ExoPlanet News
An Electronic Newsletter

No. 179, 14 May 2024

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Contents

1 Editorial

Welcome to Edition 179 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 11 June 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

The impact of Ozone on Earth-like exoplanet climate dynamics: the case of Proxima Centauri b

P. De Luca[1], *M. Braam*[2,3,4], *T. D. Komacek* [5], *A. Hochman* [6]

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[2] School of GeoSciences, The University of Edinburgh, EH9 3FF, Edinburgh, UK
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Monthly Notices of the Royal Astronomical Society, accepted (https://doi.org/10.1093/mnras/stae1199)

The emergence of the James Webb Space Telescope and the development of other advanced observatories (e.g., ELTs, LIFE and HWO) marks a pivotal moment in the quest to characterize the atmospheres of Earth-like exoplanets. Motivated by these advancements, we conduct theoretical explorations of exoplanetary atmospheres, focusing on refining our understanding of planetary climate and habitability. Our study investigates the impact of ozone on the atmosphere of Proxima Centauri b in a synchronous orbit, utilizing coupled climate chemistry model simulations and dynamical systems theory. The latter quantifies compound dynamical metrics in phase space through the inverse of co-persistence (θ) and co-dimension (d), of which low values correspond to stable atmospheric states. Initially, we scrutinized the influence of ozone on temperature and wind speed. Including interactive ozone (i.e., coupled atmospheric (photo)chemistry) reduces the hemispheric difference in temperature from 68 K to 64 K, increases ($\sim$+7 K) atmospheric temperature at an altitude range of $\sim$20–50 km, and increases variability in the compound dynamics of temperature and wind speed. Moreover, with interactive ozone, wind speed during highly temporally stable states is weaker than for unstable ones, and ozone transport to the nightside gyres during unstable states is enhanced compared to stable ones ($\sim$+800 DU). We conclude that including interactive ozone significantly influences Earth-like exoplanets' chemistry and climate dynamics. This study establishes a novel pathway for comprehending the influence of photochemical species on the climate dynamics of potentially habitable Earth-like exoplanets. We envisage an extension of this framework to other exoplanets.

Download/Website: `https://doi.org/10.1093/mnras/stae1199`
Contact: `paolo.deluca@bsc.es`

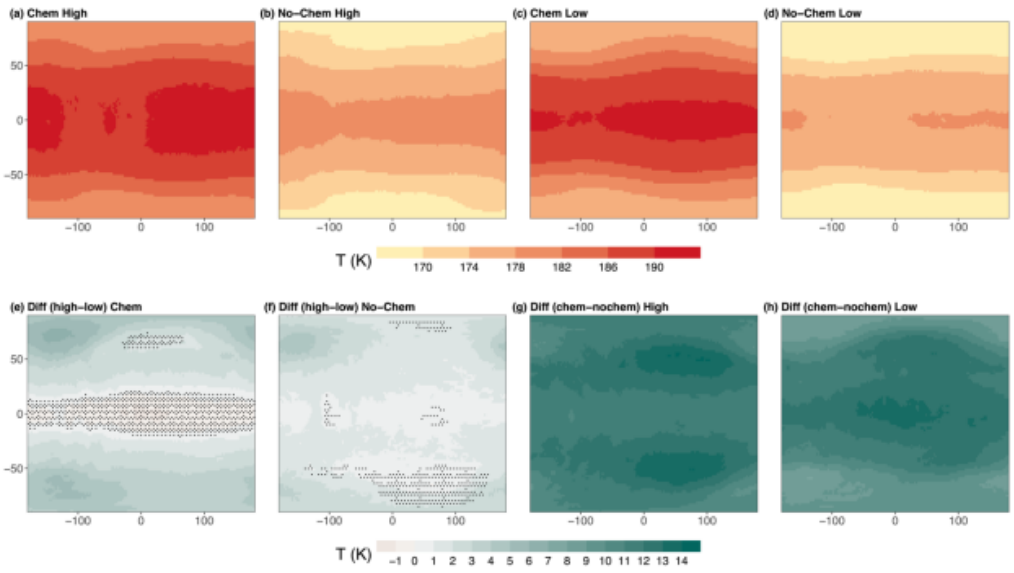

Figure 1: Composite and difference maps for Temperature (T) at the ∼22km level. (a-b) Composite maps are field medians computed from Chemistry and No-Chemistry joint co-persistence and co-dimension states (defined in Figure 4), which are >95th percentile – 'High', and (c-d) the same but for states <5th percentile – 'Low'. (e-f) Difference maps were computed by subtracting the 'Low' from the 'High' composites for Chemistry and No-Chemistry simulations. (g-h) Difference maps were calculated by subtracting the No-Chemistry to Chemistry composites for both 'High' and 'Low' states. In (e-h), stippling represents areas that are not significantly different at the 1% level.

