ExoPlanet News
An Electronic Newsletter

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1 Editorial

Welcome to edition 111 of the ExoPlanet News!

Thanks a lot to all of you who contributed to this issue of the newsletter!

As usual, you can find in the newsletter abstracts of new scientific papers, job ads, one conference announcement, the monthly updates from the NASA exoplanet archive, and the overview of the new articles on astro-ph.

We are looking forward to your paper abstract, job ad or meeting announcement for the coming edition of ExoPlanet News. As usual, we would also be happy to receive feedback concerning the newsletter. The Latex template for submitting contributions of any kind, as well as all previous editions of ExoPlanet News, can be found on the webpage ExoPlanet News webpage (http://nccr-planets.ch/exoplanetnews/).

The next issue will appear October 15, 2018.

Thanks for all your support and best regards from Switzerland,

Yann Alibert
Sascha P. Quanz
Christoph Mordasini
Adrien Leleu

2 Abstracts of refereed papers

Retrieval of planetary and stellar properties in transmission spectroscopy with AURA

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Monthly Notices of the Royal Astronomical Society, in press (arXiv:1808.10017)

Transmission spectroscopy provides a powerful probe of the atmospheric properties of transiting exoplanets. To date, studies of exoplanets in transit have focused on inferring their atmospheric properties such as chemical compositions, cloud/haze properties, and temperature structures. However, surface inhomogeneities in the host stars of exoplanets in the form of cool spots and hot faculae can in principle imprint signatures on the observed planetary transit spectrum. Here we present AURA, a new retrieval paradigm for inferring both planetary and stellar properties from a transmission spectrum. We apply our retrieval framework to a sample of hot giant exoplanets to determine the significance of stellar heterogeneity and clouds/hazes in their spectra. The retrieval analyses distinguish four groups of planets. First, the spectra of WASP-6b and WASP-39b are best characterised by imprints of stellar heterogeneity and hazes and/or clouds. HD 209458b and HAT-P-12b comprise the second group for which there is weak evidence for stellar heterogeneity and a high significance of hazes and/or clouds. The third group constitutes HAT-P-1b and WASP-31b and shows weak evidence against stellar heterogeneity but weak to substantial indications of clouds/hazes. The fourth group – WASP-19b, WASP-17b, and WASP-12b – is fit best by molecular and alkali absorbers with H_2 scattering without evidence for stellar heterogeneity and weak to no evidence for clouds/hazes. Our retrieval methodology paves the way to simultaneous information on the star and planet from higher resolution spectra using future facilities such as the James Webb Space Telescope and large ground-based facilities.

Download/Website: `http://adsabs.harvard.edu/doi/10.1093/mnras/sty2209`

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Group	Planet	Stellar Heterogeneity	Clouds/Hazes
I	WASP-6b	Strong	Weak - Substantial
	WASP-39b	Substantial	Weak - Strong
II	HD 209458b	Weak	Substantial - Very Strong
	HAT-P-12b	Weak	Weak (against) - Very Strong
III	HAT-P-1b	Weak (against)	Weak (against) - Substantial
	WASP-31b	Weak (against)	Weak
IV	WASP-19b	Substantial (against)	Weak - Substantial
	WASP-17b	Substantial (against)	Weak (against)
	WASP-12b	Substantial (against)	Weak (against) - Weak

Figure 1: Roles of stellar heterogeneity and clouds/hazes in the spectral ensemble. The qualitative descriptions in the two categories are based on model comparisons and the Bayes factor classification scale of Kass & Raftery (1995). Instances of '(against)' signify that the category is not favoured to the degree of the description. In summary, our analysis distinguishes four groups of planets through the role in which stellar heterogeneity and clouds/hazes explain their spectra. Group I is best characterised by imprints of stellar heterogeneity and clouds/hazes. Group II comprises HD 209458b and HAT-P-12b and shows weak evidence for stellar heterogeneity but beyond substantial suggestions of clouds and/or hazes. HAT-P-1b and WASP-31b constitute Group III and show weak evidence against stellar heterogeneity but weak to substantial indications of clouds and/or hazes. The fourth group – WASP-19b, WASP-17b, and WASP-12b – can be explained best without stellar heterogeneity and weak to no evidence for clouds/hazes.

K2-263 b: A 50-day period sub-Neptune with a mass measurement using HARPS-N

A. Mortier[1], A. S. Bonomo[2], V. M. Rajpaul[3], L. A. Buchhave[4], A. Vanderburg[5], L. Zeng[6], M. López-Morales[7], L. Malavolta[8,9], A. Collier Cameron[1], C. D. Dressing[10], P. Figueira[11,12], V. Nascimbeni[9,8], K. Rice[13,14], A. Sozzetti[2], C. Watson[15], L. Affer[16], F. Bouchy[17], D. Charbonneau[7], A. Harutyunyan[18], R. D. Haywood[7], J. A. Johnson[7], D. W. Latham[7], C. Lovis[17], A. F. Martinez Fiorenzano[18], M. Mayor[17], G. Micela[16], E. Molinari[19], F. Motalebi[17], F. Pepe[17], G. Piotto[9,8], D. Phillips[7], E. Poretti[18,20], D. Sasselov[7], D. Ségransan[17], S. Udry[17]

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[20] INAF - Osservatorio Astronomico di Brera, Via E. Bianchi 46, 23807 Merate (LC), Italy

Monthly Notices of the Royal Astronomical Society, in press (arXiv: 1808.08187)

