimone et al.*

astro-ph/2209.11561: **Three-dimensional Lagrangian Coherent Structures in the Elliptic-Restricted Three-body Problem** by *Jack Tyler, Alexander Wittig*

astro-ph/2209.11574: **Magnetic interactions in orbital dynamics** by *Benjamin C. Bromley, Scott J. Kenyon*

astro-ph/2209.11735: **The GAPS Programme at TNG. XLI. The climate of KELT-9b revealed with a new approach to high spectral resolution phase curves** by *L. Pino et al.*

astro-ph/2209.11775: **Millimeter Dust Emission and Planetary Dynamics in the HD 106906 System** by *Anna Fehr et al.*

astro-ph/2209.11778: **Formation History of HD106906 and the Vertical Warping of Debris Disks by an External Inclined Companion** by *Nathaniel W. H. Moore et al.*

astro-ph/2209.11813: **Regularized Maximum Likelihood Techniques for ALMA Observations** by *Brianna Zawadzki et al.*

astro-ph/2209.12205: **The Impact of Phase Equilibrium Cloud Models on GCM Simulations of GJ 1214b** by *D. A. Christie et al.*

astro-ph/2209.12233: **Mixing and diffusion in protoplanetary disc chemistry** by *P. Woitke et al.*

astro-ph/2209.12297: **Tau Herculids 2022: Rate, number density, population index and geometrical effects from visual data** by *Jurgen Rendtel, Rainer Arlt*

astro-ph/2209.12501: **MASADA: From Microlensing Planet Mass-Ratio Function to Planet Mass Function** by *Andrew Gould (MPIA, OSU)*

astro-ph/2209.12502: **Lightning-induced chemistry on tidally-locked Earth-like exoplanets** by *Marrick Braam et al.*

astro-ph/2209.12741: **Kinematical Constraint on Eccentricity in the Protoplanetary Disk MWC 758 with ALMA** by *I-Hsuan Genevieve Kuo et al.*

astro-ph/2209.12910: **High resolution ALMA and HST imaging of κCrB: a broad debris disc around a post-main sequence star with low-mass companions** by *J. B. Lovell et al.*

astro-ph/2209.12914: **A New Method for Finding Nearby White Dwarf Exoplanets and Detecting Biosigna-**

tures by *Mary Anne Limbach et al.*

astro-ph/2209.12916: **The TEMPO Survey I: Predicting Yields of the Transiting Exosatellites, Moons, and Planets from a 30-day Survey of Orion with the Nancy Grace Roman Space Telescope** by *Mary Anne Limbach et al.*

astro-ph/2209.12919: **Is LTT 1445 Ab a Hycean World or a cold Haber World? Exploring the Potential of Twinkle to Unveil Its Nature** by *Caprice Phillips et al.*

astro-ph/2209.12957: **Precise Dynamical Masses of New Directly Imaged Companions from Combining Relative Astrometry, Radial Velocities, and Hipparcos-Gaia eDR3 Accelerations** by *E. L. Rickman et al.*

astro-ph/2209.13333: **Shape model and rotation acceleration of (1685) Toro and (85989) 1999 JD6 from optical observations** by *Jun Tian, Haibin Zhao, Bin Li*

astro-ph/2209.13336: **Machine learning-accelerated chemistry modeling of protoplanetary disks** by *Grigorii V. Smirnov-Pinchukov et al.*

astro-ph/2209.13345: **HD 23472: A multi-planetary system with three super-Earths and two potential super-Mercuries** by *S. C. C. Barros O. D. S. Demangeon, Y. Alibert, A. Leleu, V. Adibekyan, C. Lovis, D. Bossini, S. G. Sousa, N. Hara, the ESPRESSO team*

astro-ph/2209.13601: **Evaporation before disruption: comparing timescales for Jovian planets in star-forming regions** by *Emma C. Daffern-Powell (1), Richard J. Parker (1) (1. University of Sheffield, UK)*

astro-ph/2209.13651: **Validation of TOI-1221 b, a warm sub-Neptune exhibiting TTVs around a Sun-like star** by *Christopher R. Mann et al.*

astro-ph/2209.13992: **Analytical determination of orbital elements using Fourier analysis. II. Gaia astrometry and its combination with radial velocities** by *J.-B. Delisle, D. Ségransan*

astro-ph/2209.14037: **Reduced late bombardment on rocky exoplanets around M-dwarfs** by *Tim Lichtenberg, Matthew S. Clement*

astro-ph/2209.14301: **Beating stellar systematic error floors using transit-based densities** by *Jason D. Eastman, Hannah Diamond-Lowe, Jamie Tayar*

astro-ph/2209.14396: **TESS spots a mini-neptune interior to a hot saturn in the TOI-2000 system** by *Lizhou Sha et al.*