Formation of super-Mercuries via giant impacts

Jingyao Dou[1], *Philip J. Carter*[1], *Zoë M. Leinhardt*[1]
[1] School of Physics, H.H. Wills Physics Laboratory, University of Bristol, Bristol BS8 1TL, UK

mnras, published (2024MNRAS.529.2577D)

During the final stage of planetary formation, different formation pathways of planetary embryos could significantly influence the observed variations in planetary densities. Of the approximately 5,000 exoplanets identified to date, a notable subset exhibit core fractions reminiscent of Mercury, potentially a consequence of high-velocity giant impacts. In order to better understand the influence of such collisions on planetary formation and compositional evolution, we conducted an extensive set of smoothed particle hydrodynamics giant impact simulations between two-layered rocky bodies. These simulations spanned a broad range of impact velocities from one to eleven times the mutual escape velocity. We derived novel scaling laws that estimate the mass and core mass fraction of the largest post-collision remnants. Our findings indicate that the extent of core vaporization markedly influences mantle stripping efficiency at low impact angles. We delineate the distinct roles played by two mechanisms – kinetic momentum transfer and vaporization-induced ejection – in mantle stripping. Our research suggests that collisional outcomes for multi-layered planets are more complex than those for undifferentiated planetesimal impacts. Thus, a single universal law may not encompass all collision processes. We found a significant decrease in the mantle stripping efficiency as the impact angle increases. To form a 5 $M_{\oplus}$ super-Mercury at 45°, an impact velocity over 200 km s^{-1} is required. This poses a challenge to the formation of super-Mercuries through a single giant impact, implying that their formation would either favor relatively low-angle single impacts or multiple collisions.

Download/Website: `https://doi.org/10.1093/mnras/stae644`
Contact: `jingyao.dou@bristol.ac.uk`

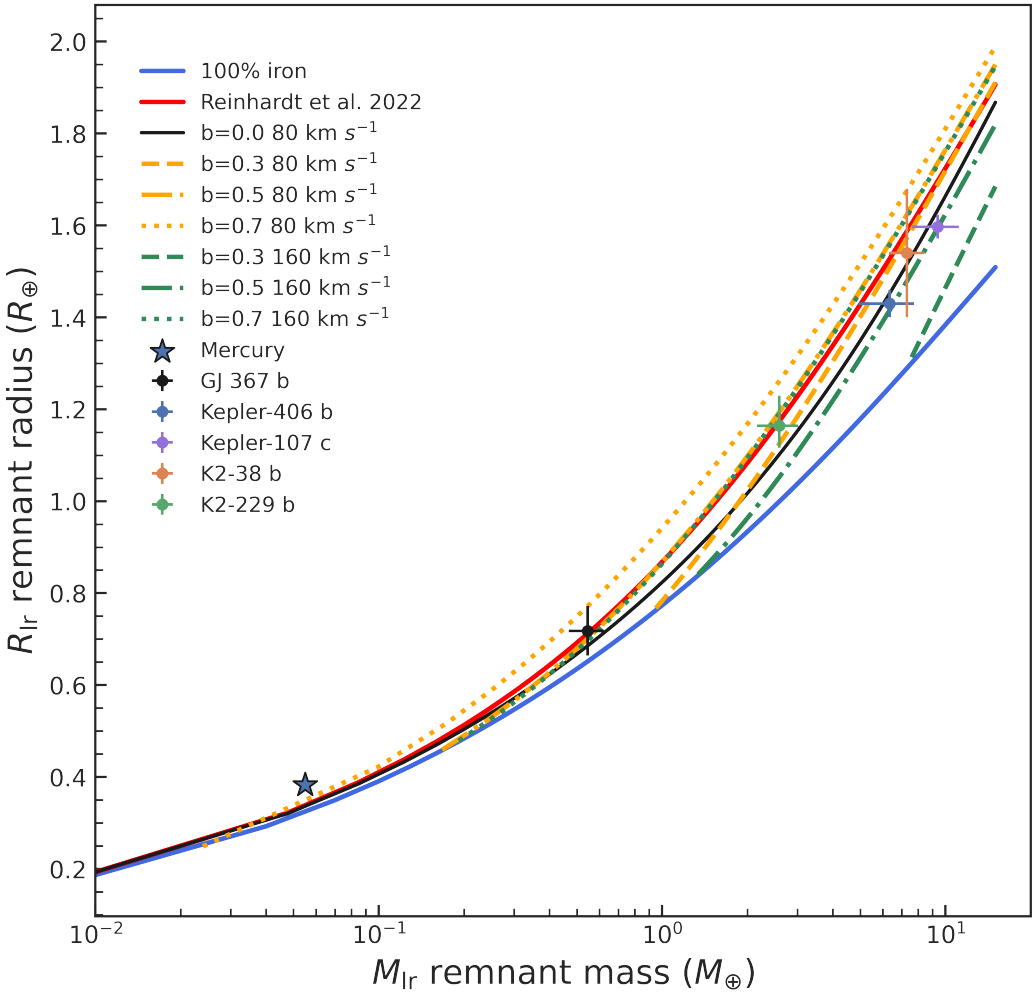

Figure 2: Mass-radius diagram for Mercury and super-Mercuries. The red solid line shows the Reinhardt et al. (2022) corrected maximum stripping line for head-on impacts at 80 km s^{-1} and the black solid line shows our new maximum stripping line. The dashed lines show the maximum stripping lines of oblique impacts. Blue solid line represent radii of plants made by 100% core. The data points show several possible super-Mercuries, GJ367 b, Kepler-406 b, Kepler-107 c, K2-38 b, and K2-229 b.