This paper reports on the validation and mass measurement of K2-263 b, a sub-Neptune orbiting a quiet G9V star. Using *K2* data from campaigns C5 and C16, we find this planet to have a period of 50.818947 ± 0.000094 days and a radius of 2.41 ± 0.12 $R_\oplus$. We followed this system with HARPS-N to obtain 67 precise radial velocities. A combined fit of the transit and radial velocity data reveals that K2-263 b has a mass of 14.8 ± 3.1 $M_\oplus$. Its bulk density ($5.7^{+1.6}_{-1.4}$ g cm^{-3}) implies that this planet has a significant envelope of water or other volatiles around a rocky core. K2-263 b likely formed in a similar way as the cores of the four giant planets in our own Solar System, but for some reason, did not accrete much gas. The planetary mass was confirmed by an independent Gaussian process-based fit to both the radial velocities and the spectroscopic activity indicators. K2-263 b belongs to only a handful of confirmed *K2* exoplanets with periods longer than 40 days. It is among the longest periods for a small planet with a precisely determined mass using radial velocities.

Download/Website: `https://arxiv.org/abs/1808.08187`

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WASP-128b: a transiting brown dwarf in the dynamical-tide regime

V. Hodžić[1], A. H. M. J. Triaud[1], D. Anderson[2], F. Bouchy[3], A. Collier Cameron[4], L. Delrez[5], M. Gillon[6], C. Hellier[2], E. Jehin[6], M. Lendl[7,3], P. F. L. Maxted[2], F. Pepe[3], D. Pollacco[8], D. Queloz[5,3], D. Ségransan[3], B. Smalley[2], S. Udry[3], and R. West[8]

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Monthly Notices of the Royal Astronomical Society, in press (arxiv:1807.07557)

Massive companions in close orbits around G dwarfs are thought to undergo rapid orbital decay due to runaway tidal dissipation. We report here the discovery of WASP-128b, a brown dwarf discovered by the WASP survey transiting a G0V host on a $2.2\,\mathrm{d}$ orbit, where the measured stellar rotation rate places the companion in a regime where tidal interaction is dominated by dynamical tides. Under the assumption of dynamical equilibrium, we derive a value of the stellar tidal quality factor $\log Q'_\star = 6.96 \pm 0.19$. A combined analysis of ground-based photometry and high-resolution spectroscopy reveals a mass and radius of the host, $M_\star = 1.16 \pm 0.04\,M_\odot$, $R_\star = 1.16 \pm 0.02\,R_\odot$, and for the companion, $M_\mathrm{b} = 37.5 \pm 0.8\,M_\mathrm{Jup}$, $R_\mathrm{b} = 0.94 \pm 0.02\,R_\mathrm{Jup}$, placing WASP-128b in the driest parts of the brown dwarf desert, and suggesting a mild inflation for its age. We estimate a remaining lifetime for WASP-128b similar to that of some ultra-short period massive hot Jupiters, and note it may be a propitious candidate for measuring orbital decay and testing tidal theories.

Download/Website: `https://arxiv.org/abs/1807.07557`

Contact: `vxh710@bham.ac.uk`

On quasi-satellite periodic motion in asteroid and planetary dynamics

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Celestial Mechanics and Dynamical Astronomy, published (DOI:10.1007/s10569-018-9856-2)

Applying the method of analytical continuation of periodic orbits, we study quasi-satellite motion in the framework of the three-body problem. In the simplest, yet not trivial model, namely the planar circular restricted problem, it is known that quasi-satellite motion is associated with a family of periodic solutions, called family f, which consists of 1:1 resonant retrograde orbits. In our study, we determine the critical orbits of family f that are continued both in the elliptic and in the spatial model and compute the corresponding families that are generated and consist the backbone of the quasi-satellite regime in the restricted model. Then, we show the continuation of these families in the general three-body problem, we verify and explain previous computations and show the existence of a new family of spatial orbits. The linear stability of periodic orbits is also studied. Stable periodic orbits unravel regimes of regular motion in phase space where 1:1 resonant angles librate. Such regimes, which exist even for high eccentricities and inclinations, may consist dynamical regions where long-lived asteroids or co-orbital exoplanets can be found.

