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

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

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1 Editorial

Welcome to Edition 209 of 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 next month, we continue looking 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 (`https://nccr-planets.ch/exoplanetnews/`).

The next issue will appear on Tuesday, December 8th (with a submission deadline ending on Sunday, December 6th, 2026 CEST).

Jeanne Davoult
Leander Schlarmann
Haiyang Wang
Timm-Emanuel Riesen

2 Abstracts of refereed papers

The impact of M dwarf stellar convection on exoplanetary atmospheric signatures. A 3D radiation-hydrodynamics simulation analysis for high-resolution spectroscopy

A. Chiavassa[1,3], *M. Brogi*[2,3], *T. Masseron*[4,5], *R. Van den Broeck*[1], *L. Bigot*[1], *V. Parmentier*[1]

[1] Université Côte d'Azur, Observatoire de la Côte d'Azur, CNRS, Lagrange, CS 34229, Nice, France
[2] Dipartimento di Fisica, Università degli Studi di Torino,via Pietro Giuria 1, 10125, Torino, Italy
[3] INAF, Osservatorio Astrofisico di Torino, Via Osservatorio 20, 10025, Pino Torinese, Italy
[4] Instituto de Astrofísica de Canarias (IAC), 38205 La Laguna, Tenerife, Spain
[5] Departamento de Astrofísica, Universidad de La Laguna (ULL), 38206 La Laguna, Tenerife, Spain

Astronomy & Astrophysics, in press (https://ui.adsabs.harvard.edu/abs/2026arXiv261105740C/abstract)

M dwarf stars represent prime targets for the detection and characterization of small, temperate exoplanets; however, their complex activity and convective surfaces pose significant challenges for high-resolution spectroscopic studies. This work aims to investigate the impact of stellar convection on high-resolution spectroscopic observations of M dwarf stars and develop an integrated approach combining 3D radiative hydrodynamical simulations, spectroscopic modeling, and transit analysis to mitigate stellar noise. We employ 3D radiative hydrodynamical simulations of M dwarf stellar convection to generate synthetic spectra. We compare the synthetic spectra to actual observations of GJ 3470. We model a high-resolution transit sequence of the Neptune-size GJ 3470 b, including centre-to-limb variations (CLVs) and the Rossiter-McLaughlin effect (RME), and process the sequence via principal component analysis (PCA) to de-trend stellar effects. Comparison of synthetic spectra with actual observations shows that current H2O line lists remain inaccurate, with modest agreement in line strength and position for the chosen K-band interval. During the transit of GJ 3470 b, the amplitude of CLVs+RME is comparable to exoplanet signals. Current PCA can in principle de-trend such effects, but its behaviour is highly dependent on the copresence of telluric and planetary signals. While we are able to correctly detect the exoplanet with no evident bias from stellar residuals, this result is limited to a narrow spectral interval and a specific orbital configuration. This study demonstrates that 3D radiative hydrodynamical simulations are essential for accurately modeling convection-induced spectral variability in M dwarfs. Our integrated framework establishes a foundation to obtain unbiased measurements from future ELT observations of exoplanets orbiting M dwarfs.

Contact: andrea.chiavassa@oca.eu

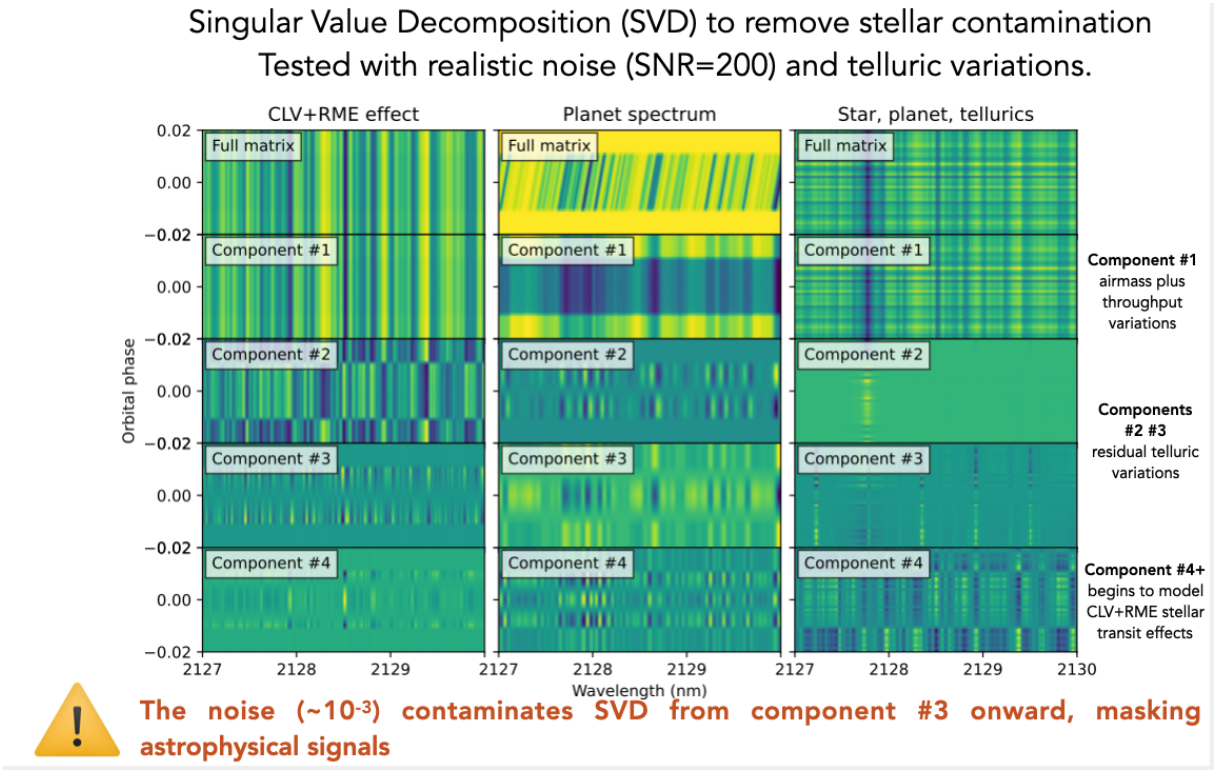


Figure 1: Performance of Singular Value Decomposition (SVD) in removing astrophysical time-variable components. The initial stages are in top row and for progressively higher numbers of SVD components (n_c) removed (2^{nd} to 5^{th} row)

The EBLM Project - XIX. The absence of radius inflation in a homogeneous analysis of 66 Northern low-mass eclipsing binaries

Yasmin T. Davis[1], Amaury H.M.J. Triaud[1], David V. Martin[2], Alix V. Freckelton[1], Jenni R. French[1], Adam T. Stevenson[1], Annelies Mortier[1], et al. (a complete list of authors can be found on the publication)

[1] School of Physics and Astronomy, University of Birmingham, Edgbaston, Birmingham B15 2TT, UK
[2] Department of Astronomy, The Ohio State University, Columbus, OH 43210, USA

Monthly Notices of the Royal Astronomical Society, in press (arXiv:2610.18338)

Precise and accurate measurements of host stars are crucial in the search for Earth-like exoplanets, and M-dwarfs are favourable targets in this quest. Low-mass eclipsing binaries offer unique opportunities to empirically determine stellar masses and radii for low-mass stars where stellar models may be systematically biased. We present results from the EBLM-North sample, the largest homogeneous study of low-mass eclipsing binaries with secondary characterisation yet, combining high-resolution and high-precision radial velocities from SOPHIE and *tess* photometry. We measure a median precision for stellar companions of 4.2% in radius and 8.6% in mass within a sub-sample of 50 high-quality binaries, all with orbital periods $P_{\rm bin} > 5\,{\rm days}$. We compare our data to the Baraffe and MIST isochrones, and find our sample is statistically consistent with those models, producing reduced chi-squared values, $\chi^2_\nu \sim 1$. Our measured radius inflation is $0.3 \pm 1.6\%$ indicating no statistically significant trend. We likewise detect no significant trend with metallicity, despite having the precision to identify such a relationship. As such, our observations do not appear to follow the general metallicity trend predicted in MIST. A $\chi^2_\nu \sim 1$ indicates the scatter in our results is commensurate with our uncertainties alone. These results constrain the scope for unmodelled effects on the mass–radius relation that would produce radius deviations greater than 4.2%. However, our secondary effective temperatures do not reproduce this high level of agreement with the models, and we do not recover the predicted trends with metallicity.