Initial Entropy and Potential Delayed Formation of the Directly Imaged Exoplanet AF Lep b

Z. Zhang[1,2]

[1] Department of Astronomy & Astrophysics, University of California, Santa Cruz, CA 95064, USA
[2] NASA Sagan Fellow

Research Notes of the AAS, published (2024RNAAS...8..114Z)

AF Lep b is a rare directly imaged exoplanet with properties consistent with core-accretion evolution models. Using its precise dynamical mass and spectroscopically inferred bolometric luminosity alongside the Spiegel & Burrows (2012) evolution models, I determined an initial entropy $> 8.7\ k_B$/baryon at 3σ and an age of 12 ± 4 Myr for AF Lep b. Comparing this planet's age to the isochrone age (24 ± 3 Myr) of its host association, the β Pictoris moving group (BPMG), suggests AF Lep b formed 12 ± 5 Myr later than its host star. Alternatively, the BPMG's updated kinematic age ($16.3^{+3.4}_{-2.1}$ Myr) implies that AF Lep b formed 5 ± 5 Myr after its host star's formation, aligning more closely with protoplanetary disk dispersal timescales. The sensitivities of our findings to the planet's mass and luminosity are discussed. AF Lep b uniquely facilitates the constraints of its initial entropy and formation epoch, paving the way for similar insights into forthcoming exoplanet discoveries.

Download/Website: `https://iopscience.iop.org/article/10.3847/2515-5172/ad4481`
Contact: `zhangdirac@gmail.com`

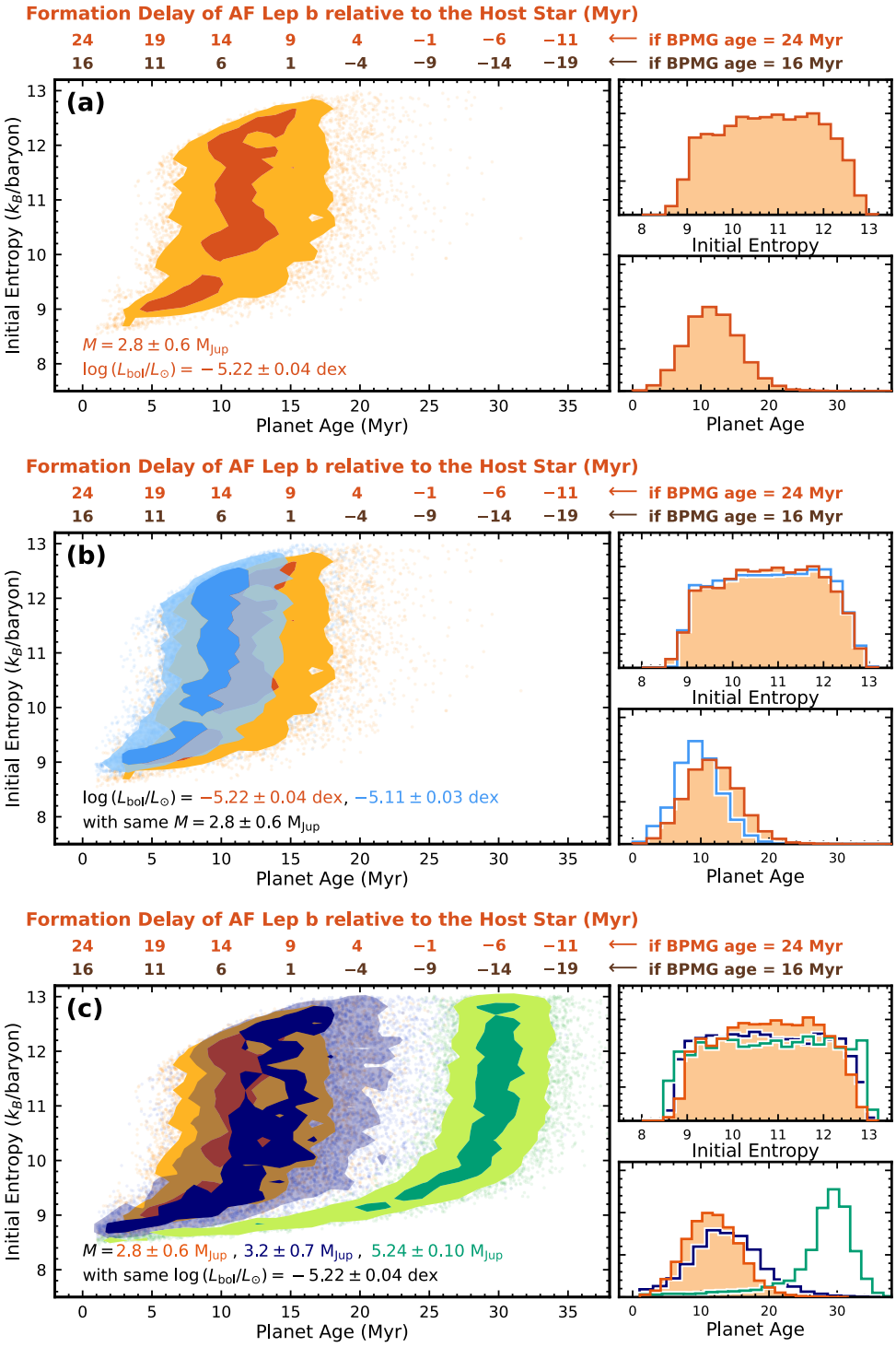

Figure 3: Panel (a): Inferred initial entropy and age of AF Lep b based on its dynamical mass and bolometric luminosity. The $1\sigma/2\sigma$ (dark/light) confidence intervals are shown in orange. The upper x-axis denotes the potential delayed formation timescale of AF Lep b, derived from two BPMG age estimates. Panels (b) and (c): Inferred properties of AF Lep b using a different luminosity (blue), or different masses (purple and green), following the format as Panel (a).

