ExoPlanet News
An Electronic Newsletter

No. 113, 12. November 2018

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Contents

1 Editorial

Welcome to edition 113 of the ExoPlanet News!

We are pleased to send you the November 2018 ExoPlanet newsletter with abstracts of new scientific papers, a job ad for a Las Cumbres Observatory staff scientist, the monthly updates from the NASA exoplanet archive, and the overview of the new articles on astro-ph. Thanks a lot to all of you who contributed to this issue of the newsletter!

The update from the NASA exoplanet archive contains among the usual points the announcement of the end of the Kepler/K2 spacecraft operations. You probably heard this already in the news. This closes a highly successful chapter in the history of exoplanet detections that has enormously boosted our knowledge and understanding of all the extrasolar planets out there. With TESS launched in April 2018, CHEOPS following in 2019, and finally PLATO scheduled for launch in 2026, the end of Kepler/K2 fortunately does not mean that space-based transit searches have come to an end altogether.

Looking ahead to edition 114, we are again looking forward to your paper abstract, job ad or meeting announcement. Also special announcements of all kinds 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 December 17, 2018.

Thanks for all your support and best regards from Switzerland,

Christoph Mordasini
Yann Alibert
Adrien Leleu
Sascha P. Quanz

2 Abstracts of refereed papers

Is the ring inside or outside the planet?: The effect of planet migration on dust rings

Farzana Meru[1,2,3], *Giovanni P. Rosotti*[3], *Richard A. Booth*[3], *Pooneh Nazari*[3,4] *and Cathie J. Clarke3*

[1] Department of Physics, University of Warwick, Gibbet Hill Road, Coventry, CV4 7AL, UK
[2] Centre for Exoplanets and Habitability, University of Warwick, Gibbet Hill Road, Coventry CV4 7AL, UK
[3] Institute of Astronomy, University of Cambridge, Madingley Road, Cambridge, CB3 0HA, UK
[4] SUPA, School of Physics & Astronomy, University of St Andrews, North Haugh, St Andrews, Scotland, KY16 9SS, UK

MNRAS, in press (arXiv:1810.06573)

Planet migration in protoplanetary discs plays an important role in the longer term evolution of planetary systems, yet we currently have no direct observational test to determine if a planet is migrating in its gaseous disc. We explore the formation and evolution of dust rings – now commonly observed in protoplanetary discs by ALMA – in the presence of relatively low mass (12-60 $\mathrm{M}_\oplus$) migrating planets. Through two dimensional hydrodynamical simulations using gas and dust we find that the importance of perturbations in the pressure profile interior and exterior to the planet varies for different particle sizes. For small sizes a dust enhancement occurs interior to the planet, whereas it is exterior to it for large particles. The transition between these two behaviours happens when the dust drift velocity is comparable to the planet migration velocity. We predict that an observational signature of a migrating planet consists of a significant outwards shift of an observed midplane dust ring as the wavelength is increased.