Download/Website: `https://arxiv.org/abs/2610.18338`

Contact: `yxd280@student.bham.ac.uk`

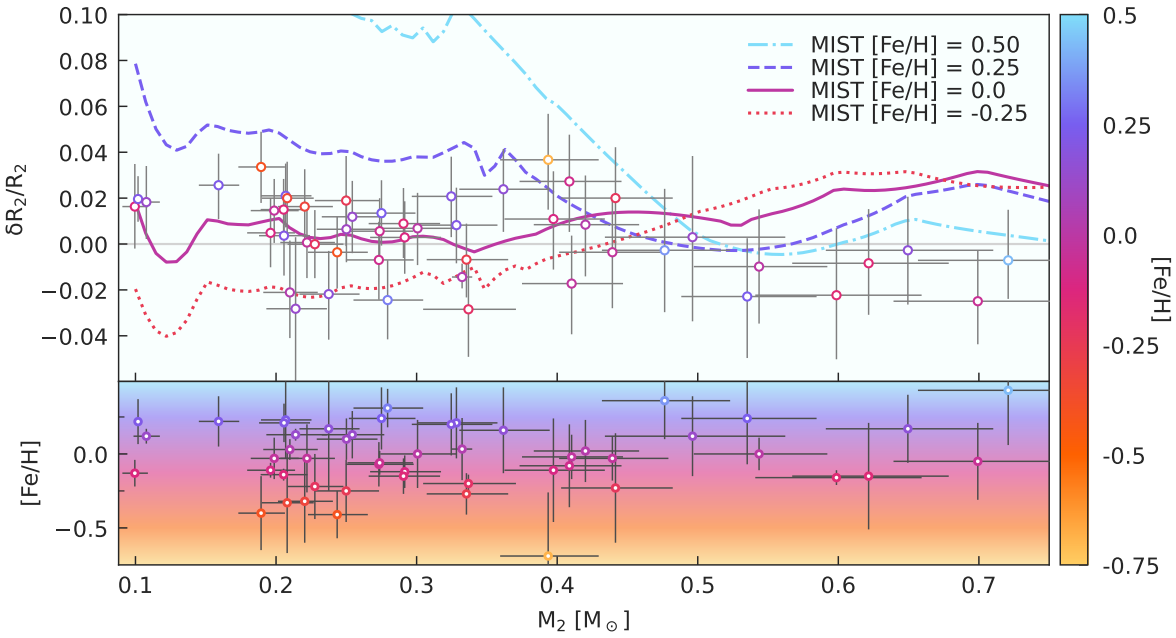


Figure 2: Fractional radius against secondary mass, with respect to the 5 Gyr solar metallicity Baraffe isochrone for S1. The 5 Gyr MIST isochrones with metallicities of -0.25, 0.0, 0.25 and 0.5 dex are plotted in the respective colours from the colour bar, and denoted with dotted, solid, dashed and dot-dashed lines respectively.

Searching for hot water world candidates with CHEOPS: II. A low-density super-Earth orbiting the K dwarf TOI-2211

J. A. Egger [1], P. Cortés-Zuleta [2], D. Kubyshkina [3], H. P. Osborn [4,5], S. Marques [6], I. Crossfield [7], A. Deline [8], S. Ulmer-Moll [9,10], A. E. Simon [6,4], G. Scandariato [11], A. C. M. Correia [12], Y. N. E. Eschen [13], D. Gandolfi [14], V. Adibekyan [15,16], A. Bonfanti [3], C. Pezzotti [10], P. H. Premnath [17], S. G. Sousa [15,16], T. G. Wilson [13], L. Fossati [3], R. Eltschinger [6,4], Y. Alibert [4,6], et al. (a complete list of authors can be found on the publication)

[1] European Space Agency (ESA), European Space Research and Technology Centre (ESTEC), Keplerlaan 1, 2201 AZ Noordwijk, The Netherlands
[2] Centre for Exoplanet Science, SUPA, School of Physics and Astronomy, University of St Andrews, North Haugh, St Andrews KY16 9SS, UK
[3] Space Research Institute, Austrian Academy of Sciences, Schmiedlstrasse 6, A-8042 Graz, Austria
[4] Center for Space and Habitability, University of Bern, Gesellschaftsstrasse 6, 3012 Bern, Switzerland
[5] ETH Zurich, Department of Physics, Wolfgang-Pauli-Strasse 2, CH-8093 Zurich, Switzerland
[6] Space Research and Planetary Sciences, Physics Institute, University of Bern, Gesellschaftsstrasse 6, 3012 Bern, Switzerland
[7] Department of Physics and Astronomy, University of Kansas, Lawrence, KS, USA
[8] Observatoire astronomique de l'Université de Genève, Chemin Pegasi 51, 1290 Versoix, Switzerland
[9] Leiden Observatory, University of Leiden, Einsteinweg 55, 2333 CA Leiden, The Netherlands
[10] Space sciences, Technologies and Astrophysics Research (STAR) Institute, Université de Liège, Allée du 6 Août 19C, 4000 Liège, Belgium
[11] INAF, Osservatorio Astrofisico di Catania, Via S. Sofia 78, 95123 Catania, Italy
[12] CFisUC, Departamento de Física, Universidade de Coimbra, 3004-516 Coimbra, Portugal
[13] Department of Physics, University of Warwick, Gibbet Hill Road, Coventry CV4 7AL, United Kingdom
[14] Dipartimento di Fisica, Università degli Studi di Torino, via Pietro Giuria 1, I-10125, Torino, Italy
[15] Instituto de Astrofisica e Ciencias do Espaco, Universidade do Porto, CAUP, Rua das Estrelas, 4150-762 Porto, Portugal
[16] Departamento de Fisica e Astronomia, Faculdade de Ciencias, Universidade do Porto, Rua do Campo Alegre, 4169-007 Porto, Portugal
[17] Department of Physics & Astronomy, University of California, Irvine, CA 92697, USA

Astronomy & Astrophysics, in press (arXiv:2610.08922)

Small exoplanets on close-in orbits are exposed to high levels of stellar irradiation, which can effectively remove low-mass primordial H/He envelopes through atmospheric escape. Under these conditions, planets whose masses and radii are incompatible with both bare rocky interiors and extended H-dominated atmospheres are therefore expected to host high mean molecular weight atmospheres, making them promising candidates for volatile-rich hot water worlds. We present the first detailed characterisation of the low-density super-Earth TOI-2211 b (P$\sim$3.09 d), a recently validated transiting planet orbiting a K type star (G mag: 9.1). Combining TESS and CHEOPS photometry with radial velocity measurements from HARPS, ESPRESSO, and KPF, we precisely constrained the planet's radius and mass to 1.457 ± 0.047 $R_\oplus$ and 2.69 ± 0.56 $M_\oplus$. We also identified an outer non-transiting planetary candidate (P$\sim$15.6 d, Msin(i) $= 8.53 \pm 1.04$ $M_\oplus$) in the radial velocity data. We investigated the internal structure of the transiting planet and assessed the stability of the inferred volatile envelopes through a detailed evaporation analysis, thereby identifying TOI-2211 b as a promising hot water world candidate. TOI-2211 b therefore joins the small but growing sample of these close-in low-density super-Earths, which represent particularly interesting targets for testing current planet formation and evolution theories. Additionally, we investigated the full architecture of the planetary system using a generative model of planet formation and evolution, with the resulting posterior distributions showing a clear over-density consistent with the observed orbital period and minimal mass of the non-transiting planetary candidate identified in the radial velocity data.

Download/Website: `https://arxiv.org/abs/2610.08922`

Contact: `joann.egger@esa.int`

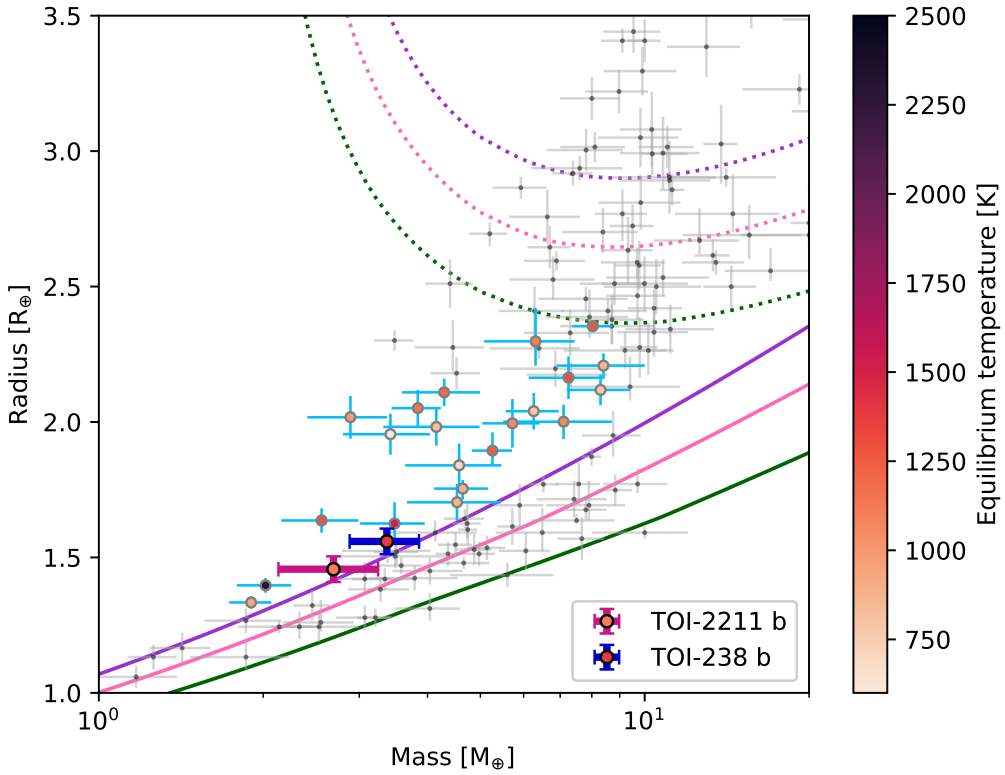


Figure 3: Mass-radius diagram showing the location of TOI-2211 b in relation to the known exoplanet population (data from the PlanetS catalogue; Otegi et al. 2020; Parc et al. 2024). In addition to TOI-2211 b, TOI-238 b as presented in Paper I is also labelled. Also shown are a number of iso-composition curves generated using the BICEPS forward model (Haldemann et al. 2024) for TOI-2211 b's equilibrium temperature. Planets that fall into the Hot Water World triangles are depicted with blue error bars, the Hot Water World triangle corresponding to the equilibrium temperature of TOI-2211 b is indicated in light blue. Markers of planets that fall into the triangle are colour-coded according to their equilibrium temperature.