Download/Website: `https://link.springer.com/article/10.1007/s10569-018-9856-2`

Contact: `kyriaki.antoniadou@unamur.be`

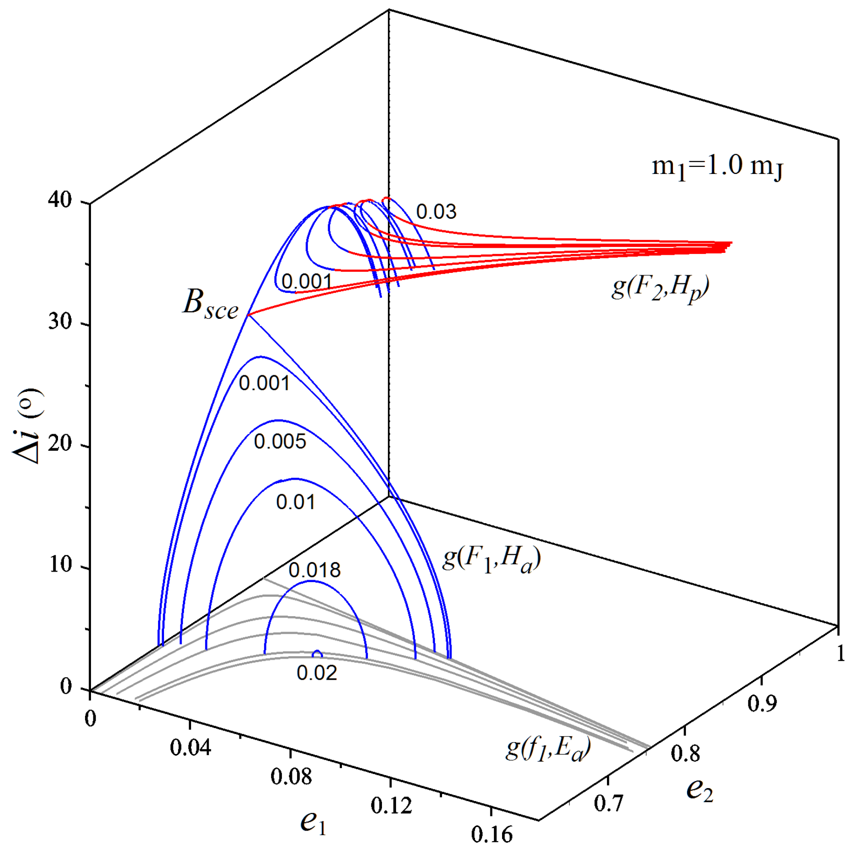

Figure 2: Stable inclined periodic orbits constitute dynamical vicinities of high inclinations and eccentricities where co-orbital exoplanets can exist. The families $g(F_1, H_a)$ and $g(F_2, H_p)$ of the spatial general three-body problem are presented in the space $e_1 - e_2 - \Delta i$ for various mass-ratios $\rho = \frac{m_2}{m_1}$ mentioned in the labels and for fixed $m_1 = 0.001$. Blue (red) depicts the stable (unstable) exact 1:1 resonant solutions. The families $g(f_1, E_a)$ of the planar general three-body problem are also shown in grey colour.

Metallicity effect and planet mass function in pebble-based planet formation models

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Astronomy & Astrophysics, in press(arxiv:1808.10707)

One of the main scenarios of planet formation is the core accretion model where a massive core forms first and then accretes a gaseous envelope. This core forms by accreting solids, either planetesimals, or pebbles. A key constraint in this model is that the accretion of gas must proceed before the dissipation of the gas disc. Classical planetesimal accretion scenario predicts that the time needed to form a giant planet's core is much longer than the time needed to dissipate the disc. This difficulty led to the development of another accretion scenario, in which cores grow by accretion of pebbles, which are much smaller and thus more easily accreted, leading to a more rapid formation. The aim of this paper is to compare our updated pebble-based planet formation model with observations, in particular the well studied metallicity effect. We adopt the Bitsch et al. 2015a disc model and the Bitsch et al. 2015b pebble model and use a population synthesis approach to compare the formed planets with observations. We find that keeping the same parameters as in Bitsch et al. 2015b leads to no planet growth due to a computation mistake in the pebble flux (Bitsch et al. 2017). Indeed a large fraction of the heavy elements should be put into pebbles ($Z_{\rm peb}/Z_{\rm tot} = 0.9$) in order to form massive planets using this approach. The resulting mass functions show a huge amount of giants and a lack of Neptune mass planets, which are abundant according to observations. To overcome this issue we include the computation of the internal structure for the planetary atmosphere to our model. This leads to the formation of Neptune mass planets but no observable giants. Reducing the opacity of the planetary envelope finally matches observations better. We conclude that modeling the internal structure for the planetary atmosphere is necessary to reproduce observations.

Download/Website: `https://arxiv.org/abs/1808.10707/`

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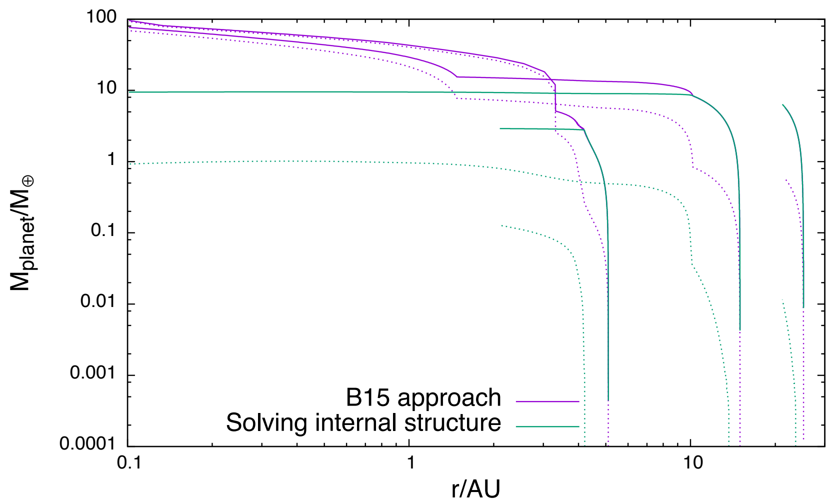

Figure 3: Growth tracks for planet starting at different locations that illustrate the influence of an internal structure for the planetary envelope. The purple curves show the growth of the planets using Bitsch et al. 2015b (B15b) approach and the green curves express the results solving the internal structure equations. The dotted lines represent the envelope mass of each planet for both cases. These tracks are similar for both approaches until the planets reach the pebble isolation mass $\mathrm{M_{iso}}$, which is a mass big enough to perturb the gas pressure gradient and therefore halt the accretion of pebbles. Below $\mathrm{M_{iso}}$ the accretion rate of solids is very high, therefore there is little gas. Thus how this little amount of gas is computed has no real influence when we look at the total planetary mass. Planets starting at large distances don't grow massive enough for internal structure to affect the formation tracks. However for planets starting between 5 and 15 AU the internal structure effects are clearly noticeable. This comes from the fact that B15b assumes a rapid gas accretion once the isolation mass is reached, independently of the mass. Focusing on the planet starting at 5 AU, the isolation mass is $\sim\ 2.5\ \mathrm{M_{\oplus}}$. Using B15b approach, once M_{iso} is reached, the accretion is huge and a final mass of $\sim\ 95\ \mathrm{M_{\oplus}}$ is obtained, while computing the internal structure produces a planet with a mass of $\sim 2.5\ \mathrm{M_{\oplus}}$.