Download/Website: `https://arxiv.org/abs/1810.06573`

Contact: `f.meru@warwick.ac.uk`

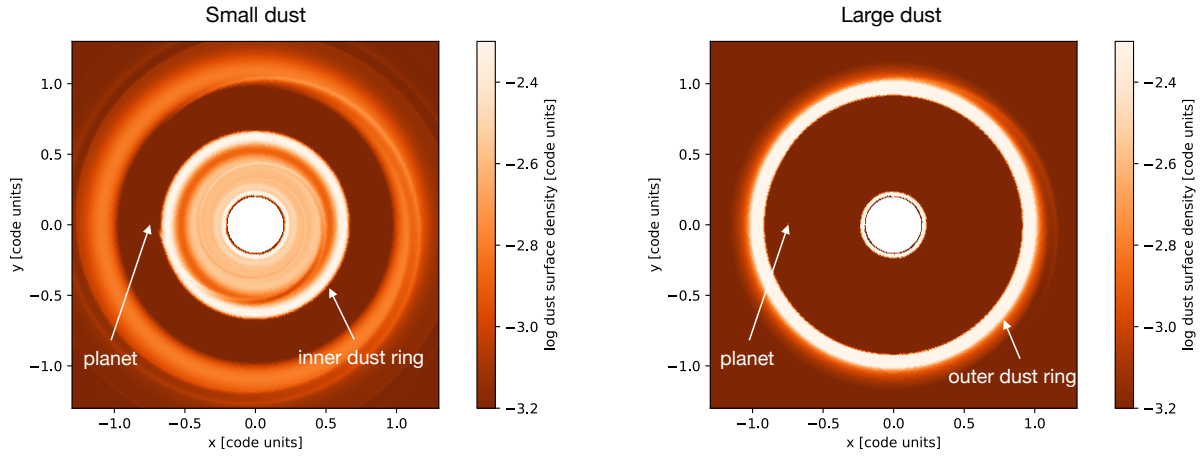

Figure 1: Dust density rendered simulation image of the disc with a $30\mathrm{M}_\oplus$ migrating planet at $R_\mathrm{p} = 0.75$ for dust with Stokes numbers of 0.02 (left) and 0.2 (right). The small dust forms a ring interior to the planet while the large dust forms a ring exterior to it.

H_2O Abundances and Cloud Properties in Ten Hot Giant Exoplanets

A. Pinhas, N. Madhusudhan, S. Gandhi, and R.J. MacDonald
Institute of Astronomy, University of Cambridge, Madingley Rise, CB3 0HA

Monthly Notices of the Royal Astronomical Society, published (2019MNRAS.482.1485P)

Transmission spectroscopy of exoplanets has the potential to provide precise measurements of atmospheric chemical abundances, in particular of hot Jupiters whose large sizes and high temperatures make them conducive to such observations. To date, several transmission spectra of hot Jupiters have revealed low amplitude features of water vapour compared to expectations from cloud-free atmospheres of solar metallicity. The low spectral amplitudes in such atmospheres could either be due to the presence of aerosols that obscure part of the atmosphere or due to inherently low abundances of H_2O in the atmospheres. A recent survey of transmission spectra of ten hot Jupiters used empirical metrics to suggest atmospheres with a range of cloud/haze properties but with no evidence for H_2O depletion. Here, we conduct a detailed and homogeneous atmospheric retrieval analysis of the entire sample and report the H_2O abundances, cloud properties, terminator temperature profiles, and detection significances of the chemical species. Our present study finds that the majority of hot Jupiters have atmospheres consistent with sub-solar H_2O abundances at their day-night terminators. The best constrained abundances range from $\log(H_2O)$ of $-5.04^{+0.46}_{-0.30}$ to $-3.16^{+0.66}_{-0.69}$, which compared to expectations from solar-abundance equilibrium chemistry correspond to $0.018^{+0.035}_{-0.009}\times$ solar to $1.40^{+4.97}_{-1.11}\times$ solar. Besides H_2O we report statistical constraints on other chemical species and cloud/haze properties, including cloud/haze coverage fractions which range from $0.18^{+0.26}_{-0.12}$ to $0.76^{+0.13}_{-0.15}$. The retrieved H_2O abundances suggest sub-solar oxygen and/or super-solar C/O ratios, and can provide important constraints on the formation and migration pathways of hot giant exoplanets.