Predictions for an unseen third planet in the WISPIT 2 system

A. Faruqi[1,2]*, F. Meru*[1,2]*, G-D Marleau*[3,4,5]*, P. Nazari*[1,2]*, A. Swan*[1,2]*, R. Pudritz*[6,7]*, T. G. Wilson*[1,2]

[1] Department of Physics, University of Warwick, Coventry CV4 7AL, UK
[2] Centre for Exoplanets and Habitability, University of Warwick, Coventry CV4 7AL, UK
[3] Fakultät für Physik, Universität Duisburg–Essen, Lotharstraße 1, 47057 Duisburg, Germany
[4] Max-Planck-Institut für Astronomie, Königstuhl 17, 69117 Heidelberg, Germany
[5] Division of Space Research and Planetary Sciences, Physics Institute, University of Bern, Gesellschaftsstr. 6, 3012 Bern, Switzerland
[6] Department of Physics and Astronomy, McMaster University, Hamilton, ON L8S 4K1, Canada
[7] Origins Institute, McMaster University, Hamilton, ON L8S 4K1, Canada

The Astrophysical Journal, accepted (arXiv:2610.30115)

We predict the mass and semi-major axis of a currently unseen but hypothesised planet in the WISPIT 2 system based on the location of the ring observed by ALMA at 144.4 au. Using findings from previous hydrodynamical models, we predict that a $\sim$ 0.2–1 $M_{\rm Jup}$ planet may exist at $\sim$ 100–120 au. We also demonstrate that the ring seen in VLT/SPHERE observations at 96.7 au is consistent with the mass and semi-major axis of WISPIT 2b and confirm that WISPIT 2b cannot be the cause of the ALMA ring. We also discuss how future observations of the system's gas component may help constrain these predictions better, and note that this third planet in WISPIT 2 may be discoverable using upcoming JWST/NIRCam observations or *Gaia* data release 4 (DR4).

Download/Website: `https://arxiv.org/abs/2610.30115`

Contact: `amena.faruqi@warwick.ac.uk`

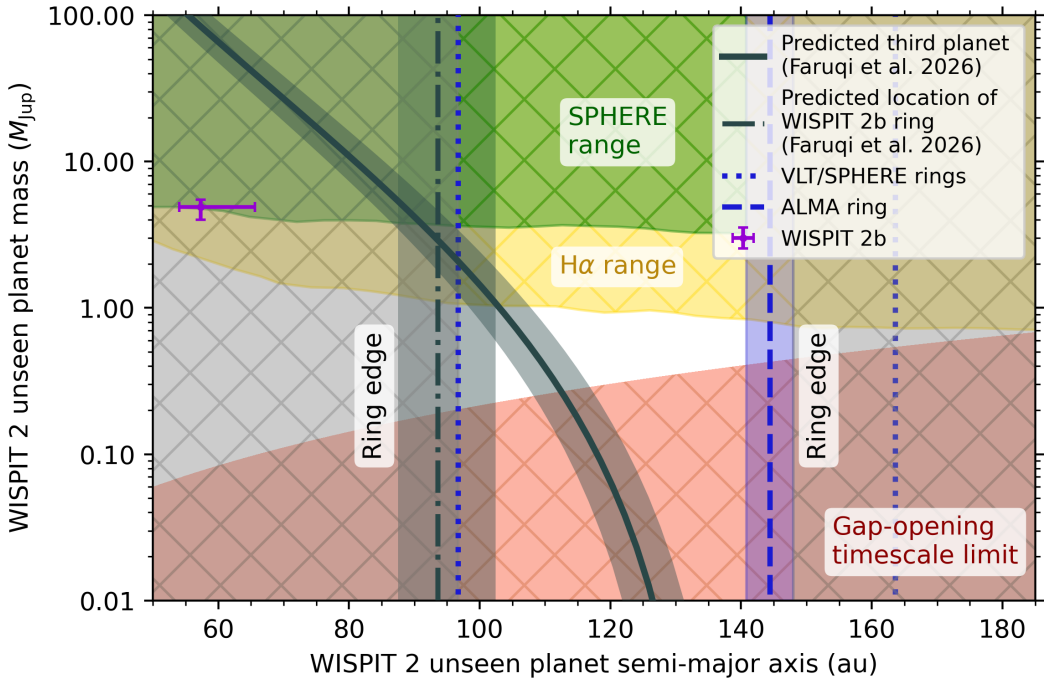


Figure 4: Mass vs semi-major axis parameter space for a potential, unseen planet in WISPIT 2. The solid dark grey line marks the range of possible masses and semi-major axes for the planet according to Faruqi et al. 2026 (equation 11), with errors denoted by the surrounding shaded region. The dotted and dashed lines mark the central locations of the observed SPHERE and ALMA rings, respectively. The dark grey dot-dashed line indicates the predicted location of a ring produced by WISPIT 2b, which agrees with the observed SPHERE ring. The hatched regions indicate the "forbidden zones" i.e., the regions of the parameter space we do not predict a planet can exist due to observational constraints (the SPHERE and MagAO-X Hα detection ranges), the presence of rings, or the limit due to the gap-opening timescale exceeding the 5.1 Myr age of the system.

Entering the Era of Circumplanetary Ring Detection with Direct Imaging

S. N. Hasler[1,2,3]*, A. Z. Greenbaum*[3]*, G. Bryden*[4]*, V. Bailey*[4]*, J. Llop-Sayson*[4]*, E. Lane*[5]*, M. A. Limbach*[5]*, L. Pearce*[5]*, J. G. Ingalls*[3]*, and P. Lowrance*[3]

[1] Space Telescope Science Institute, 3700 San Martin Drive, Baltimore, MD 21218, USA
[2] Department of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139, USA
[3] IPAC, California Institute of Technology, 1200 E. California Boulevard, Pasadena, CA 91125, USA
[4] Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA 91109, USA
[5] Department of Astronomy, University of Michigan, Ann Arbor, MI 48109, USA

Astrophysical Journal, accepted (arXiv:2610.23850)

Rings are ubiquitous among the giant planets in the Solar System, yet their presence around exoplanets remains observationally unconstrained. As direct imaging missions such as the *Nancy Grace Roman Space Telescope* approach first light, understanding the influence of circumplanetary rings on reflected light photometry is critical for the accurate interpretation and follow-up of direct imaging observations. We present a hybrid forward model for reflected light phase curves of ringed exoplanets, coupling a ray casting framework for computing mutual planet-ring shadowing with empirical reflectance spectra from Cassini observations of Saturn's rings. We model Jupiter-like planets with opaque, icy rings spanning $1 - 10\times$ the radial extent of Saturn's A, B, and C rings across a grid of inclinations and ring obliquities. Our simulations show that rings enhance the flux ratios at favorable ring geometries. Saturn-equivalent rings increase peak flux by a factor of 3.1 in the visible, while more extended rings produce enhanced contrasts exceeding an order of magnitude more. The flux contribution of a ring is highly sensitive to obliquity and orbital location. At certain geometries, rings can suppress total system brightness below that of a ringless planet. We highlight multi-band observations as a complementary route for diagnosing the presence of an exoring. We also apply the model to υ Andromedae d as an observational test case and discuss the implications for exoring detectability with the Roman Coronagraph. Exorings have the potential to bias inferred planetary properties from direct images and must be properly accounted for in observation preparation and interpretation.

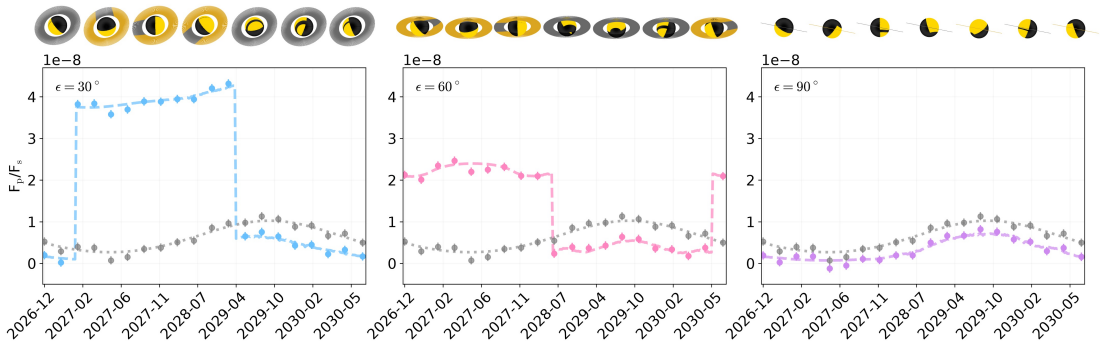


Figure 5: Simulated Roman CGI Band 1 phase curves for υ And d with rings (color, dashed) and without (gray, dotted) for three different ring obliquities. Ringed planet models illustrating the geometry of the ring are shown above each respective plot for a few oribtal locations. With a ring, the maximum flux ratio achieved in the $\epsilon = 30^\circ$ (left) and 60° (center) cases is 4.2 and 2.3 times greater, respectively, pushing it above an SNR of 5 for flux ratio levels of 1×10^{-8} and 5×10^{-9}. In the worst case scenario, a ring oriented edge-on to the observer ($\epsilon = 90^\circ$; right) would contribute no additional flux while shadowing portions of the planet disk, thus decreasing the total system flux ratio below that of a ringless planet.