3 Jobs and Positions

Call for Applications for the 2019 NASA Hubble Fellowship Program

Dr. Dawn M. Gelino, NASA Exoplanet Science Institute

Dr. Andrew Fruchter, Space Telescope Science Institute

Dr. Paul Green, Smithsonian Astrophysical Observatory

Applications Due: November 1, 2018 at 7:00 PM EDT (4:00 PM PDT 23:00 UTC),

On behalf of the NASA Astrophysics Division, we announce the second annual call for applications for postdoctoral fellowships under the NASA Hubble Fellowship Program (NHFP), to begin in the Fall of 2019.

The NHFP supports promising postdoctoral scientists performing independent research that contributes to NASA Astrophysics (see https://science.nasa.gov/astrophysics/ for more information). The research may be theoretical, observational, and/or instrumental. If your application is successful you will become an Einstein, Hubble or Sagan fellow depending on the area of your research. We are continuing the legacy of those three earlier programs in this way, and through joint management of the program by STScI, in collaboration with The Chandra X-ray Center and the NASA Exoplanet Science Institute.

The NHFP is open to applicants of any nationality who have earned (or will have earned) their doctoral degree on or after January 1, 2016 in astronomy, physics or related disciplines. The duration of the Fellowship is up to three years: an initial one-year appointment, and two annual renewals contingent on satisfactory performance and availability of NASA funds.

We anticipate offering up to 24 NHFP Fellowships this year. The Fellowships are tenable at a U.S. host institution of the fellow's choice, subject to a maximum of two new fellows per host institution per year, and no more than 5 granted to a single host institution in any 3 year period (where the cumulative count begins with 2018 fellows).

The Announcement of Opportunity, which includes detailed program policies and application instructions, is available at the website: http://nhfp.stsci.edu . Applicants should follow the instructions given in the Announcement and also examine the Frequently Asked Questions.

NHFP Fellowships are open to English-speaking citizens of all nations. All applicants will receive consideration without regard to race, creed, color, age, gender, gender identity or expression, sexual orientation or national origin. Women and members of minority groups are strongly encouraged to apply.

Key Dates:

- November 1, 2018, 7:00 PM EDT (4:00 PM PDT 23:00 UTC): Applications due
- November 8, 2018: Letters of reference due
- By early February 2019: Award offers made; new appointments to begin on or about Sept. 1, 2019

Download/Website: `http://nexsci.caltech.edu/sagan/fellowship.shtml`
Contact: `nhfp@stsci.edu`

PhD Position in Astrochemistry, Star and Planet Formation

A **full-time, 4-year PhD position in astrochemistry, star and planet formation** is open at the Center for Space and Habitability (CSH), Universität Bern. Brutto salary of 47 000 - 50 000CHF per year (as set by the SNSF). A full package of social benefits is included. **Starting date**: between **November 1st, 2018** and **April 30th, 2019**.
Under the guidance of Dr. Maria Drozdovskaya, a PhD research project is available, which aims to understand the chemical processes that link the different stages of star and planet formation, and that determine the composition of forming cometary and planetary embryos. The insights gained during this project will enhance our understanding of the early history of our Solar System. The work is funded by a Swiss National Science Foundation (SNSF) Ambizione grant (PI: Drozdovskaya) entitled "The Planetary Cookbook: Chemical Composition of Volatiles and Refractories from Star-Forming Regions to Comets and Planetesimals".
Primary features of the project include theoretical physicochemical modelling work; possibility of working with observational data from, e.g., ALMA, JWST; active participation in the scientific life of the CSH; exposure to the largest group of planetary scientists in the world via associate membership in the NCCR PlanetS; sufficient funds for participation in national and international conferences, and collaborator visits.
Must-haves of candidates are a Master-level degree (or analog) in quantitative science or engineering (e.g., astronomy, physics, chemistry, mathematics, computer science or a related field) by the starting date; and competence in spoken and written English. Nice-to-haves of candidates are programming experience, and exposure to at least basic astronomy. However, applications from students in other fields of quantitative science or engineering that are interested in learning astronomy are very welcomed.
Work-life balance is important; and the Canton of Bern offers 5 weeks of vacation per year (excluding national and cantonal holidays). The CSH is dedicated to equal opportunities, geographical and gender balance, and inclusivity.
Applicants should send all application materials in **one PDF file** to maria.drozdovskaya'at'csh.unibe.ch by the deadline of **November 1st, 2018**. Note that applications are considered on a **rolling basis**, implying that the position may be filled earlier or that late applications may also receive partial consideration. A complete application consists of: cover letter (max. 1 page); curriculum vitae (CV); personal statement detailing, but not limited to: past research experience and the skills obtained, reasons for pursuing a 4-year PhD in general and this research project in specific, aspirations for the future (max. 2 pages); a full list and transcripts (grades) of all university-level courses (Bachelorand Master-level) and a translated version, if not in English, German, French, Russian or Dutch (notarized translation is not needed); up-to-date contact information of two references that may be contacted for a reference letter.