Download/Website: `http://adsabs.harvard.edu/abs/2019MNRAS.482.1485P`

Contact: `ap817@ast.cam.ac.uk, nmadhu@ast.cam.ac.uk`

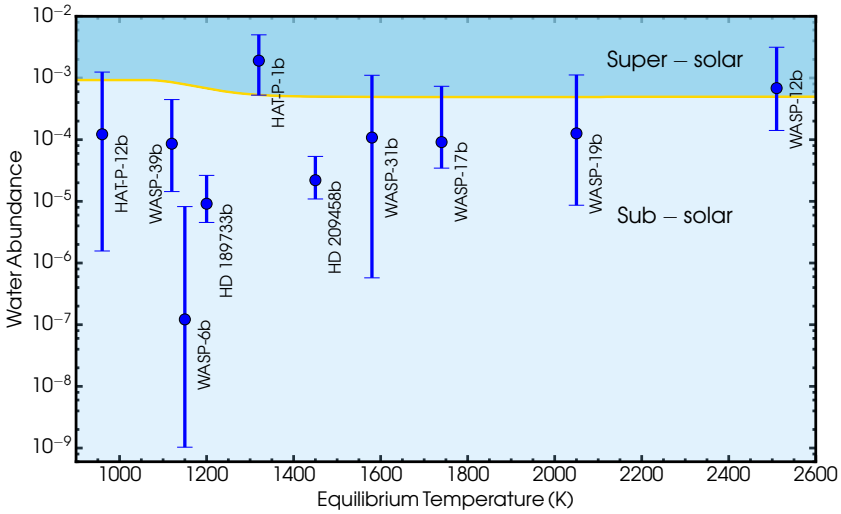

Figure 2: The retrieved H_2O volume mixing ratios for the ensemble of ten hot giant exoplanets. The planets are consistent with sub-solar H_2O abundances within 1σ with the exception of HAT-P-1b. The gold line shows the H_2O volume mixing ratio calculated from solar elemental abundances.

PynPoint: a modular pipeline architecture for processing and analysis of high-contrast imaging data

T. Stolker[1], *M. J. Bonse*[1], *S. P. Quanz*[1], *A. Amara*[1], *G. Cugno*[1], *A. J. Bohn*[2], *A. Boehle*[1]

[1] Institute for Particle Physics and Astrophysics, ETH Zurich, Wolfgang-Pauli-Strasse 27, 8093 Zurich, Switzerland
[2] Leiden Observatory, Leiden University, P.O. Box 9513, 2300 RA Leiden, The Netherlands

Astronomy & Astrophysics, in press (arXiv:1811.03336)

The direct detection and characterization of planetary and substellar companions at small angular separations is a rapidly advancing field. Dedicated high-contrast imaging instruments deliver unprecedented sensitivity, enabling detailed insights into the atmospheres of young low-mass companions. In addition, improvements in data reduction and PSF subtraction algorithms are equally relevant for maximizing the scientific yield, both from new and archival data sets. We aim at developing a generic and modular data reduction pipeline for processing and analysis of high-contrast imaging data obtained with pupil-stabilized observations. The package should be scalable and robust for future implementations and in particular well suitable for the 3–5 μm wavelength range where typically (ten) thousands of frames have to be processed and an accurate subtraction of the thermal background emission is critical. PynPoint is written in Python 2.7 and applies various image processing techniques, as well as statistical tools for analyzing the data, building on open-source Python packages. The current version of PynPoint has evolved from an earlier version that was developed as a PSF subtraction tool based on principal component analysis (PCA). The architecture of PynPoint has been redesigned with the core functionalities decoupled from the pipeline modules. Modules have been implemented for dedicated processing and analysis steps, including background subtraction, frame registration, PSF subtraction, photometric and astrometric measurements, and estimation of detection limits. The pipeline package enables end-to-end data reduction of pupil-stabilized data and supports classical dithering and coronagraphic data sets. As an example, we processed archival VLT/NACO L' and M' data of β Pic b and reassessed the planet's brightness and position with a Markov chain Monte Carlo analysis, and we provide a derivation of the photometric error budget. PynPoint is available at https://github.com/PynPoint/PynPoint under the GNU General Public License v3.