High-resolution Pan-STARRS and SMA observations of IRAS 23077+6707: A giant edge-on protoplanetary disk

K. Monsch[1], *J. B. Lovell*[1], *C. T. Berghea*[2], *G. Edenhofer*[1,3,4], *G. K. Keating*[1], *S. M. Andrews*[1], *A. Bayyari*[5], *J. J. Drake*[1,6], *D. J. Wilner*[1]

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The Astrophysical Journal, in press (arXiv: 2402.01941)

We present resolved images of IRAS 23077+6707 ("Dracula's Chivito") in 1.3 mm/225 GHz thermal dust and CO gas emission with the Submillimeter Array (SMA) and optical (0.5–$0.8\,\mu$m) scattered light with the Panoramic Survey Telescope and Rapid Response System (Pan-STARRS). The Pan-STARRS data show a bipolar distribution of optically scattering dust that is characteristic for disks observed at high inclinations. Its scattered light emission spans $\sim 14''$, with two highly asymmetric filaments extending along the upper bounds of each nebula by $\sim 9''$. The SMA data measure 1.3 mm continuum dust as well as ^{12}CO, ^{13}CO and C^{18}O J=2$-$1 line emission over $12''$–$14''$ extents, with the gas presenting the typical morphology of a disk in Keplerian rotation, in both position-velocity space and in each CO line spectrum. IRAS 23077+6707 has no reported distance estimate, but if it is located in the Cepheus star-forming region (180–800 pc), it would have a radius spanning thousands of au. Taken together, we infer IRAS 23077+6707 to be a giant and gas-rich edge-on protoplanetary disk, which to our knowledge is the largest in extent so far discovered.

Download/Website: `https://arxiv.org/abs/2402.01941`

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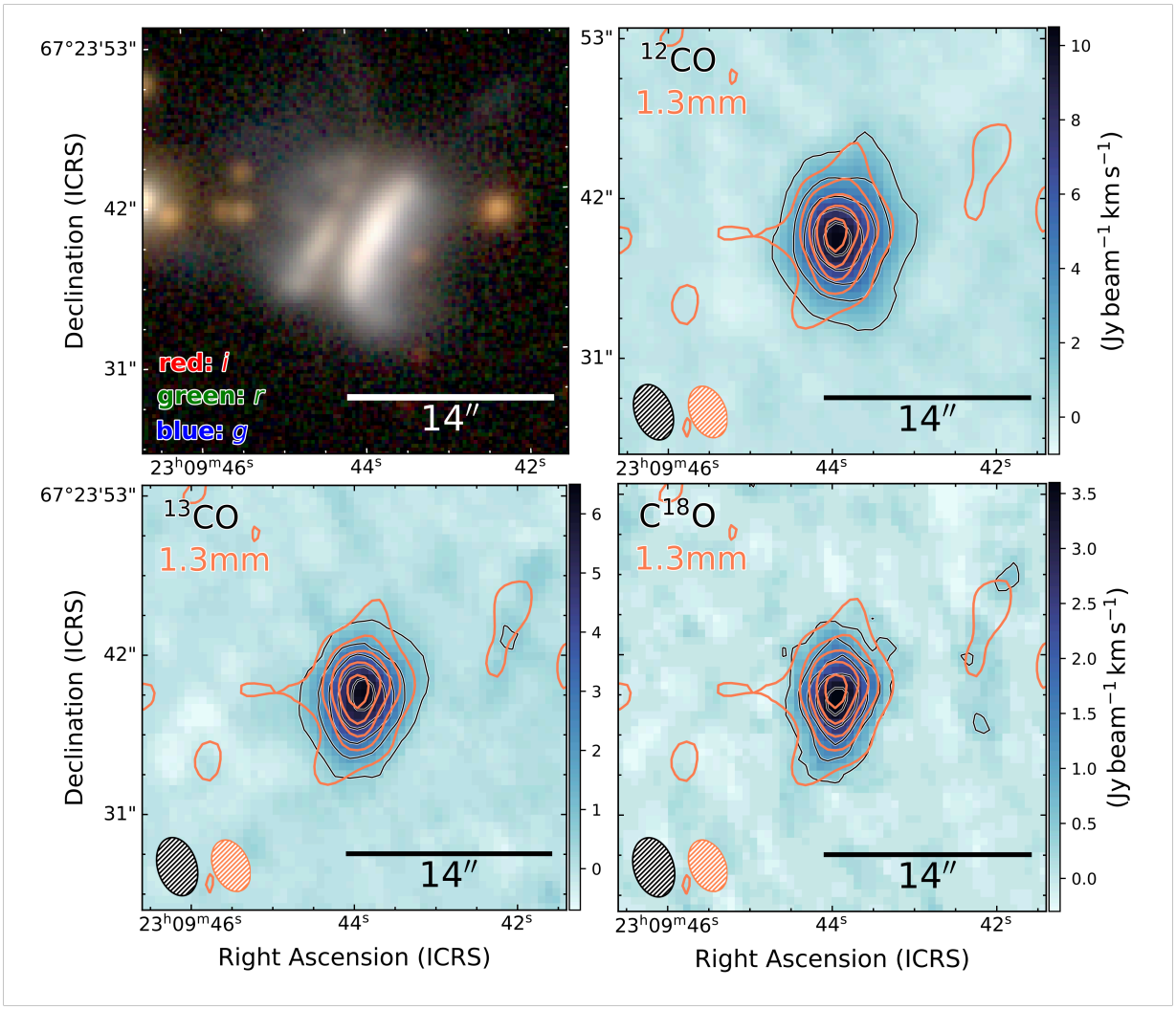