Download/Website: `https://jobregister.aas.org/ad/1b119580`

Contact: `maria.drozdovskaya@csh.unibe.ch` t

4 Post-Doc positions in exoplanets

Nuno C. Santos

Porto, Portugal, Negotiable starting date

We are announcing 4 Post-Doc positions in the field of exoplanets at the Instituto de Astrofísica e Ciências do Espaço (IA). The positions are seeking for potential candidates to be integrated in the scientific objectives of the thematic line "Towards the detection and characterization of other Earths" of IA. The successful candidates are expected to contribute to different aspects of the activities related to our scientific participation in ESO and ESA projects such as ESPRESSO, NIRPS, CHEOPS, HIRES@ELT, and PLATO.
Additional funding is available for travel and publications.
Depending on the opportunity, the funding, and on the research results, we expect that these positions will have a maximum duration between 30 and 72 months.
IA assembles more than two-thirds of all active researchers working in Space Sciences in Portugal. The research and development effort at the IA includes most of the topics at the forefront of research in Astrophysics and Space Sciences, complemented by work on instrumentation and systems with potential use in Astronomy and Astrophysics. IA provides all necessary research conditions in a friendly and scientifically active environment.

Download/Website: http://www.iastro.pt/ia/jobs.html

Contact: nuno.santos@astro.up.pt

Postdoc Position in Exoplanet Research

Ignas Snellen

Leiden, NL, Fall 2019 or earlier

A 2+1 year postdoctoral position funded through the ERC Adv grant of Ignas Snellen will become available at Leiden Observatory in the Netherlands. Research in Snellen's group focuses on the characterisation of extra-solar planets using a variety of observational methods. We search for an outstanding and ambitious exoplanet scientist - a team player - who is keen to help to lead us to future directions in exoplanet atmospheric research.

Leiden Observatory, founded in 1633, is the oldest university astronomy department in the world. With about 25 faculty, over 50 postdoctoral associates and about 75 PhD students it is the largest astronomy department in the Netherlands. Leiden is a charming university town with an international flair. Most Leiden researchers have an international background. English is the common language.

The appointment will be for 2+1 years. The position comes with a competitive salary and full benefits. The successful candidate must have a PhD by the starting date. Further details may be obtained from Prof. Ignas Snellen (snellen@strw.leidenuniv.nl).

Applicants should submit via email to snellen@strw.leidenuniv.nl:

- a curriculum vitae
- publication list
- a brief statement of research experience and interests, and how they see their role in Snellen's group.

Applicants should also arrange for 3 letters of recommendation to be sent directly to the (email) address above.

Download/Website: `http://nccr-planets.ch/`

Contact: `exoplanetnews@nccr-planets.ch`

a Winton Exoplanet Fellowship @ Birmingham

Amaury Triaud, Bill Chaplin
Sun, Stars, and Exoplanets group, University of Birmingham, UK

Start date, before July 2019

We invite talented, inventive and productive early-career researchers to showcase their interest to conduct research under a Winton Fellowship, to be held at the University of Birmingham, as part of the Sun, Stars, and Exoplanets research group. Applicants must have obtained their PhD by 31 October 2018, and be within four to five years of the award date of their PhD (three preferably). Our research group is very active in both exoplanet and stellar astrophysics research, and has recently been awarded three ERC grants. The group is involved in TESS, PLATO, SPECULOOS, BEBOP and BiSON.

To apply, please send the following documents, by **28 September 2018**, to Amaury Triaud (a.triaud@bham.ac.uk) and Bill Chaplin (w.j.chaplin@bham.ac.uk):

1- A notification of interest, briefly detailing your research and what you would like to work on at Birmingham (1 page),
2- a CV,
3- a list of your most important publications and research achievements (1 page),
4- the contact details of two people able to recommend you.

The Winton Fellowship comes with £50k to £100k of research allocation. We particularly seek candidates with innovative ideas about the use of these funds during their three year tenure.
After a short internal review process, we will select one candidate who will create and write a full application to the Winton fellowship, in partnership with local faculty members. This application will need submitting by 31 October 2018.

Information about the Winton Fellowship and about our research group can be found following the links below.

We look forward hearing from you,

Amaury Triaud & Bill Chaplin

Download/Website: `https://www.winton.com/philanthropies/the-winton-exoplanet-fellowship`

Download/Website: `https://www.birmingham.ac.uk/research/activity/physics/astronomy/solar-and-s`

Contact: `a.triaud@bham.ac.uk; w.j.chaplin@bham.ac.uk`

4 Conferences

Kepler and K2 Science Conference V

Glendale, CA, March 4-8, 2019

The Kepler and K2 Science Conference V will celebrate Kepler's 10 years in space and will showcase the bountiful results of the Kepler and K2 missions.

Abstracts for conference presentations (talks, posters, and/or breakout sessions) can now be submitted through the abstract submission form by the regular abstract deadline of November 15, 2018.

There is no registration fee for this conference, however we ask all attendees to register by February 10, 2019.

There is limited funding to support local costs (hotel and per diem) for a limited number of participants who would otherwise be unable to attend. Please complete this application by the November 15 deadline. Applicants will receive a decision by December 20.