Download/Website: `https://arxiv.org/abs/1811.03336`

Contact: `tomas.stolker@phys.ethz.ch`

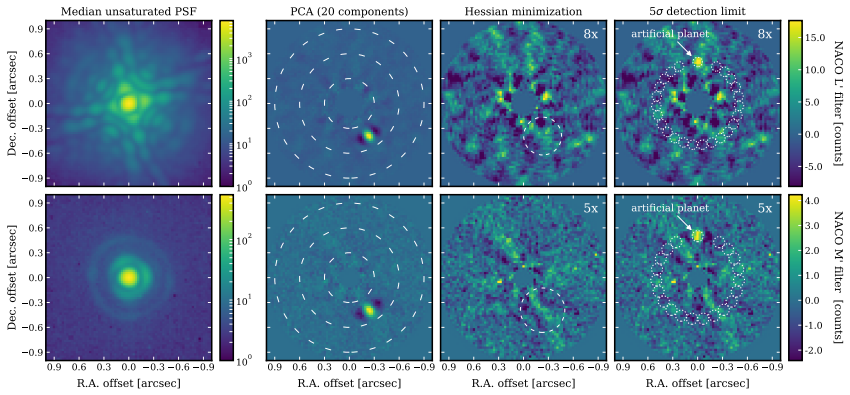

Figure 3: Processing and analysis with PynPoint of archival VLT/NACO data of β Pictoris in the L' (*top*) and M' (*bottom*) filters. Images show from *left* to *right* the unsaturated PSF of β Pic, the residuals of the PSF subtraction, the residuals with the best-fit negative artificial planet injected to determine the flux and position of the planet, and the residuals with an artificial planet injected at 0.5 arcsec and a brightness scaled to a 5σ detection level.

3 Jobs and Positions

Staff Scientist

Rachel Street
[1] Las Cumbres Observatory, 6740 Cortona Drive, Suite 102, Goleta, CA 93117

Goleta, California, USA, Early 2019

Las Cumbres Observatory (LCO) invites applications for a Staff Scientist position. LCO is a private, non-profit corporation, based in Santa Barbara, California.
LCO has built and operates a global network of telescopes with apertures from 40-cm to 2-m for time domain astronomy research and education. The distribution of sites allows 24-hour monitoring of a given target and its unique robotic scheduler enables observations to be made rapidly and with great flexibility. In addition to NRES, the instrumentation includes optical imagers and low-dispersion optical spectrographs. The LCO network is used by an in-house science staff as well as by collaborators at about a dozen partner institutions around the world, and the national communities of China, Chile, and the United States. LCO is actively engaged in collaboration with other observatories and projects to further develop the existing network into a time-domain follow-up system for the LSST era.

Responsibilities
We seek a scientist who will carry out a strong scientific program with our new NRES instruments, high-precision radial velocity spectrographs, in areas such as exoplanets or stellar astrophysics. Exceptional candidates in other fields of study are also encouraged to apply. We expect the new hire to spearhead the scientific support of the NRES instrument, as well as play a leading role in its scientific applications and advocate for it, both internally and externally.
Current research by the LCO staff includes studies of supernovae and exotic transients; exoplanets, including transits and microlensing; solar system objects; stellar astrophysics; and AGN variability. In addition to their personal research programs, scientists are expected to spend a portion of their time helping to support the operation and improvement of the observatory, including supporting external users. Additional information about our organization, our global observatory, and our science can be found at our website (lco.global) or by contacting Sarah Rettinger, HR Manager, at srettinger@lco.global

Requirements
Requirements include a PhD in physics or astronomy. Experience in an academic or observatory position is required. In addition, we are looking for a scientist with the ability to develop and manage a research program and to produce significant publications. Hands-on experience with instrumentation, particularly high-dispersion spectroscopy, would be valuable.
The new hire will benefit from LCO's close working relationship with the University of California, Santa Barbara and the Kavli Institute for Theoretical Physics.

Application Details
Applications complete by December 14, 2018 will receive full consideration. Applicants should submit a single PDF to lcojobs@lco.global which includes:

1. Cover letter stating why the candidate is interested in this position and how the candidate matches the position (maximum 2 pages)
2. Curriculum vitae including publication list
3. Brief description of research interests and past research (maximum 3 pages)

4. Three letters of recommendation emailed to srettinger@lco.global

LCO is an Affirmative Action/Equal Opportunity employer. LCO is especially interested in candidates who can contribute to the diversity of our organization and the academic community.
LCO offers an exceptional compensation package; a competitive salary, great vacation time, and generous benefits.

Download/Website: `https://lco.global/jobs/staff-scientist/`

Contact: `srettinger@lco.global`

4 Exoplanet Archive Updates

October 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 12, 2018

October 30, 2018

NASA Announces End of Kepler Spacecraft Operations

Today marks the official end of Kepler space telescope operations as announced in a media teleconference earlier today, thus closing a historic era that has revolutionized our scientific understanding of planets and other planetary systems.