Figure 4: Comparison of optical scattered light and (sub-)mm emission of IRAS 23077+6707. *Top left*: PS1 irg-composite image, showing the optical scattered light emission (0.5–0.8 μm). *Top right*: SMA ^{12}CO integrated intensity (or 'moment 0') map, overlaid with its respective contours, as well as the 1.3 mm continuum contours, drawn at the 10 %, 30 %, 50 %, 70 % and 90 % levels of their corresponding maximum emission. *Bottom left*: Same for ^{13}CO. *Bottom right*: Same for C^{18}O. In the lower right of each panel, we show 14″ scale bars, and the effective CO (black) and continuum (orange) beams in the lower left of the SMA images.

Mid-infrared Spectrum of the Disk around the Forming Companion GQ Lup B Revealed by JWST/MIRI

G. Cugno[1], *P. Patapis*[2], *A. Banzatti*[3], *M. Meyer*[1] , *F. Dannert*[2,4], *T. Stolker*[5], *R. MacDonald*[1] *and K. Pontoppidan*[6]

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[2] Institute for Particle Physics and Astrophysics, ETH Zurich, Wolfgang-Pauli-Str. 27, 8093, Zurich, Switzerland
[3] Department of Physics, Texas State University, 749 North Comanche Street, San Marcos, TX 78666, USA
[4] National Center of Competence in Research Planets, Gesellschaftsstrasse 6, 3012 Bern, Switzerland
[5] Leiden Observatory, Leiden University, Niels Bohrweg 2, 2333 CA Leiden, The Netherlands
[6] Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA 91109, USA

ApJL, published (2024ApJ...966L..21C)

GQ Lup B is a forming brown dwarf companion ($M \sim 10 - 30\ M_J$) showing evidence for an infrared excess associated with a disk surrounding the companion itself. Here we present mid-infrared (MIR) observations of GQ Lup B with the Medium Resolution Spectrometer (MRS) on JWST, spanning $4.8 - 11.7$ μm. We remove the stellar contamination using reference differential imaging based on principal component analysis, demonstrating that the MRS can perform high-contrast science. Our observations provide a sensitive probe of the disk surrounding GQ Lup B. We find no sign of a silicate feature, similar to other disks surrounding very low-mass objects, which likely implies significant grain growth ($a_{\rm min} > 5$ μm) and potentially dust settling. Additionally, we find that if the emission is dominated by an inner wall, the disk around the companion might have an inner cavity larger than the one set by sublimation. Conversely, if our data probe the emission from a thin flat disk, we find the disk to be very compact. More observations are required to confirm this findings and assess the vertical structure of the disk. This approach paves the path to the future study of circumplanetary disks and their physical properties. Our results demonstrate that MIR spectroscopic observations can reveal the physical characteristics of disks around forming companions, providing unique insights into the formation of giant planets, brown dwarfs, and their satellites.

Download/Website: `https://ui.adsabs.harvard.edu/abs/2024ApJ...966L..21C/abstract`
Contact: `gcugno@umich.edu`