Download/Website: https://arxiv.org/abs/2610.23850

Contact: shasler@stsci.edu

The Solirad (So) as a Convenient Unit for Quoting Astronomical Irradiances for Planetary Insolations and Exoplanetary Instellations

E. E. Mamajek[1], *J. T. Wright*[2,3,4], *N. W. Tuchow*[5,6], *P. A. Young*[7], *M. A. Kenworthy*[8], *E. A. Gilbert*[9]

[1] Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109, USA
[2] Department of Astronomy & Astrophysics, Penn State, University Park, PA, 16802, USA
[3] Center for Exoplanets and Habitable Worlds, Penn State, University Park, PA, 16802, USA
[4] Penn State Extraterrestrial Intelligence Center, Penn State, University Park, PA, 16802, USA
[5] Steward Observatory and Department of Astronomy, The University of Arizona, Tucson, AZ 85721, USA
[6] NASA Goddard Space Flight Center, Greenbelt, Maryland, USA
[7] School of Earth and Space Exploration, Arizona State University, Tempe, AZ 85287, USA
[8] Leiden Observatory, Leiden University, Leiden, The Netherlands
[9] NASA Exoplanet Science Institute-Caltech/IPAC, Pasadena, CA 91125, USA

Publications of the Astronomical Society of the Pacific, Volume 138, Issue 2, id.023001, 5 pp. (2026PASP..138b3001M) (arXiv:2512.20126)

Measurements of physical parameters for stars and (exo)planets are often quoted in units normalized to the Sun and/or Earth. The *nominal total solar irradiance*, $S_{\odot}^{\rm N}$, while based on a current best estimate with uncertainties, was adopted to be an exact reference value of 1361 W m^{-2} by IAU 2015 Resolution B3, corresponding to "*the mean total electromagnetic energy from the Sun, integrated over all wavelengths, incident per unit area per unit time at distance 1 au*". In the planetary and exoplanetary science literature, the units employed for "flux", "insolation", "instellation", etc., are often cumbersome or inconsistent. To simplify the quoting of irradiance units for astronomical applications, we introduce the portmanteau *solirad*, short for **sol***ar* **i***r***rad***iance*, as an abbreviated version of the longer IAU term "nominal total solar irradiance". The solirad (So) is a unit of irradiance, where 1 *solirad* = 1 So = 1361 W m^{-2}, equivalent to the IAU nominal total solar irradiance, and to an apparent bolometric magnitude of $m_{\rm bol} \simeq -26.832$ mag (per IAU 2015 Resolution B2).

Download/Website: https://arxiv.org/pdf/2512.20126

Contact: mamajek@jpl.nasa.gov

TOI-6981 b: a transiting sub-Neptune at the water ice line

M.G. Scott[1], A.H.M.J. Triaud[1], E.K. Pass[2], A. Adamson[1], K.A. Collins[3], K. Barkaoui[4,5,6], A. Bieryla[3], A.J Burgasser[7], M.E. Everett[8], S.B. Howell[9], D.W. Latham[3], B.V. Rackham[6,2], B.S. Safonov[10], M. Serra-Ricart[4,11,12], A. Soubkiou[5], G. Dransfield[13,14,1], K. Hesse[2], P. Fernandez de Diego[8], E. Softich[7], G. Srdoc[15], M. Timmermans[1,5], J. Audenaert[2], R. Alonso[4,11], A.Y. Burdanov[6], Y.T. Davis[1], F. Davoudi[5], J. de Wit[6], S. Dholakia[16], E. Ducrot[17], M. Gillon[5], Y. Gómez Maqueo Chew[18], M.J. Hooton[19], C. Janó-Muñoz[19], E. Jehin[20], A. Khandelwal[18], T.R. Marriott[1], P.P. Pedersen[19,21], M. Pichardo Marcano[18], F.J. Pozuelos[22], R. Rebolo-López[4,11], M. Stalport[20,5], A. Venner[23], S. Yalçınkaya[24,25,5], F. Zong Lang[26], S. Zúñiga-Fernández[5]

[1] School of Physics & Astronomy, University of Birmingham, Edgbaston, Birmingham B15 2TT, United Kingdom
[2] Kavli Institute for Astrophysics and Space Research, Massachusetts Institute of Technology, Cambridge, MA 02139, USA
[3] Center for Astrophysics | Harvard & Smithsonian, 60 Garden Street, Cambridge, MA, 02138, USA
[4] Instituto de Astrofísica de Canarias (IAC), Calle Vía Láctea s/n, 38200, La Laguna, Tenerife, Spain
[5] Astrobiology Research Unit, Université de Liège, 19C Allée du 6 Août, 4000 Liège, Belgium
[6] Department of Earth, Atmospheric and Planetary Science, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139, USA
[7] Department of Astronomy & Astrophysics, UC San Diego, La Jolla, CA 92039, USA
[8] NSF NOIRLab, 950 N. Cherry Ave., Tucson, AZ 85719, USA
[9] NASA Ames Research Center, Moffett Field, CA 94035, USA
[10] Sternberg Astronomical Institute Lomonosov Moscow State University, Universitetskii prospekt, 13 Moscow, Russia
[11] Departamento de Astrofísica, Universidad de La Laguna, Avda. Astrofísico Francisco Sánchez, E-38206 La Laguna, Tenerife, Spain
[12] Light Bridges, SL. Observatorio Astronómico del Teide, Carretera del Observatorio s/n, E-38500 Guimar, Tenerife, Canarias, Spain
[13] Department of Astrophysics, University of Oxford, Denys Wilkinson Build- ing, Keble Road, Oxford OX1 3RH, UK
[14] Magdalen College, University of Oxford, Oxford OX1 4AU, UK
[15] Kotizarovci Observatory, Sarsoni 90, 51216 Viskovo, Croatia
[16] University of Southern Queensland, Centre for Astrophysics, West Street, Toowoomba, QLD 4350, Australia
[17] AIM, CEA, CNRS, Université Paris-Saclay, Université de Paris, F-91191 Gif-sur-Yvette, France
[18] Universidad Nacional Autónoma de México, Instituto de Astronomía, AP 70-264, Ciudad de México, 04510, México
[19] Cavendish Laboratory, JJ Thomson Avenue, Cambridge, CB3 0HE, UK
[20] Space Sciences, Technologies and Astrophysics Research (STAR) Institute, Université de Liège, Allée du 6 Août 19C, B-4000 Liège, Belgium
[21] Institute for Particle Physics and Astrophysics, ETH Zürich, Wolfgang-Pauli-Strasse 2, 8093 Zürich, Switzerland
[22] Instituto de Astrofísica de Andalucía (IAA-CSIC), Glorieta de la Astronomía s/n, 18008 Granada, Spain
[23] Max Planck Institute for Astronomy, Königstuhl 17, 69117 Heidelberg, Germany
[24] Department of Astronomy & Space Sciences, Faculty of Science, Ankara University, TR-06100, Ankara, Türkiye
[25] Ankara University, Astronomy and Space Sciences Research and Application Center (Kreiken Observatory), Incek Blvd., TR-06837, Ahlatlıbel, Ankara, Türkiye
[26] Center for Space and Habitability, University of Bern, Gesellschaftsstrasse 6, 3012, Bern, Switzerland

Monthly Notices of the Royal Astronomical Society, in press (arXiv:2609.37597)

We present TOI-6981 b, a cold ($T_{\rm eq} = 175^{+6}_{-5}$ K, assuming an Earth-like albedo) sub-Neptune ($R_{\rm b} = 2.51 \pm 0.11\,{\rm R}_{\oplus}$) orbiting on a 60.8-day orbit around its M4-type host star ($R_{\star} = 0.304 \pm 0.012\,{\rm R}_{\odot}$, $M_{\star} = 0.296 \pm 0.026\,{\rm M}_{\odot}$, $T_{\rm eff} = 3215 \pm 58$ K), part of the SPECULOOS TEMPOS program. We validate the planetary nature of TOI-6981 b using ground-based follow-up photometry, statistical validation and high-resolution spectroscopy. At such cold temperatures, TOI-6981 b sits at roughly the location of the water ice line ($\sim$170 K). Given its orbital period and high transmission spectroscopy metric (${\rm TSM} = 56 \pm 10$), it is one of the only planets in the sparsely populated cold planet regime amenable for atmospheric studies with JWST. Therefore, TOI-6981 b could possibly become a crucial benchmark in cold chemistry studies, tests of Hycean world hypotheses, and drawing parallels to the Solar System's ice giants. Additionally, given its current orbit, it may provide insight into planetary formation and migration at or beyond the water ice line.