For 9.6 years, Kepler and K2 observed more than a half-million stars and enabled the confirmation and characterization of thousands of exoplanets, and named thousands of additional planetary candidates that are yet to be confirmed. Prior to Kepler's launch in 2009, the total number of known exoplanets hovered around 400. Today, that number is closer to 4,000, thanks in large part to the Kepler and K2 missions. See our Exoplanet and Candidate Statistics page for a breakdown of Kepler Mission counts.

When the NASA Exoplanet Archive came online in December 2011, Kepler was already in space and had discovered 19 planetary systems. As the designated home to Kepler's pipeline products, the archive expanded its tools and services to serve Kepler data and products, including Completeness and Reliability products, Threshold-Crossing Events (TCEs), Kepler Objects of Interest (KOI) deliveries, Kepler Astrophysical Positional Probabilities, Kepler Astrophysical False Positive Probabilities, Kepler Certified False Positives, Kepler Stellar, and Kepler Names. Additionally, the archive ingested Kepler light curves as they were made available to the public and created ExoFOP-Kepler, ExoFOP-K2, and ExoFOP-K2 Campaign 9, three sites that enable astronomers to share follow-up data and facilitate collaboration. The archive continued ingesting data and products from the K2 mission: Targets, Candidates, and Names.

For a round-up of all Kepler data and data products, hosted both at the archive and MAST, see the Data Product Overview page (`http://bit.ly/2EfdENe`).

Some additional archive resources featuring Kepler include:

- Our *Exoplanets: Cumulative Detections by Discovery Year* histogram movie (`http://bit.ly/2QsHPlx`) shows the cumulative number of exoplanet discoveries by detection method since 1989 through September 2018 (Kepler shows up around 00:25).
- This pre-generated plot of the number of *Kepler candidates vs. Kepler confirmed planets* (`http://bit.ly/2OzNTqP`) shows there are still many discoveries to be made using Kepler data.
- This other pre-generated plot of *Kepler Planets vs. All Confirmed Planets* (`http://bit.ly/2zCRheR`) illustrates how Kepler planets make up the bulk of all confirmed planets.

Kepler's active operations may be over, but new NASA missions like the TESS and Webb space telescopes will build on Kepler's success in the search for life in the Universe.

October 26, 2018

28 Planets This Week! We've added 19 K2 planets from Livingston et al. 2018, 8 WASP planets from Hellier et al. 2018, and 1 microlensing planet with 5 solutions from Poleski et al. 2018. We've also added 60 new sets of planet parameters.

The new planets are: OGLE-2011-BLG-0173L b, WASP-144 b, WASP-145 A b, WASP-158 b, WASP-159 b, WASP-162 b, WASP-168 b, WASP-172 b, WASP-173 A b, K2-268 b & c, K2-269 b, K2-270 b & c, K2-271 b, K2-272 b, K2-273 b, K2-274 b, K2-275 b & c, K2-276 b, K2-277 b, K2-278 b, K2-279 b, K2-280 b, K2-281 b, K2-282 b, and K2-283 b.

View their data in the Confirmed Planets (`http://bit.ly/2MqFnub`) Composite Planet Data (`http://bit.ly/2l84Qw9`), and Extended Planet Data (`http://bit.ly/2NLy1Ci`) tables. In addition, the new OGLE planet and parameters appear in the Microlensing interactive table (`http://bit.ly/2JQr180`).

October 18, 2018

This week we've got five new transiting planets from K2: four in a very compact system (K2-266 b, c, d, & e), and one short-period, Jupiter-sized planet (K2-267 b). These bring the archive's total exoplanet count to 3,798. View the planets' data in the Confirmed Planets table and the Composite Planet Data table.

October 11, 2018

New K2 Light Curves from Five Campaigns: We've added 128,653 K2 light curves from campaigns 2, 14, 15, 16, and 17 to the archive. Access them through the K2 Targets search interface `http://bit.ly/2OTAkDS`; (specify a campaign number, click Submit Search, then click on Download Data Products and select Download Results Time Series Wget Script).