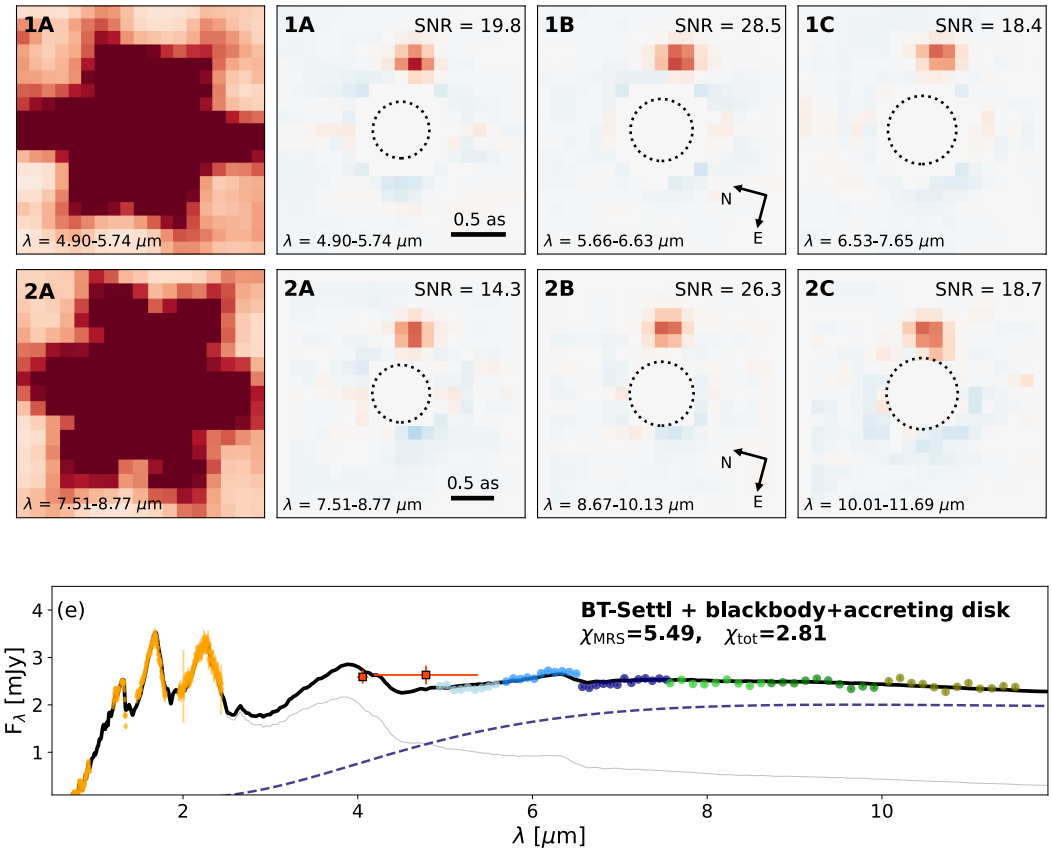


Figure 5: *Top:* Wavelength-combined images before (first column; only channels 1A and 2A shown) and after (second to fourth columns; chan nels between 1A and 2C) PSF subtraction. The band is reported on the top left corner of each panel. The corresponding wavelength range is shown on the bottom left corner of each panel, while the S/N of the detection is indicated on the top right corner. The color scale is the same in every image, and the spatial axes follow the MRS integral field unit internal coordinates. A scale is provided for channels 1 and 2 in the panels of the second column, while arrows pointing north and east in the sky coordinate are reported on panels in the third column. The central dashed circle represents the FWHM of the stellar PSF. With increasing wavelength, the size of the PSF increases and the companion separation falls to $\sim 1.5\,\lambda/D$. *Bottom:* One of the best fits for the different models considered in this work. Orange data points represent MUSE and SINFONI data, red squares show VLT/NaCo photometries, and circles beyond 5 μm show the spectrum extracted from the MRS data (1A–2C). The gray line shows the atmospheric contribution from GQ Lup B, the dashed blue line shows the contribution from the disk, and the thick black line shows the overall SED model.

3 Conferences and Workshops

EPSC 2024 - MITM8 Future and current instruments to detect and characterise extrasolar planets and their environment - Abstract submission open.

Camilla Danielski, Andrea Bocchieri, Elodie Choquet, Lorenzo Mugnai

Freie Universität Berlin, Berlin, Germany, 8 – 13 September 2024

Dear colleagues,

We would like to bring to your attention the following session that will take place during the Europlanet Science Congress 2024 (`EPSC2024,https://www.epsc2024.eu/home.html`), as part of the "Missions, Instrumentation,Techniques, Modelling (MITM)" and "Exoplanets, Origins of Planetary Systems and Astrobiology" programmes: "Future and current instruments to detect and characterise extrasolar planets and their environment, EPSC 2024, MITM8".

Exoplanets are being discovered in large numbers thanks to recent and ongoing surveys using state-of-the-art instrumentation from the ground and from space. In the next years, new astronomical instruments will scout ever more distant regions of our Galaxy and they will validate new technology for the ultimate direct characterisation of temperate exoplanets. Such a change of physical and technological horizon will allow us to overcome the current observational biases in the search of alien worlds, and to gain a deeper understanding of the chemical and physical properties of exoplanets and the environment that surround them. Ultimately, we will be able to unveil processes of formation and evolution of planets, together with those of their atmospheres, on a scale much larger than our Solar Neighbourhood.

The goal of this session is to bring together the instrumentation and observational communities that are underpinning the future of this field. Contributions are invited to review ongoing programmes of both exoplanet and circumstellar discs discovery and characterisation, to update on the progress of planned instrumentation programmes, and to present innovative ideas for future instrumentation.

The abstract submission deadline is 15 May 2024, 13:00 CEST

Download/Website: `https://meetingorganizer.copernicus.org/EPSC2024/session/51215`

PhD summer school: Dust to DNA, 19 – 23 August 2024

Michiel Lambrechts, et al.

Globe Institute, the University of Copenhagen, 19 – 23 August 2024

Registration deadline, 31 May 2024, is approaching for the one-week course, aimed at the PhD level, that covers the journey from interstellar dust to habitable planets and the conditions for life.