Download/Website: `https://arxiv.org/pdf/2609.37597`

Contact: `mgs947@student.bham.ac.uk`

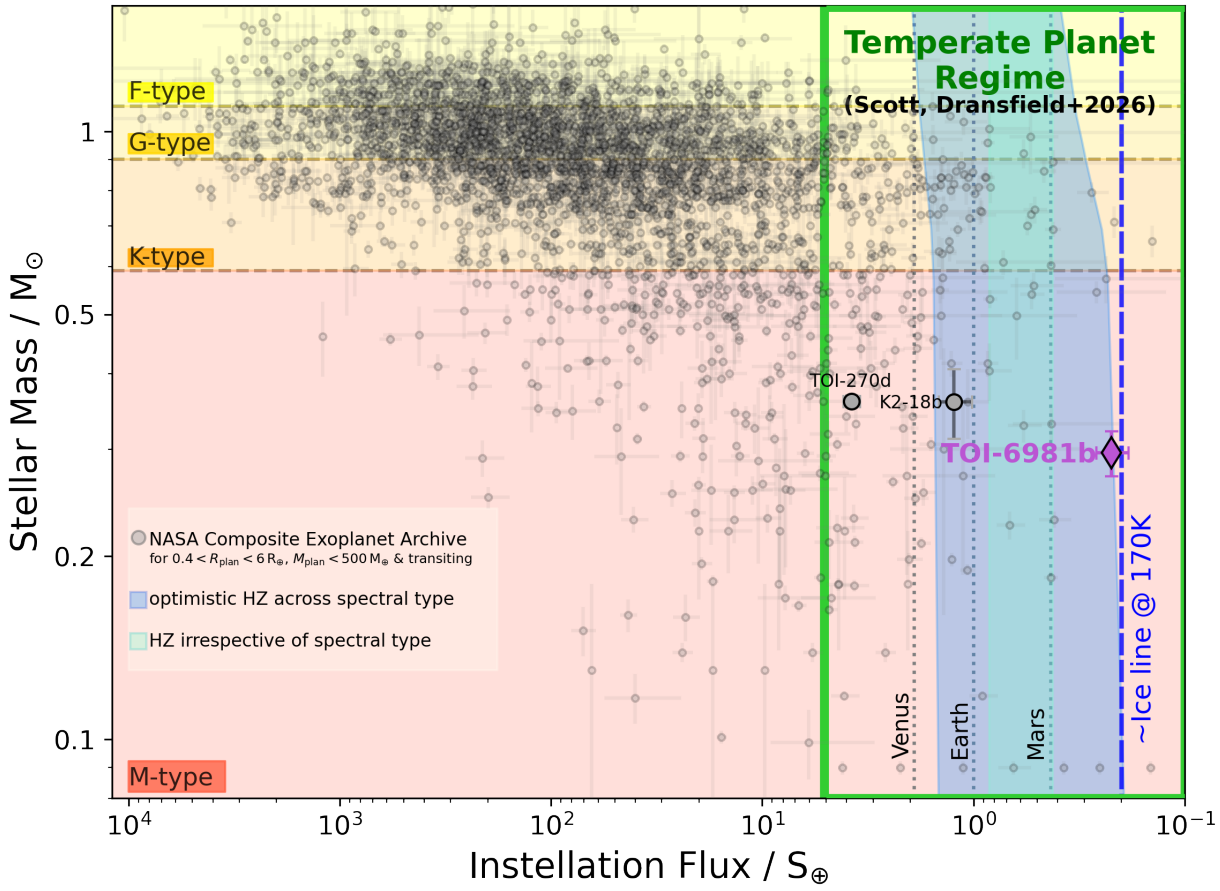


Figure 6: Stellar mass vs instellation flux for all transiting planets (small, grey points) approximately Neptunes or smaller ($\leq 6\,R_\oplus$), taken from the NASA Composite Archive. Figure is adapted from Scott, Dransfield et al 2026. TOI-6981 b is plotted as a purple diamond, and K2-18 b and TOI-270 d as grey circles, all labelled. The optimistic HZ is depicted by the darker blue shaded region, and the HZ irrespective of stellar type by the cyan shaded region (Kopparapu et al. 2013). The water ice line at 170 K is shown by the blue dashed line, corresponding to an instellation flux of $\sim 0.2\,S_\oplus$. The temperate planet regime is shown by the green box, ranging from instellation fluxes in the range $0.1 \leq S/S_\oplus \leq 5$. Background is shaded to indicate different spectral types.

The EBLM project – XX. Absolute dynamical masses of five low-mass eclipsing binaries, and an evaluation of mass estimation methods

Adam T. Stevenson[1], *Yasmin T. Davis*[1], *Daniel Sebastian*[2], *Amaury H.M.J. Triaud*[1], *Pierre F. L. Maxted*[3], *Alix V. Freckelton*[1], *Thomas A. Baycroft*[1,4], *Neda Heidari*[5], *David V. Martin*[6], *Nicola J. Miller*[7], *Alexandre Santerne*[8,9]

[1] School of Physics & Astronomy, University of Birmingham, Edgbaston, Birmingham B15 2TT, UK
[2] Thüringer Landessternwarte Tautenburg, Sternwarte 5, 07778 Tautenburg, Germany
[3] Astrophysics Group, Keele University, Staffordshire ST5 5BG, UK
[4] Tsung-Dao Lee Institute, Shanghai Jiao Tong University, 1 Lisuo Road, Shanghai 201210, China
[5] Institut d'astrophysique de Paris, UMR7095 CNRS, 98bis boulevard Arago, 75014 Paris, France
[6] Department of Physics & Astronomy, Tufts University, Medford, MA 02155, USA
[7] Department of Physics and Astronomy, Uppsala University, Box 516, Uppsala, 75120, Sweden
[8] Université Grenoble Alpes, CNRS, IPAG, 38000 Grenoble, France
[9] Aix Marseille Univ, CNRS, CNES, LAM, Marseille, France

Monthly Notices of the Royal Astronomical Society, in press (arXiv:2610.18339)

Eclipsing binaries consisting of a solar-type primary and an M dwarf secondary are key laboratories to study objects at the bottom of the main sequence. Fundamental parameters of such stars have a direct impact upon exoplanetary studies, as searches for temperate Earth-sized planets focus on M dwarf hosts. Eclipsing binaries are essential to measure these parameters. However for stellar masses $< 0.35\,\mathrm{M}_{\odot}$, few double-lined eclipsing systems are known. Thus, stellar evolution models and empirical relations have had to rely on single-lined eclipsing binaries, for instance those from the EBLM project (Eclipsing Binary – Low Mass). Using high resolution spectroscopy to extract the weak signal of the secondary (flux ratio < 1 per cent in the optical), we transform five more systems from single to double-lined, deriving absolute masses for both stars. We then compare methods typically employed to estimate stellar masses for field stars or single-lined binaries with the absolute dynamical masses we obtain, to assess their accuracy. Our results for SB1 and SB2 analyses are mostly consistent within 1-σ, though we identify a small systematic overestimation of SB1 masses derived from a combination of radial velocities and eclipse photometry. We show that the bias originates from primary radius overestimation during isochronal analysis, wherein the secondary light reduces photometric magnitudes and impacts the recovered radii by modifying the spectral energy distribution. With proper calibration, we can ensure the accuracy of using the full EBLM SB1 sample to constrain mass-radius-luminosity relationships for the smallest, yet most abundant, stars in the Galaxy.

Download/Website: `https://arxiv.org/abs/2610.18339`
Contact: `a.t.stevenson@bham.ac.uk`

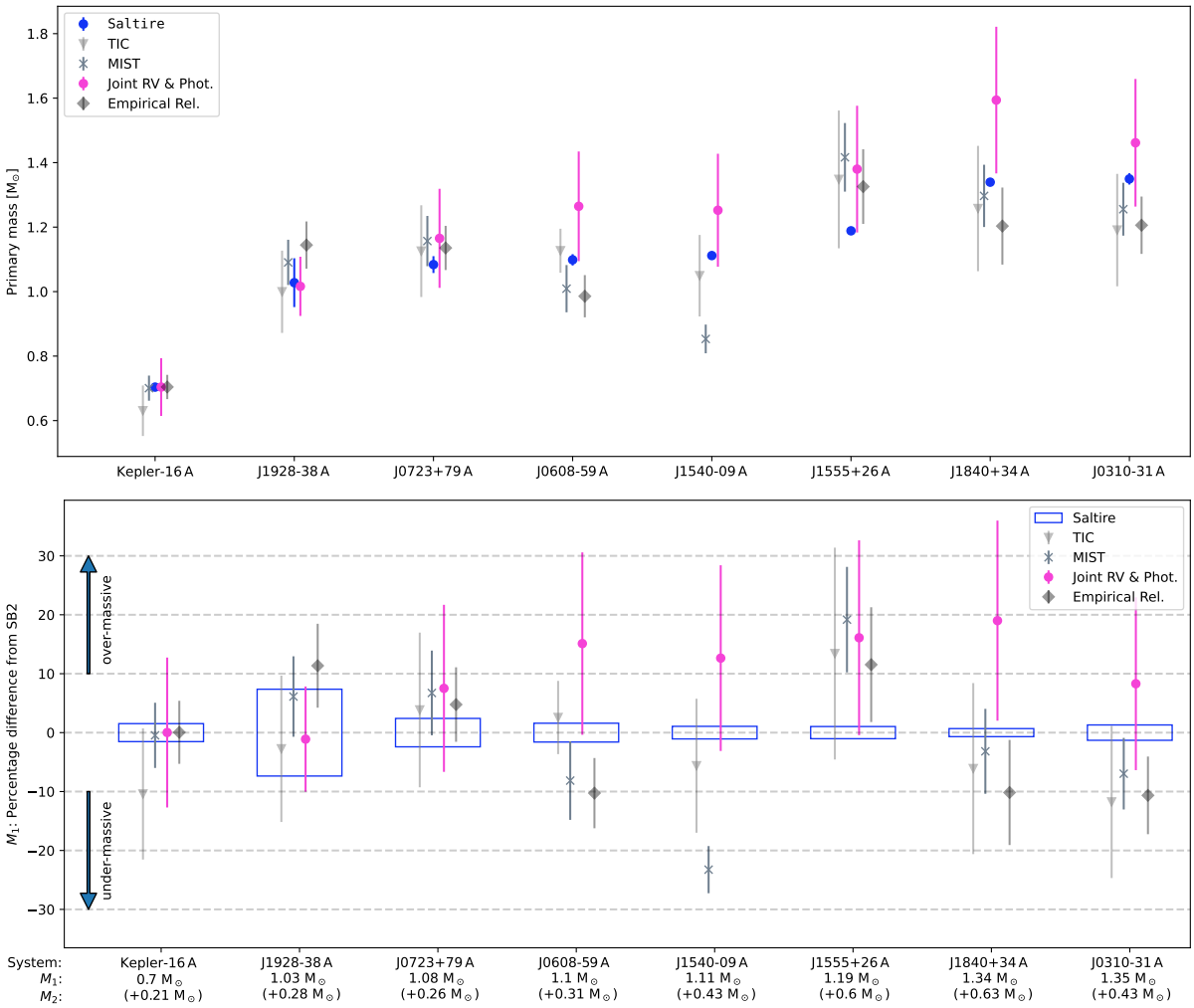


Figure 7: Figures comparing primary masses from different methods. **Top:** primary masses of the eight systems included in our sample (Table 6). Marker colours and styles represent each method. **Bottom:** Masses plotted as percentage deviation from the `Saltire` SB2 results (blue boxes, including uncertainty). A systematic increase is seen for the RV+Photometry (SB1) method. The 0 per cent difference is denoted with a horizontal dashed line. Results from other sources are scattered around the plots. Targets along the x-axes are ordered by primary mass, denoted below the name in the lower panel.