Kepler Data Products Overview: The Kepler project produced a wide range of data products and documentation to assist the community in using data from the mission to help study both exoplanets and other astrophysical areas. These data range from engineering data on the detectors to lists of planet candidates and include many of the intermediate data products in the data processing path. The Kepler Data Product Overview page was created to provide a single location with links to all products and their documentation. There are more than 40 data products listed, which are hosted either at MAST or the NASA Exoplanet Archive.

The page is located at: `http://bit.ly/2EfdENe`. There is also a downloadable PDF of the page.
Three Planets Added, One Removed: This week we added Kepler-1656 b, K2-265 b, and NGTS-2 b to the Confirmed Planets, Composite Planet Data, and Extended Planet Data tables. We also removed Kepler-503 b based on a published refutation.

Updated Movie! We've updated our Exoplanets: Cumulative Detections by Discovery Year movie with 2018 data, which you can access from the Videos and Pre-generated Plots pages.

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

5 As seen on astro-ph

The following list contains all the entries relating to exoplanets that we spotted on astro-ph during October 2018.

October 2018

astro-ph/1810.00014: **A Cold Neptune Beyond the Snow Line in the Provisional WFIRST Field** by *Clément Ranc et al.*
astro-ph/1810.00165: **Thermodynamics of Surface-Bounded Exospheres: Divergent Near-surface Density** by *Norbert Schorghofer*
astro-ph/1810.00776: **On the detectability of transiting planets orbiting white dwarfs using LSST** by *Jorge Cortes, David M. Kipping*
astro-ph/1810.00894: **Atmospheric characterization of directly imaged exoplanets with JWST/MIRI** by *C. Danielski et al.*
astro-ph/1810.01389: **A limit on gas accretion onto close-in super-Earth cores from disk accretion** by *Masahiro Ogihara, Yasunori Hori*
astro-ph/1810.01459: **Regolith behavior under asteroid-level gravity conditions: low-velocity impact experiments** by *Julie Brisset et al.*
astro-ph/1810.01792: **Detection of planetary signals by reflected light of the host star using the autocorrelation of spectra** by *E.F. Borra, D. Deschatelets*
astro-ph/1810.01815: **Rubble Pile Asteroids** by *Kevin J. Walsh*
astro-ph/1810.01995: **Climate change via co2 drawdown from astrophysically initiated atmospheric ionization?** by *Adrian Melott , Brian C. Thomas, Brian D. Fields*
astro-ph/1810.02007: **Physical constraints for the evolution of life on exoplanets** by *Manasvi Lingam, Abraham Loeb*
astro-ph/1810.02031: **Direct Imaging of Exoplanets at the Era of the Extremely Large Telescopes** by *G. Chauvin*
astro-ph/1810.02148: **Origin of 1I/'Oumuamua. I. An ejected protoplanetary disk object?** by *Amaya Moro-Martín*
astro-ph/1810.02172: **Deciphering the atmosphere of HAT-P-12b: solving discrepant results** by *X. Alexoudi et al.*
astro-ph/1810.02341: **HD 202772A B: A Transiting Hot Jupiter Around A Bright, Mildly Evolved Star In A Visual Binary Discovered By Tess** by *Songhu Wang et al.*
astro-ph/1810.02362: **Evidence for a Large Exomoon Orbiting Kepler-1625b** by *Alex Teachey, David M. Kipping*
astro-ph/1810.02370: **A Lagrangian Model for Dust Evolution in Protoplanetary Disks: Formation of Wet and Dry Planetesimals at Different Stellar Masses** by *Djoeke Schoonenberg, Chris W. Ormel, Sebastiaan Krijt*
astro-ph/1810.02691: **Microlensing Searches for Exoplanets** by *Yiannis Tsapras*
astro-ph/1810.02712: **The habitable zone for Earthlike exomoons orbiting Kepler-1625b** by *Duncan Forgan*
astro-ph/1810.02771: **(16) Psyche: A mesosiderite-like asteroid?** by *M. Viikinkoski et al.*
astro-ph/1810.02826: **Observations of the Kepler Field with TESS: Predictions for Planet Yield and Observable Features** by *Callista N. Christ, Benjamin T. Montet, Daniel C. Fabrycky*
astro-ph/1810.02847: **Planet occurrence rate density models including stellar effective temperature** by *Daniel Garrett, Dmitry Savransky, Rus Belikov*
astro-ph/1810.02852: **Prospects for Refining Kepler TTV Masses using TESS Observations** by *Max Goldberg et al.*
astro-ph/1810.02965: **Can Formamide Be Formed on Interstellar Ice? An Atomistic Perspective** by *Albert Rimola et al.*
astro-ph/1810.02986: **Correcting HIRES radial velocities for small systematic errors** by *Lev Tal-Or et al.*
astro-ph/1810.03304: **Can Moons Have Moons?** by *Juna A. Kollmeier, Sean N. Raymond*