The course consists of interdisciplinary lectures and hands-on sessions using perspectives from astronomy, cosmochemistry, geology, and astrobiology, within the framework of exoplanet systems and the potential for life to emerge.

Confirmed lecturers: Martin Bizzarro (Globe – University of Copenhagen) / Eloi Camprubi (University of Texas Rio Grande Valley)/ James Connelly (Globe – University of Copenhagen)/ Hannah Diamond-Lowe (DTU Space – Technical University of Denmark) / Caroline Dorn (ETH Zürich) / Tue Hassenkam (Globe – University of Copenhagen) / Anders Johansen (Globe – University of Copenhagen)/ Elishevah van Kooten (Globe – University of Copenhagen)/ Michael Küffmeier (Niels Bohr Institute – University of Copenhagen) / Michiel Lambrechts (Globe – University of Copenhagen) / Martin Schiller (Globe – University of Copenhagen) / Haiyang Wang (Globe – University of Copenhagen).

We welcome all PhD students in the fields of astronomy, cosmochemistry, geology, astrobiology and other fields related to planetary sciences. Postdocs are also welcome to apply.

To register:
Step 1: please email michiel.lambrechts@sund.ku.dk with your name and host institute
Step 2: if you are a PhD student: register on the webpage of the PhD school.

More practical information, including on how to sign up, can be found at `www.dust2dna.dk`.

The registration deadline: 31 May 2024.

Download/Website: `http://www.dust2dna.dk`

EANA 2024

Ruth-Sophie Taubner and the EANA LOC
[1] Space Research Institute, Austrian Academy of Sciences, Graz, Austria

TU Graz - Campus Alte Technik, Rechbauerstraße 12, 8010 Graz, September 3 – 6, 2024

EANA 2024 will take place in Graz, Austria, from **September 3rd to 6th** at the "Alte Technik" (Graz University of Technology). **We are happy to announce that registration and abstract submission for EANA 2024 is now open (deadline: June 12th).**

The conference welcomes abstracts from all topics of astrobiology, and will set a special focus on *From the Solar System to Exoplanets*. The meeting aims to foster the collaborations between the Solar System and Exoplanet communities, to bring together researchers from diverse fields, and to offer a platform to discuss future joint interdisciplinary projects.

The conference includes invited keynote as well as contributed talks, the well-known Space Factor contest, and poster sessions. A reception at the Graz townhall will take place on September 2nd 2024, the conference dinner on September 4th, and guided tours are possible on September 6th and 7th 2024.

Early career researcher will have the opportunity to apply for an EANA travel grant. Further, AbGradE will host a workshop on September 2nd at the IWF.

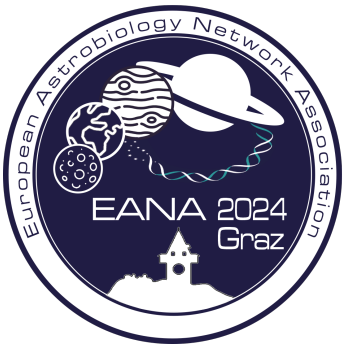
For the first time, EANA 2024 will host the ESA Brainstorming on Astrobiology Splinter Session. Further information about this splinter session and how to participate will be announced soon.

For attendees of EANA 2024, reduced train tickets can be purchased. A selection of hotel rooms of different categories can be booked via our partner's website.

Important deadlines:

- Abstract submission and travel grant application deadline: June 12th 2024, 1pm (CEST)
- Final program incl. information about oral or poster presentation: mid July 2024
- Deadline for presenter registration: August 9th, 2024
- Registration deadline: August 23rd, 2024

Looking forward to welcoming the EANA family in Graz!



Download/Website: `http://www.eana-net.eu/index.php?page=conferences/EANA2024/index`

Contact: `eana-conference@eana-net.eu`

4 Exoplanet Archives

April 2024 Updates at the NASA Exoplanet Archive

The NASA Exoplanet Archive team
Caltech/IPAC-NASA Exoplanet Science Institute, MC 100-22 Pasadena CA 91125

Pasadena CA USA, May 14, 2024

Note: Unless otherwise noted, all planetary and stellar data mentioned in the news are in the Planetary Systems Table, which provides a single location for all self-consistent planetary solutions, and its companion table the Planetary Systems Composite Parameters, which offers a more complete table of parameters combined from multiple references and calculations.

April 25, 2024

(They Might Be) Four Giant Planets!

This week's new data are parameters for three microlensing planets and one directly imaged planet, all of them potentially giant planets.

The new planets are HIP 39017 b, KMT-2023-BLG-0416L b, KMT-2023-BLG-1454L b, and KMT-2023-BLG-1642L b. New parameter data sets have also been added for HD 106315 c, Kepler-1660 AB b, HD 76920 b, and LHS 475 b.

We also have new transmission spectra for HD 106315 c and HD 3167 c in the Atmospheric Spectroscopy Table.

April 18, 2024

Nine Planets, Including Seven Potential Super-Earths

We've added nine planets this week, including seven TESS validations that could be super-Earths. Data for TOI-771 b, TOI-871 b, TOI-1467 b, TOI-1739 b, TOI-2068 b, TOI-4559 b, TOI-5799 b, NGTS-30 b, and KOI-2513 b may be accessed from their System Overview pages and the Planetary Systems and Planetary Systems Composite tables. There are also new spectra for HATS-2 b in the Atmospheric Spectroscopy Table.