A Century of Radial-velocity and Astrometric Monitoring of 70 Oph AB: New PFS Data and Constraints on Possible Planetary Companions

Y. Li[1]*, M. R. Meyer*[1]*, S. D'Angiolillo*[2]*, et al.*
(a complete list of authors can be found on the publication)
[1] University of Michigan, Department of Astronomy, 1085 South University, Ann Arbor, MI 48109, USA
[2] Department of Earth and Planetary Sciences, University of California, Riverside, CA 92521, USA

The Astrophysical Journal, 1009, 199, published (2026ApJ..1009..199L)

At a distance of 5.1 pc, the 70 Oph AB binary star system is one of the most favorable targets for future direct imaging and astrometry missions surveying mature, terrestrial planets. We present new radial velocities (RVs) obtained with the Planet Finder Spectrograph (PFS) on the 6.5 m Magellan II Clay Telescope in Chile. We collected 499 measurements of 70 Oph A and 334 measurements of 70 Oph B during 2023–2025. Combining these data with decades of archival RVs and astrometry, we derive an updated orbital solution for the binary and dynamical masses of $0.88 \pm 0.004\,M_{\odot}$ and $0.73 \pm 0.003\,M_{\odot}$ for the primary and secondary components, respectively. We find that the long-term RV variability of both components is consistent with stellar activity modulated by rotation periods, and we detect no coherent planetary signals in either component. We place upper limits on any planets orbiting in the plane of the binary. The 27-yr RV baseline for 70 Oph A excludes Jupiter-mass planets interior to 5 au and reaches sensitivity of $0.3\,M_{\rm Jup}$ at 1 au or $0.5\,M_{\rm Jup}$ at 2 au. For 70 Oph B, with PFS data we rule out planets more massive than 0.25–0.3 $M_{\rm Jup}$ inside 0.5 AU. We show that stable S-type orbits around 70 Oph A extend to ~ 2.5 AU, covering the habitable zone. Thus, Saturn-mass planets or smaller on stable orbits in the habitable zone of 70 Oph A are allowed. Overall, our results provide important guidance for future planet searches around this stellar system.

Download/Website: `https://iopscience.iop.org/article/10.3847/1538-4357/ae9f52`

Contact: `lyiting@umich.edu`

HD 152384: A 5 Myr old debris disk system showing a gaseous ring of refractory elements at the dust sublimation radius

M. E. van den Ancker[1], *D. P. Iglesias*[2,3], *O. Panić*[2], *M. G. Petr-Gotzens*[1], *M. Vioque*[1]

[1] European Southern Observatory, Karl-Schwarzschild-Str. 2, D–85748 Garching bei München, Germany
[2] School of Physics and Astronomy, University of Leeds, Woodhouse Lane, Leeds LS2 9JT, UK
[3] School of Mathematical and Physical Sciences, University of Sheffield, Hounsfield Road, Sheffield S3 7RH, UK

Astronomy & Astrophysics, in press (arXiv:2610.20059)

Context. Circumstellar gas around young stars provides key insights into planet formation and disk evolution. HD 152384, a young (5 Myr) A0 V star in Sco-Cen, exhibits hybrid disk characteristics with a modest infrared excess due to small dust grains and atomic emission lines dominated by refractory elements, but the disk's structure and origin remain unclear.
Aims. We aim to characterise the kinematics and excitation of the circumstellar gas around HD 152384, and to constrain the physical properties of the emitting region.
Methods. We use new optical and near-infrared high spectral resolution data from the UVES and CRIRES instruments at the VLT to revisit the circumstellar environment of HD 152384. Earlier studies suggested the presence of a broad, gas-rich circumstellar disk; here, we re-examine this scenario.
Results. The new observations reveal a rich emission-line spectrum, consisting of 74 narrow double-peaked emission lines of iron, magnesium, silicon and calcium. All lines share similar profiles, with 103 km s^{-1} peak separation. Modelling of gas in Keplerian rotation indicates that the gas is confined to a geometrically thin ring at a radial distance of 0.09–0.12 au from the central star – close to the dust sublimation radius (0.10–0.14 au, assuming a dust sublimation temperature of $\sim$1500 K). The detected Fe I emission comes from an optically thick region. However, the Mg I lines are optically thin, allowing us to derive a mass of 2.2 $\times$ 10^{22} kg (or 3.6 $\times$ 10^{-3} M$_\oplus$) in magnesium gas confined to the geometrically thin ring.
Conclusions. The inferred mass and composition of the circumstellar dust and gas in the HD 152384 system are consistent with a secondary origin related to rocky planetesimal collisions. We suggest that the atomic gas seen in our observations is due to the sublimation of small dust grains created in such collisions, and spiralling inward to the dust sublimation radius, creating an accumulation of atomic gas at this location. We conclude that HD 152384 represents a young analogue of gas-bearing debris disk systems such as β Pictoris and of the gaseous debris disks around metal-polluted white dwarfs (in which a similar phenomenology is observed), offering a new window into the early violent phase of rocky planetesimal processing.

Download/Website: `https://arxiv.org/abs/2610.20059`

Contact: `mvandena@eso.org`

3 Exoplanet Archives

October 2026 Updates at the NASA Exoplanet Archive

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

Pasadena CA USA, November 10, 2026

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. Links to other tables and System Overview pages are embedded in the news text.

October 15, 2026

Six Planets Added, Including One Planetary Toddler

One of this week's six new planets is Elias 2-24 b, a discovery that, at less than a million years old, may have broken the record for being the youngest known exoplanet to date. Learn more in the NASA media release anddiscovery paper.

The other new planets are TOI-2158 c, TOI-5120 b, TOI-5699 b, TIC 219893931 b, and TIC 237254473 b. Six more planets have new data: GJ 581 b & c, GJ 3090 b, HD 65216 b & c, and TOI-2158 b.

There are also new transmission spectroscopy for HAT-P-11 b, HAT-P-32 b, HD 189733 b, WASP-19 b, WASP-94 b, WASP-96 b, and WASP-121 b in the Atmospheric Spectroscopy Table.

Data for GJ 581 d and HD 149382 b, which were previously removed from the archive based on published refutations, have be added back with the newer designation of False Positive Planet (FPP). For details, check the False Positive Planets sections of the Targets Excluded from the Archive page.

October 8, 2026

(More Than) One Thousand TESS Planets!

This week's 70 new planets have unlocked a new exoplanet milestone: 1,000 planets have been discovered with data from NASA's Transiting Exoplanet Survey Satellite (TESS)! The new additions also bring the archive's total confirmed planet count to **6,445**.

TESS launched in April 2018 to survey the sky in search of transiting exoplanets around the brightest stars near Earth. The Medium-Explorer-class mission has uncovered alien worlds that may help us better understand how planets form while adding to the growing list of targets for further study by newer missions, including JWST. Learn more about the spacecraft and its discoveries on NASA's TESS Mission page.

This week's milestone is a proud moment for the TESS mission and the exoplanet science community, and there is more to come! There are currently 4,823 TESS Project Candidates waiting to be confirmed, and data for more than 8,000 candidates have been uploaded to our sister archive, the Exoplanet Follow-up Observing Program (ExoFOP).

The following sky maps were created based on TESS observations from the first 96 sectors. Each pink dot is a TESS confirmed planet. The oval map (top) is an all-sky image and the two circles are the northern hemisphere (left) and southern hemisphere (right).