astro-ph/1810.03385: **Dynamics of multiple protoplanets embedded in gas/pebble disks and its dependence on Σ and ν parameters** by *Miroslav Brož et al.*
astro-ph/1810.03648: **OSSOS: XV. No active Centaurs in the Outer Solar System Origins Survey** by *N. Cabral et al.*
astro-ph/1810.03693: **Revisiting the potassium feature of WASP-31b at high-resolution** by *Neale P. Gibson et al.*
astro-ph/1810.03794: **Deep exploration of ϵ Eridani with Keck Ms-band vortex coronagraphy and radial velocities: mass and orbital parameters of the giant exoplanet** by *Dimitri Mawet et al.*
astro-ph/1810.04060: **Data calibration for the MASCARA and bRing instruments** by *G.J.J. Talens et al.*
astro-ph/1810.04074: **60 Validated Planets from K2 Campaigns 5-8** by *John H. Livingston et al.*
astro-ph/1810.04175: **How to Characterize the Atmosphere of a Transiting Exoplanet** by *Drake Deming, Dana Louie, Holly Sheets*
astro-ph/1810.04241: **Measuring the D/H Ratios of Exoplanets and Brown Dwarfs** by *Caroline V. Morley et al.*
astro-ph/1810.04307: **Galactic Panspermia** by *Idan Ginsburg, Manasvi Lingam, Abraham Loeb*
astro-ph/1810.04544: **Capturing the oxidation of silicon carbide in rocky exoplanetary interiors** by *Kaustubh Hakim, Wim van Westrenen, Carsten Dominik*
astro-ph/1810.04601: **K2-140b and K2-180b - Characterization of a hot Jupiter and a mini-Neptune from the K2 mission** by *J. Korth et al.*
astro-ph/1810.04615: **Enhanced constraints on the interior composition and structure of terrestrial exoplanets** by *Haiyang S. Wang et al.*
astro-ph/1810.04657: **Time resolved spectroscopy of dust and gas from extrasolar planetesimals orbiting WD 1145+017** by *Marie Karjalainen et al.*
astro-ph/1810.04684: **Methane in Analogs of Young Directly Imaged Exoplanets** by *Brittany E. Miles et al.*
astro-ph/1810.04731: **Confirmation of the radial velocity super-Earth K2-18c with HARPS and CARMENES** by *R. Cloutier et al.*
astro-ph/1810.04961: **Evidence For A Vertical Dependence on the Pressure Structure in AS 209** by *Richard Teague et al.*
astro-ph/1810.05128: **From rock to life. A mass balance analysis of oxidative biological weathering and biosignatures formation** by *Dragos G. Zaharescu et al.*
astro-ph/1810.05139: **Climates of Warm Earth-like Planets II: Rotational 'Goldilocks' Zones for Fractional Habitability and Silicate Weathering** by *Tiffany Jansen et al.*
astro-ph/1810.05150: **Early evolution of purple retinal pigments on Earth and implications for exoplanet biosignatures** by *Shiladitya DasSarma, Edward W. Schwieterman*
astro-ph/1810.05166: **Diffusion and Concentration of Solids in the Dead Zone of a Protoplanetary Disk** by *Chao-Chin Yang, Mordecai-Mark Mac Low, Anders Johansen*
astro-ph/1810.05171: **Constraining the period of the ringed secondary companion to the young star J1407 with photographic plates** by *R. T. Mentel et al.*
astro-ph/1810.05172: **Variable Outer Disk Shadowing Around the Dipper Star RX J1604.3-2130** by *P. Pinilla et al.*
astro-ph/1810.05210: **Limits on Clouds and Hazes for the TRAPPIST-1 Planets** by *Sarah E. Moran et al.*
astro-ph/1810.05253: **Evidence of magnetic star-planet interactions in the HD 189733 system from orbitally-phased Ca II K variations** by *P. Wilson Cauley et al.*
astro-ph/1810.05614: **Rings and gaps in protoplanetary disks: planets or snowlines?** by *Nienke van der Marel et al.*
astro-ph/1810.05635: **Impacts of dust feedback on a dust ring induced by a planet in a protoplanetary disk** by *Kazuhiro D. Kanagawa et al.*
astro-ph/1810.05658: **Ab initio based equation of state of dense water for planetary and exoplanetary modeling** by *S. Mazevet et al.*
astro-ph/1810.05776: **Atmospheric dynamics and the variable transit of KELT-9 b** by *P. Wilson Cauley et al.*