Key Dates:

- Nov. 15, 2018: regular deadline to submit abstracts for talks, breakout sessions, and poster; deadline to apply for travel support
- Dec. 20, 2018: conference schedule published
- Jan. 15, 2019: late deadline to submit abstracts for posters only
- Feb. 10, 2019: registration and hotel reservation deadline
- Mar. 4-8, 2019: Kepler & K2 Science Conference V

Download/Website: `https://keplerscience.arc.nasa.gov/scicon-2019/`
Contact: `keplerscicon@ipac.caltech.edu`

5 Exoplanet Archive Updates

August 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, September 17, 2018

August 23, 2018

We've added WASP-174 b to the archive, as well as new parameter sets for HD 89345 b and K2-232 b. View the planets' data in the Confirmed Planets table and the Composite Planet Data table.

August 16, 2018

Two New K2 Planets! We've added K2-260 b and K2-261 b this week. View the planet data in the Confirmed Planets table and the Composite Planet Data table.

MORE Microlensing Madness: We've added 15 parameter sets to the Microlensing table, six of which are new archive defaults! (`http://bit.ly/2JQr180`)

Enhanced Pre-generated Plots: Our pre-generated scatter plots have been enhanced with new symbols and colors to make them easier to view. Check out the Pre-Generated Plots page to see and download them all. **Note:** The color blind-accessible plots have the new symbols, but the colors are unchanged. (`http://bit.ly/2vMdO8c`)

Also, we've added new emission spectroscopy data for Qatar-1 b and HAT-P-13 b. (`http://bit.ly/2vOLcem`)

August 9, 2018

One New Planet: We've added HD 26965 b, an exoplanet found using the radial velocity method, bringing our total planet count to 3,775. View the planet's data in the Confirmed Planets table.

Microlensing Madness: We've added 30 parameter sets to the Microlensing table, which more than doubles our microlensing holdings! Browse the interactive table or download data by wget or web query with our API. Here's a pre-built query to help you get started: `https://exoplanetarchive.ipac.caltech.edu/cgi-bin/nstedAPI/nph-nstedAPI?table=microlensing`

August 2, 2018

The archive has added the data on the 72 K2 Campaign 10 planet candidates from Livingston et al. 2018. View the data in the K2 Candidates interactive table (`http://bit.ly/2vexgKd`) (filter the Reference Link column with Livingston or the K2 Campaign column with 10), or download the data set using our application programming interface (API).(`http://bit.ly/2JG8Xy0`)

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

6 As seen on astro-ph

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

August 2018

astro-ph/1808.00052: **Understanding WASP-12b** by *Avery Bailey, Jeremy Goodman*
astro-ph/1808.00053: **Habitability in the Omega Centauri Cluster** by *Stephen R. Kane, Sarah J. Deveny*
astro-ph/1808.00381: **Toward a new paradigm for Type II migration** by *C.M.T Robert et al.*
astro-ph/1808.00400: **The Lyman-α Sky Background as Observed by New Horizons** by *G. Randall Gladstone et al.*
astro-ph/1808.00404: **Characterisation of the HD219134 multi-planet system II. Stellar-wind sputtered exospheres in rocky planets b & c** by *A. A. Vidotto , H. Lichtenegger , L. Fossati , C. P. Folsom , B. E. Wood , J. Murthy , P. Petit , A. G. Sreejith , G. Valyavin*
astro-ph/1808.00415: **Probing Oort clouds around Milky Way stars with CMB surveys** by *Eric J. Baxter, Cullen H. Blake, Bhuvnesh Jain*
astro-ph/1808.00467: **Disruption of a planet spiralling into its host star** by *Shi Jia, H.C. Spruit*
astro-ph/1808.00485: **A second planet with an Earth-like composition orbiting the nearby M dwarf LHS 1140** by *Kristo Ment et al.*
astro-ph/1808.00501: **Three-Dimensional Circulation Driving Chemical Disequilibrium in WASP-43b** by *João M. Mendonça et al.*
astro-ph/1808.00575: **Detection and Doppler monitoring of EPIC 246471491, a system of four transiting planets smaller than Neptune** by *E. Palle et al.*
astro-ph/1808.00579: **A Simple Model for Radiative and Convective Fluxes in Planetary Atmospheres** by *Juan P. Tolento, Tyler D. Robinson*
astro-ph/1808.00620: **Multiplicity of disc-bearing stars in Upper Scorpius and Upper Centaurus-Lupus** by *Rajika L. Kuruwita et al.*
astro-ph/1808.00637: **Laboratory Experiments on Agglomeration of Particles in a Granular Stream** by *Yuuya Nagaashi et al.*
astro-ph/1808.01109: **A Search for Exoplanets around Northern Circumpolar Stars. IV. Six Planet Candidates to the K Giants, HD 44385, HD 97619, HD 106574, HD 118904, HD 164428, and HD 202432** by *Gwanghui Jeong et al.*
astro-ph/1808.01142: **Streaming Instability of Multiple Particle Species in Protoplanetary Disks** by *Noemi Schaffer, Chao-Chin Yang, Anders Johansen*
astro-ph/1808.01183: **The CARMENES search for exoplanets around M dwarfs. A Neptune-mass planet traversing the habitable zone around HD 180617** by *A. Kaminski et al.*
astro-ph/1808.01768: **Temperature, Mass and Turbulence: A Spatially Resolved Multi-Band Non-LTE Analysis of CS in TW Hya** by *Richard Teague et al.*
astro-ph/1808.01803: **Interior characterization in multiplanetary systems: TRAPPIST-1** by *Caroline Dorn et al.*
astro-ph/1808.01840: **Transport of CO in Protoplanetary Disks: Consequences of Pebble Formation, Settling, and Radial Drift** by *Sebastiaan Krijt et al.*
astro-ph/1808.01973: **Computing Apparent Planetary Magnitudes for The Astronomical Almanac** by *Anthony Mallama, James L. Hilton*
astro-ph/1808.02011: **The Effect of Disequilibrium Carbon Chemistry on the Atmospheric Circulation and Phase Curves of Hot Jupiter HD 189733b** by *Maria E Steinrueck et al.*
astro-ph/1808.02030: **Quasi-secular evolution of mildly hierarchical triple systems: analytics and applications for GW-sources and hot Jupiters** by *Evgeni Grishin, Hagai B. Perets, Giacomo Fragione*
astro-ph/1808.02090: **Tidal decay of circumbinary planetary systems** by *Ivan I. Shevchenko*