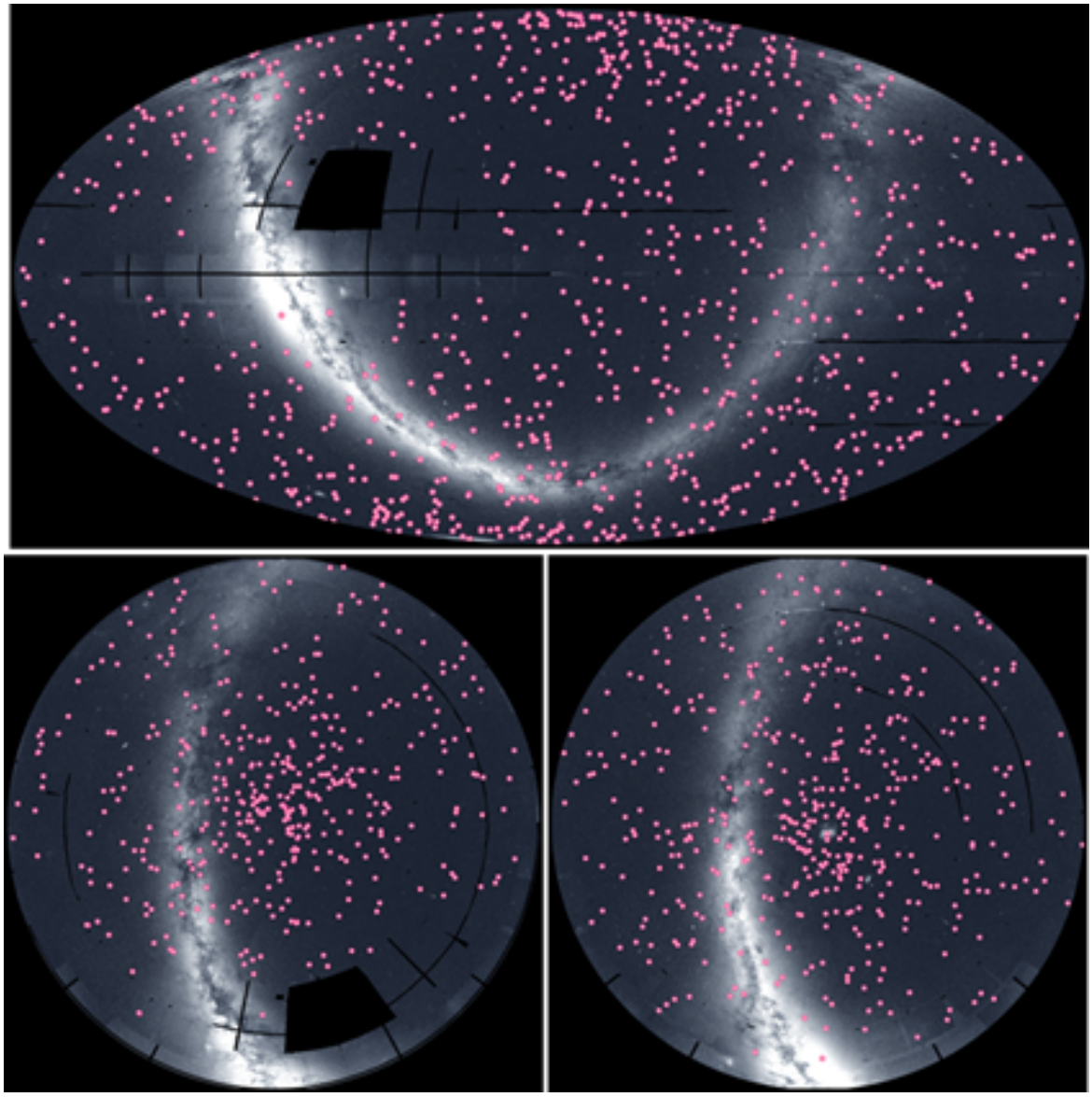


Figure 8: These sky maps show the areas of the sky observed by TESS; each pink dot represents a TESS confirmed planet. The top image is an all-sky image; the bottom-left image is the northern hemisphere and the bottom-right is the southern hemisphere. Image credit: NASA/MIT/TESS and Nicole Schanche (University of Maryland College Park

And now for this week's data! The new planets are TOI-213 b, TOI-248 b, TOI-435 b, TOI-783 b, TOI-786 b & c, TOI-789 b, c & d, TOI-797 b, TOI-873 b, TOI-1154 b, TOI-1245 b, TOI-1262 b, TOI-1281 b, TOI-1432

b, TOI-1435 b, TOI-1441 b, TOI-1806 c & d, TOI-2238 b, TOI-2245 b, TOI-2287 b, TOI-2392 b, TOI-2293 b, TOI-2426 b, TOI-2441 b, TOI-2540 b, TOI-3585 b, TOI-3851 b, TOI-4307 b, TOI-4310 b, TOI-4324 b, TOI-4443 c, TOI-4468 b & c, TOI-4499 b, TOI-4567 b, TOI-4616 b, TOI-4724 b, TOI-4851 b, TOI-5165 b, TOI-5177 b, TOI-5289 b, TOI-5493 b, TOI-5531 b, TOI-5543 b, TOI-5646 b, TOI-5696 b, TOI-5730 b, TOI-5739 b, TOI-5807 b, TOI-5947 b, TOI-5958 b, TOI-5961 b, TOI-5968 b, TOI-5997 b, TOI-6098 b, TOI-6174 b, TOI-6310 b, TOI-6434 b, TOI-6450 b, TOI-6647 b, TOI-6662 b, TOI-6729 b & c, TOI-7182 b, TOI-7389 b, TOI-7391 b, and TOI-7550 b.

October 1, 2026

Three New Planets and Spectra for Five Planets

The archive's weekly update offers three new planets (HD 148797 b & c and TOI-2427 c), new data for three more planets (HIP 67522 b & c and TOI-2427 b), and transmission spectra for five planets (HD 209458 b, NGTS-5 b, WASP-69 b, WASP-74 b, and WASP-104 b).

Have Your Assistant Talk to Our Assistant

If you work with an AI coding assistant such as Claude Code, Claude Desktop, OpenCode or Codex, you can now connect it to AstroFetch, the archive's AI assistant that answers natural-language questions.

Your assistant gets the same curated archive knowledge that AstroFetch chat uses and can run ADQL queries against supported NASA archives, look up literature in NASA ADS (SciX), and plan observations, all from inside your own tools. The service uses the open Model Context Protocol (MCP), so no AstroFetch account or API key is needed.

Learn more and get started at the AstroFetch AI Agents page.

exoplanetarchive.ipac.caltech.edu

Contact: mharbut@caltech.edu

4 Jobs and Positions

Computational Astrophysics Faculty & Exoplanets with Roman Postdoc & Graduate Student Positions at Louisiana State University

Matthew Penny[1,2]

[1] Department of Physics & Astronomy, Louisiana State University, Baton Rouge, LA, USA
[2] Center for Computation & Technology, Louisiana State University, Baton Rouge, LA, USA

Baton Rouge, LA, USA, Deadlines: December 1st, December 1st & January 1st

Louisiana State University is seeking applicants for an **open rank faculty position** in a broad area of theory including computational astrophysics or gravitational physics including gravitational waves. The full ad can be found at `https://aas.org/jobregister/ad/b92765ec`. Please contact Prof. Manos Chatzopoulos (`chatzopoulos@lsu.edu`) or Prof. Michaela Negro (`michelanegro@lsu.edu`) for further details. Applications received before December 1st will receive full consideration, but the position will remain open until filled.

Prof. Matthew Penny seeks applicants for a **postdoctoral researcher** position to work on data from the Galactic Bulge Time Domain Survey to be conducted by the Nancy Grace Roman Space Telescope starting in February 2027. The researcher will join an active group working on topics of gravitational microlensing (exoplanets, free-floating planets, and black holes), transiting planets, and Milky Way structure. The full ad can be found at `https://apptrkr.com/9922236`. The deadline for full consideration is December 1st.

Professor Penny also intends to take on a new **graduate student** to work on Roman data. Information on the LSU Physics & Astronomy graduate program and how to apply can be found at `https://www.lsu.edu/physics/graduate/graduate-studies.php`. The application deadline for the graduate program is January 1st 2027.

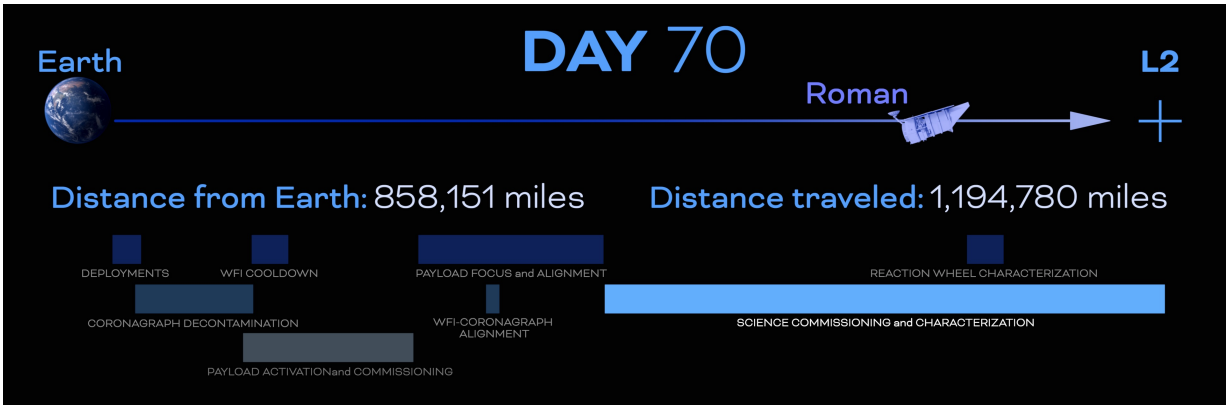


Figure 9

Download/Website: `https://apptrkr.com/9922236`
Contact: `penny1@lsu.edu`

2027 Trottier Postdoctoral Fellowship in Exoplanetary Science

Prof. René Doyon

Montréal, Canada, Starting date: May to September 2027

The Trottier Institute for Research on Exoplanets (IREx), affiliated with the Dept. of Physics of the Université de Montréal, invites applications for the **Trottier Postdoctoral Fellowship**, which enables cutting-edge independent research in experimental, observational, or theoretical astrophysics applied to the study of exoplanets and related fields of astrophysics and astronomical instrumentation.