astro-ph/1810.05797: **Signatures of hit and run collisions** by *Erik Asphaug*
astro-ph/1810.06026: **Life-Detection Technologies for the Next Two Decades** by *Chaitanya Giri et al.*
astro-ph/1810.06099: **The High-Resolution Transmission Spectrum of HD 189733b Interpreted with Atmospheric Doppler Shifts from Three-Dimensional General Circulation Models** by *Erin Flowers et al.*
astro-ph/1810.06194: **The dimming of RW Auriga. Is dust accretion preceding an outburst?** by *Matías Gárate et al.*
astro-ph/1810.06486: **A New Planet in the Kepler-159 System From Transit Timing Variations** by *Chris Fox, Paul Wiegert*
astro-ph/1810.06569: **Simulating the M-R Relation from APF follow up of TESS targets: Survey design and strategies for overcoming mass biases** by *Jennifer Burt et al.*
astro-ph/1810.06573: **Is the ring inside or outside the planet?: The effect of planet migration on dust rings** by *Farzana Meru et al.*
astro-ph/1810.06580: **Science with an ngVLA: Resolving the Radio Complexity of EXor and FUor-type Systems with the ngVLA** by *Jacob Aaron White et al.*
astro-ph/1810.06598: **Science with an ngVLA: Resolved Substructures in Protoplanetary Disks** by *Sean M. Andrews et al.*
astro-ph/1810.06604: **Science with an ngVLA: Tracing the Water Snowline in Protoplanetary disks with the ngVLA** by *Ke Zhang et al.*
astro-ph/1810.06671: **Science with a ngVLA: Imaging planetary systems in the act of forming with the ngVLA** by *Luca Ricci et al.*
astro-ph/1810.06769: **An alternative stable solution for the Kepler-419 system, obtained with the use of a genetic algorithm** by *D. D. Carpintero, M. D. Melita*
astro-ph/1810.06920: **Overcoming the limitations of the energy-limited approximation for planet atmospheric escape** by *Daria Kubyshkina et al.*
astro-ph/1810.06941: **ALMA Reveals a Misaligned Inner Gas Disk inside the Large Cavity of a Transitional Disk** by *Satoshi Mayama et al.*
astro-ph/1810.07048: **Pebble dynamics and accretion onto rocky planets. II. Radiative models** by *Andrius Popovas, Åke Nordlund, Jon P. Ramsey*
astro-ph/1810.07160: **New Formation Models for the Kepler-36 System** by *Peter Bodenheimer et al.*
astro-ph/1810.07201: **N-body simulations of terrestrial planet growth with resonant dynamical friction** by *Spencer Wallace, Thomas Quinn*
astro-ph/1810.07328: **Maximum Angular Separation Epochs for Exoplanet Imaging Observations** by *Stephen R. Kane, Tiffany Meshkat, Margaret C. Turnbull*
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