astro-ph/1808.02118: **Great Expectations: Plans and Predictions for New Horizons Encounter with Kuiper Belt Object 2014 MU69 ('Ultima Thule')** by *Jeffrey M. Moore et al.*

astro-ph/1808.02146: **Dynamical effects on the classical Kuiper Belt during the excited-Neptune model** by *Rafael Ribeiro de Sousa et al.*

astro-ph/1808.02347: **New Insights into Cosmic Ray induced Biosignature Chemistry in Earth-like Atmospheres** by *Markus Scheucher et al.*

astro-ph/1808.02448: **Forming Mercury by Giant Impacts** by *Alice Chau et al.*

astro-ph/1808.02454: **Two decades of Exoplanetary Science with Adaptive Optics** by *G. Chauvin*

astro-ph/1808.02490: **Predictions of the WFIRST Microlensing Survey I: Bound Planet Detection Rates** by *Matthew T. Penny et al.*

astro-ph/1808.02618: **OSSOS: XIII. Fossilized Resonant Dropouts Imply Neptune's Migration was Grainy and Slow** by *S. M. Lawler et al.*

astro-ph/1808.02718: **The Origin of RNA Precursors on Exoplanets** by *Paul Brandon Rimmer et al.*

astro-ph/1808.02867: **Analysis of Numerical Algorithms for Computing Rapid Momentum Transfers between the Gas and Dust in Simulations of Circumstellar Disks** by *O.P. Stoyanovskaya, E.I. Vorobyov, V.N. Snytnikov*

astro-ph/1808.03010: **The California-Kepler Survey. VI: Kepler Multis and Singles Have Similar Planet and Stellar Properties Indicating a Common Origin** by *Lauren M. Weiss et al.*

astro-ph/1808.03016: **Dust Growth and Dynamics in Protoplanetary Nebulae: Implications for Opacity, Thermal Profile and Gravitational Instability** by *Debanjan Sengupta et al.*

astro-ph/1808.03121: **Data processing on simulated data for SHARK-NIR** by *E. Carolo et al.*

astro-ph/1808.03149: **OGLE-2014-BLG-1186: gravitational microlensing providing evidence for a planet orbiting the foreground star or for a close binary source?** by *M. Dominik et al.*

astro-ph/1808.03293: **Planet Formation: An Optimized Population-Synthesis Approach** by *John Chambers*

astro-ph/1808.03306: **New transit timing observations for GJ 436 b, HAT-P-3 b, HAT-P-19 b, WASP-3 b, and XO-2 b** by *G. Maciejewski et al.*

astro-ph/1808.03329: **Formation of cometary O2 ice and related ice species on grain surfaces in the midplane of the pre-Solar nebula** by *Christian Eistrup, Catherine Walsh*

astro-ph/1808.03389: **Hot Grain Dynamics by Electric Charging and Magnetic Trapping in Debris Disks** by *Hiroshi Kimura et al.*

astro-ph/1808.03637: **A kinematical age for the interstellar object 1I/'Oumuamua** by *F. Almeida-Fernandes, H. J. Rocha-Pinto*

astro-ph/1808.03645: **Evidence for multiple molecular species in the hot Jupiter HD 209458b** by *George A. Hawker et al.*

astro-ph/1808.04223: **Formation of a planetary Laplace resonance through migration in an eccentric disk - The case of GJ876** by *Nicolas P. Cimerman, Wilhelm Kley, Rolf Kuiper*

astro-ph/1808.04373: **Detection of scattered light from the hot dust in HD 172555** by *N. Engler et al.*

astro-ph/1808.04472: **Material Properties for the Interiors of Massive Giant Planets and Brown Dwarfs** by *Andreas Becker et al.*

astro-ph/1808.04504: **Searching for Biosignatures in Exoplanetary Impact Ejecta** by *Gianni Cataldi et al.*

astro-ph/1808.04533: **Revised Exoplanet Radii and Habitability Using Gaia Data Release 2** by *Daniel Johns et al.*

astro-ph/1808.04546: **Trapping low-mass planets at the inner edge of the protostellar disc** by *R. Brasser et al.*

astro-ph/1808.04824: **Atmospheric Retrieval of Exoplanets** by *Nikku Madhusudhan*

astro-ph/1808.04828: **Detecting free-floating planets using water-depend colour terms in the next generation of infrared space-based surveys** by *Niall R Deacon*