We've also updated the status of KOI-129 b, KOI-219 b, KOI-631 b, KOI-855 b, KOI-1288 b, and KIC 5951458 b to False Positive Planet based on updated masses that are greater than 30 Jupiter masses, which exceeds the archive's stated threshold in our Exoplanet Criteria. Their new dispositions are reflected on their respective System Overview pages, which will continue to serve their data.

April 12, 2024

Seven New Planets, Including a Pulsar Companion

This week's seven new planets include M62H b, a pulsar companion in the Messier 62 globular cluster found by the South African MeerKAT radio telescope.

The other planets are HD 104067 c, Luhman 16 b, KMT-2021-BLG-1150L b, OGLE-2017-BLG-0640L b, OGLE-2017-BLG-1275L b, and OGLE-2017-BLG-1237L b. There are also new parameter sets for gam Cep b, HATS-2 b, and TOI-1136 b, c, d, e, f, & g.

Also, new transmission spectra for 31 planets were added to the Atmospheric Spectroscopy Table.

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

5 As seen on astro-ph

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

April 2024

astro-ph/2404.00093: **JWST COMPASS: NIRSpec/G395H Transmission Observations of the Super-Earth TOI-836b** *by Lili Alderson et al.*

astro-ph/2404.01423: **Retrieved Atmospheres and Inferred Surface Properties for Exoplanets Using Transmission and Reflected Light Spectroscopy** *by Samantha Gilbert-Janizek et al.*

astro-ph/2404.01264: **JWST COMPASS: A NIRSpec/G395H Transmission Spectrum of the Sub-Neptune TOI-836c** *by Nicole L. Wallack et al.*

astro-ph/2404.01635: **Carbon isotope chemistry in protoplanetary disks: Effects of C/O ratios** *by Seokho Lee et al.*

astro-ph/2404.01967: **A fading radius valley towards M-dwarfs, a persistent density valley across stellar types** *by Julia Venturini et al.*

astro-ph/2404.02188: **Data availability and requirements relevant for the Ariel space mission and other exoplanet atmosphere applications** *by Katy L. Chubb et al.*

astro-ph/2404.02140: **An Informed and Systematic Method to Identify Variable mid-L dwarfs** *by Natalia Oliveros-Gomez et al.*

astro-ph/2404.02201: **Measuring White Dwarf Variability from Sparsely Sampled Gaia DR3 Multi-Epoch Photometry** *by Maya Steen et al.*

astro-ph/2404.02222: **Polarimetric differential imaging with VLT/NACO. A comprehensive PDI pipeline for NACO data (PIPPIN)** *by S. de Regt et al.*

astro-ph/2404.02247: **A recipe for eccentricity and inclination damping for partial gap opening planets in 3D disks** *by Gabriele Pichierri et al.*

astro-ph/2404.02932: **Report of the Working Group on Strategic Exoplanet Initiatives with HST and JWST** *by Seth Redfield et al.*

astro-ph/2404.03031: **The Impact of Extended H_2O Cross-Sections on Temperate Anoxic Planet Atmospheres: Implications for Spectral Characterization of Habitable Worlds** *by Wynter Broussard et al.*

astro-ph/2404.02974: **NGTS-30 b/TOI-4862 b: An 1 Gyr old 98-day transiting warm Jupiter** *by M. P. Battley et al.*

astro-ph/2404.02969: **Orbital obliquity of the young planet TOI-5398 b and the evolutionary history of the system** *by G. Mantovan et al.*

astro-ph/2404.02958: **Probing the eccentricity in protostellar discs – Modeling kinematics and morphologies** *by Enrico Ragusa et al.*

astro-ph/2404.02604: **NLTE modelling of water-rich exoplanet atmospheres. Cooling and heating rates** *by A. García Muñoz et al.*

astro-ph/2404.02469: **Full orbital solutions in pre-main sequence high-order multiple systems: GG Tau Ab and UX Tau B** *by Gaspard Duchêne et al.*

astro-ph/2404.03317: **The GAPS Programme at TNG. XXX: Characterization of the low-density gas giant HAT-P-67 b with GIARPS** *by D. Sicilia et al.*

astro-ph/2404.03333: **The Impact-driven Atmospheric Loss of Super-Earths around Different Spectral Type Host Stars** *by Wei Zhong et al.*

astro-ph/2404.04296: **Tidal Disruption of Planetesimals from an Eccentric Debris Disk Following a White Dwarf Natal Kick** *by Tatsuya Akiba et al.*

astro-ph/2404.03776: **Four-of-a-kind? Comprehensive atmospheric characterisation of the HR 8799 planets with VLTI/GRAVITY** *by E. Nasedkin et al.*

astro-ph/2404.04422: **Long-term variability in debris transiting white dwarfs** *by Amornrat Aungwerojwit et al.*
astro-ph/2404.04164: **Into the thick of it: ALMA 0.45 mm observations of HL Tau at 2 au resolution** *by Osmar M. Guerra-Alvarado et al.*
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