A PhD in physics, astronomy or related discipline is required when the position starts. Preference will be given to applicants who have obtained their Ph.D. within the last 3 years. Applicants with career interruptions due, for example, to parental, medical, or family leaves are invited to mention this in their cover letter if desired. The position start date is between **May and September 2027**, and is for two years, renewable for a third year subject to performance and availability of funds.

Applicants should submit a cover letter (optional, max. 1 page), a statement of research interests (max. 2 pages), and a CV incl. a list of publications through the dedicated form https://forms.gle/nbDkwRPerbp2h4aT9. They should also arrange to have three referees send a letter of reference to **irex-applications@umontreal.ca by December 15, 2026**, for full consideration. However, this position will remain open until filled.

IREx consists of a team of about 70 people from several research institutions located in Quebec, Canada (Université de Montréal, McGill University, Bishop's University, Montreal Planetarium, Université Laval), working at the forefront of exoplanet research. Our professors, researchers, and students are actively involved in large international projects related to the detection and characterisation of exoplanets, notably the James Webb Space Telescope, the SPIRou and NIRPS spectrographs, and have privileged access to time and data from these instruments. IREx also has a vibrant science education and outreach program. We train scientists who have exceptional scientific research skills, but also outstanding communication skills. We strongly encourage applications from women, visible and ethnic minorities, Indigenous people, persons with disabilities and people of all sexual orientations and gender identities to apply.

More information on the position and on our institute and its members, our research programs, our EPO initiatives and our EDI efforts can be found on our website: https://exoplanetes.umontreal.ca/en.

Download/Website: `https://exoplanetes.umontreal.ca/en/job/2027-trottier-postdoctoral-fellowship/\`

Contact: `nathalie@astro.umontreal.ca`



5 Conferences and Workshops

EGU 2027 - PS 5.2 Exoplanets atmospheres: climates, clouds, magnetic fields and Energetic processes

Christiane Helling [1], *Vikas Soni* [1], *Monika Lendl* [2], *Jean-Michel Désert* [3]

[1] Space Research Institute, Austrian Academy of Sciences, Graz, Austria
[2] University of Geneva, Switzerland
[3] Leibniz-Institut fuer Astrophysik, Potsdam, Germany

Vienna, Austria , 4.- 9.4.2026

Dear colleagues,
we would like to advertise the following session at the EGU 2027 in Vienna 3.- 8.5.2026.
PS 5.2 Exoplanets atmospheres: climates, clouds, magnetic fields and Energetic processes

This session invites contributions on recent progress in the characterisation of exoplanetary climate regimes based on state-of-the-art theoretical modelling and inspired by observations from JWST, CHEOPS, TESS, and other facilities. Recent observations of mineral clouds and disequilibrium chemical tracers, such as SO_2, have provided a deeper basis for understanding exoplanetary atmospheric processes and are pushing the boundaries of our theoretical understanding of exoplanetary climate regimes. The upcoming launch of PLATO, together with the ongoing preparation of selected targets and the characterisation of their atmospheric and climate properties, is equally important for enabling and interpreting future PLATO observations. In addition, phase-curve observations from CHEOPS and TESS have highlighted the need to consider magnetically coupled atmospheric dynamics, while PLATO will soon open another frontier in phase-curve observations.
This session aims to invite recent progress in exoplanet climate characterisation based on a combination of observation and modelling. The session focuses on cloud and gas-phase chemistry modelling, the modelling of magnetic coupling in atmospheres and their observational counterpart. Contributions from the cross-over studies of solar system and exoplanet sciences are particularly welcomed.
This session is inspired by the upcoming PLATO launch in early 2027 and ongoing CHEOPS-PLATO synergies, including atmospheric characterisation of hot to ultra-hot Jupiters facilitated by optical observations (secondary eclipse measurements/phasecurves) that are highly complementary to JWST observations in the infrared. The session will also discuss atmosphere interpretation activities on incorporating complex 3D modelling in their data interpretation. This session is further part of the PLATO WP activities for exoplanet gas giants as well as the PLATO planetary phase curves working group.
Abstract submission deadline: 12 January 2027, 13:00 CET

Download/Website: `https://meetingorganizer.copernicus.org/EGU27/session/60504`

Contact: `Vikas.Soni@oeaw.ac.at`

TESS Science Conference IV (TSC4)

Avi Shporer, on behalf of the TSC4 organizing committees
MIT Kavli Institute for Astrophysics and Space Research, Cambridge, MA, USA

Kresge Auditorium, MIT, Cambridge, MA, USA, 26–30 July 2027

The fourth TESS Science Conference (TSC4) will cover all science done with data from NASA's Transiting Exoplanet Survey Satellite (TESS), from the Solar System (asteroids, trans-Neptunian objects, comets), through exoplanets and stellar astrophysics (asteroseismology, variable stars, stellar binaries), to extragalactic astronomy (supernovae, AGN, tidal disruption events). It will address all aspects of the mission: TESS data analysis techniques, follow-up observations of targets identified with TESS, and how TESS discoveries shape theoretical understanding.

TSC4 follows TSC1 (2019), TSC2 (2021, online) and TSC3 (2024). Key dates for registration and abstract submission will be posted on the conference website. Please save the date!

Download/Website: `https://tsc.mit.edu/2027/`

Contact: `tsc4@mit.edu`

6 As seen on astro-ph

The following list contains exoplanet related entries appearing on astro-ph in October 2026.
Disclaimer: The hyperlinks to the astro-ph articles are provided for the convenience of the reader, but the ExoPlanet News cannot be responsible for their accuracy and perpetuity.

October 2026

astro-ph/2610.02245: **A Missing Latent, Not a Missing Simulator: Radius-Augmented Inference for Real JWST Retrieval** *by Angshuman Chakravertty, P V V Raj*
astro-ph/2610.00462: **How eccentric is the debris disk of epsilon Eridani? ALMA reveals a near-circular belt** *by Oto Ulrich et al.*
astro-ph/2610.00813: **Correlations between the Carbon-to-Oxygen Ratio and the Orbital and Physical Properties of Exoplanets** *by Noah Ferich et al.*
astro-ph/2610.02619: **The 200-300 GHz Survey for 18 Class II Disks in the Ophiuchus Star-Forming Complex** *by Chia-Ying Chung et al.*
astro-ph/2610.02956: **Plato benchmark stars I. The initial benchmark sample** *by T. Merle et al.*
astro-ph/2610.03974: **The Nearest, Brightest Debris Disk Host Stars: Updated Photosphere Models and Dust Properties for Stars with Saturated 2MASS Photometry** *by Inbok Yea et al.*
astro-ph/2610.04358: **How dust particles orbiting white dwarfs can reveal undetected co-orbiting exoplanets II. Exoplanets on elliptic orbits** *by Kyriaki I. Antoniadou, Dimitri Veras*
astro-ph/2610.04497: **Stellar magnetic activity and rocky planets in cool dwarf stars** *by A. K. Stefanov*
astro-ph/2610.06332: **Shadows cast by precessing annuli as evidence for an inclined planet in HD 139614** *by Katie L. Milsom et al.*
astro-ph/2610.06780: **Production of White Dwarf Debris Disks from Planetary Collisions and Poynting-Robertson Drag** *by Fred C. Adams, Konstantin Batygin*
astro-ph/2610.07133: **First Direct Identification of a Multi-Star Microlens System Hosting a Planet** *by Sean K. Terry et al.*
astro-ph/2610.07161: **Discovery of a second-generation planet candidate accreting onto a white dwarf** *by Jamie T. Williams et al.*
astro-ph/2610.08471: **Reflex instabilities I: Boundaries makes grid-based disc simulations frame-dependent** *by Nathan Magnan et al.*

astro-ph/2610.08472: **Reflex instabilities II: The reflex motion of the central object drives at least seven instabilities in accretion discs** *by Nathan Magnan et al.*
astro-ph/2610.08922: **Searching for hot water world candidates with CHEOPS: II. A low-density super-Earth orbiting the K dwarf TOI-2211** *by J. A. Egger et al.*
astro-ph/2610.10701: **EK Cha b: multi-tracer detection of a protoplanet candidate in a gas-rich environment** *by Felipe Alarcón et al.*
astro-ph/2610.09965: **Astrometric planet search around southern ultracool dwarfs: V. Discovery of the exoplanet candidate PALTA-1 b** *by J. Sahlmann et al.*
astro-ph/2610.10130: **A Recurrent Infrared Modulation in the Warm Post-impact Debris Disk NGC 2547 ID8** *by Xiaodian Chen et al.*
astro-ph/2610.09881: **A faint dust ring beyond the compact disk of Sz 76** *by Giulia Ricciardi et al.*
astro-ph/2610.09575: **A comparison between particle and fluid approaches for streaming instability in global patch simulations** *by Dominik Hetzel Ostertag et al.*
astro-ph/2610.09954: **The GAPS Programme at TNG. LXXX. Characterisation of the 400 Myr old multi-planet system K2-233** *by V. Fardella et al.*
astro-ph/2610.11637: **Gravitational Microlensing** *by Aikaterini Vandorou, Stela Ishitani Silva*
astro-ph/2610.11763: **Metallicity does not reorder line-to-line sensitivity to granulation in solar-like stars** *by Dušan Vukadinović et al.*
astro-ph/2610.12267: **Gen-EBM: an energy balance model for terrestrial planets. Climate multistability from snowball to post-runaway greenhouse climates** *by Siddharth Bhatnagar et al.*
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