astro-ph/2209.14466: **Polar alignment of a massive retrograde circumbinary disc around an eccentric binary** by *Charles P. Abod et al.*

astro-ph/2209.14563: **Predicted diversity in water content of terrestrial exoplanets orbiting M dwarfs** by *Tadahiro Kimura, Masahiro Ikoma*

astro-ph/2209.14691: **Modification of the radioactive heat budget of Earth-like exoplanets by the loss of primordial atmospheres** by *N. Erkaev et al.*

astro-ph/2209.14830: **An old warm Jupiter orbiting the metal-poor G-dwarf TOI-5542** by *Nolan Grieves et al.*

astro-ph/2209.15058: **Effects of Rotation on the Spectra of Brown Dwarfs** by *Mikhail Lipatov, Timothy D. Brandt, Natasha E. Batalha*

astro-ph/2209.15403: **Atmospheric retrievals for LIFE and other future space missions: the importance of mitigating systematic effects** by *Eleonora Alei et al.*

astro-ph/2209.15484: **Retrieving C and O Abundance of HR 8799 c by Combining High- and Low-Resolution Data** by *Ji Wang et al.*

astro-ph/2209.15499: **Dust grain shattering in protoplanetary discs: collisional fragmentation or rotational disruption?** by *Stéphane Michoulier, Jean-François Gonzalez*

astro-ph/2209.15548: **The Roasting Marshmallows Program with IGRINS on Gemini South I: Composition and Climate of the Ultra Hot Jupiter WASP-18 b** by *Matteo Brogi et al.*

astro-ph/2209.00009: **The final design of the iLocater spectrograph: An optimized architecture for diffraction-limited EPRV instruments** by *Jonathan Crass et al.*

astro-ph/2209.00432: **Snapshot of a magnetohydrodynamic disk wind traced by water maser observations** by *Luca Moscadelli et al.*

astro-ph/2209.00553: **A gap at 1 au in the disk of DI Cha A revealed by infrared interferometry** by *Tímea*

Juhász et al.

astro-ph/2209.00635: **TEMPus VoLA: the Timed Epstein Multi-pressure Vessel at Low Accelerations** by *Holly L. Capelo et al.*

astro-ph/2209.00759: **Discovery of a brown dwarf with quasi-spherical mass-loss** by *Dary A. Ruíz-Rodríguez et al.*

astro-ph/2209.01142: **CoRoT-TESS eclipsing binaries with light-travel-time effect** by *T. Hajdu et al.*

astro-ph/2209.02092: **Upgrading the high contrast imaging facility SPHERE: science drivers and instrument choices** by *A. Boccaletti et al.*

astro-ph/2209.03128: **The EBLM project – IX. Five fully convective M-dwarfs, precisely measured with CHEOPS and TESS light curves** by *D. Sebastian et al.*

astro-ph/2209.03279: **Detectability of Rotational Modulation in Kepler Sun-like Stars as a Function of Age** by *Kento Masuda*

astro-ph/2209.03337: **Twinkle – a small satellite spectroscopy mission for the next phase of exoplanet science** by *Ian Stotesbury et al.*

astro-ph/2209.03379: **A Population of Dipper Stars from the Transiting Exoplanet Survey Satellite Mission** by *Benjamin K. Capistrant et al.*

astro-ph/2209.03955: **A direct N-body integrator for modelling the chaotic, tidal dynamics of multi-body extrasolar systems: TIDYMESS** by *Tjarda C. N. Boekholt, Alexandre C. M. Correia*

astro-ph/2209.04051: **Probing the Density Fine Structuring of the Solar Corona with Comet Lovejoy** by *Giuseppe Nisticò et al.*

astro-ph/2209.04210: **Combining Hipparcos and Gaia data for the study of binaries: the BINARYS tool** by *A. Leclerc et al.*

astro-ph/2209.04607: **Brown-dwarf companions in microlensing binaries detected during the 2016–2018 seasons** by *Cheongho Han et al.*

astro-ph/2209.06307: **Forced Eccentricity in Circumbinary Discs** by *Stephen H. Lubow*

astro-ph/2209.07535: **RAPOC : the Rosseland and Planck opacity converter. A user-friendly and fast opacity program for Python** by *Lorenzo V. Mugnai, Darius Modirrousta-Galian*

astro-ph/2209.08487: **Revisiting the stability criterion of hierarchical triple systems: dependence on the mutual inclination between inner and outer orbits** by *Toshinori Hayashi, Alessandro A. Trani, Yasushi Suto*

astro-ph/2209.08624: **Analysis of Gaia radial-velocity standards: stability and new substellar companion candidates** by *A. Boulkaboul et al.*

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