astro-ph/1808.05052: **Constraining the gap size in the disk around HD 100546 in the mid-infrared** by *Narges Jamialahmadi et al.*

astro-ph/1808.05151: **Planet formation inside proto-giants: First 3D simulations** by *Sergei Nayakshin*

astro-ph/1808.05297: **Characterizing the performance of the NIRC2 vortex coronagraph at W.M. Keck Observatory** by *W. Jerry Xuan et al.*
astro-ph/1808.05356: **Dynamo Action in the Steeply Decaying Conductivity Region of Jupiter-like Dynamo Models** by *Johannes Wicht, Thomas Gastine, Lucia D.V. Duarte*
astro-ph/1808.05365: **Global-mean Vertical Tracer Mixing in Planetary Atmospheres II: Tidally Locked Planets** by *Xi Zhang, Adam P. Showman*
astro-ph/1808.05462: **HEOSAT: A mean elements orbit propagator program for Highly Elliptical Orbits** by *Martin Lara, Juan F. San-Juan, Denis Hautesserres*
astro-ph/1808.05531: **Photo-evaporation of proto-planetary gas discs due to flybys of external single stars in different orbits** by *Yuan-Zhe Dai et al.*
astro-ph/1808.05610: **An Alternative Derivation of the Analytic Expression of Transmission Spectra** by *Andrés Jordán, Néstor Espinoza*
astro-ph/1808.05653: **Atomic iron and titanium in the atmosphere of the exoplanet KELT-9b** by *H. Jens Hoeijmakers et al.*
astro-ph/1808.05693: **Warping a protoplanetary disc with a planet on an inclined orbit** by *Rebecca Nealon et al.*
astro-ph/1808.05887: **Exonephology: Transmission spectra from a 3D simulated cloudy atmosphere of HD209458b** by *S. Lines et al.*
astro-ph/1808.05947: **Restrictions on the Growth of Gas Giant Cores via Pebble Accretion** by *M. M. Rosenthal, R. A. Murray-Clay*
astro-ph/1808.06183: **On water delivery in the inner solar nebula: Monte Carlo simulations of forsterite hydration** by *Martina D'Angelo et al.*
astro-ph/1808.06257: **The mass of the young planet Pictoris b through the astrometric motion of its host star** by *Ignas Snellen, Anthony Brown*
astro-ph/1808.06480: **Climates of Warm Earth-like Planets I: 3-D Model Simulations** by *M.J. Way et al.*
astro-ph/1808.06613: **Multiple Disk Gaps and Rings Generated by a Single Super-Earth: II. Spacings, Depths, and Number of Gaps, with Application to Real Systems** by *Ruobing Dong et al.*
astro-ph/1808.06776: **Theoretical Model of Hydrogen Line Emission from Accreting Gas Giants** by *Yuhiko Aoyama, Masahiro Ikoma, Takayuki Tanigawa*
astro-ph/1808.07010: **Hydrogen and Sodium Absorption in the Optical Transmission Spectrum of WASP-12b** by *Adam G. Jensen et al.*
astro-ph/1808.07043: **Inferring the Composition of Disintegrating Planet Interiors from Dust Tails with Future James Webb Space Telescope Observations** by *Eva H. L. Bodman et al.*
astro-ph/1808.07055: **Comment on "Gravitational waves from ultra-short period exoplanets"** by *Kaze W. K. Wong et al.*
astro-ph/1808.07059: **Aliasing in the Radial Velocities of YZ Ceti: An Ultra-Short Period for YZ Ceti c?** by *Paul Robertson*
astro-ph/1808.07068: **Zodiacal Exoplanets in Time (ZEIT) VIII: A Two Planet System in Praesepe from K2 Campaign 16** by *Aaron C. Rizzuto et al.*
astro-ph/1808.07660: **Dust segregation in Hall-dominated turbulent protoplanetary disks** by *Leonardo Krapp et al.*
astro-ph/1808.07925: **The Equation of State of MH-III: a possible deep CH4 reservoir in Titan, Super-Titan exoplanets and moons** by *Amit Levi, Ronald E. Cohen*
astro-ph/1808.08055: **Jupiter radio emission induced by Ganymede and consequences for the radio detection of exoplanets** by *P. Zarka et al.*
astro-ph/1808.08059: **Capture into first-order resonances and long-term stability of pairs of equal-mass planets** by *Gabriele Pichierri, Alessandro Morbidelli, Aurélien Crida*
astro-ph/1808.08168: **Saturn northern aurorae at solstice from HST observations coordinated with Cassini Grand Finale** by *L. Lamy et al.*

astro-ph/1808.08187: **EPIC211682544b: A 50-day period sub-Neptune with a mass measurement using HARPS-N** by *A. Mortier et al.*

astro-ph/1808.08201: **Equation of state of SiC at extreme conditions: new insight into the interior of carbon rich exoplanets** by *F. Miozzi et al.*

astro-ph/1808.08377: **Detectability of biosignatures in anoxic atmospheres with the James Webb Space Telescope: A TRAPPIST-1e case study** by *Joshua Krissansen-Totton et al.*

astro-ph/1808.08475: **Larger mutual inclinations for the shortest-period planets** by *Fei Dai, Kento Masuda, Joshua N. Winn*

astro-ph/1808.08681: **The initial conditions for planet formation: Turbulence driven by hydrodynamical instabilities in disks around young stars** by *Wladimir Lyra, Orkan Umurhan*

astro-ph/1808.08728: **Planetary tidal interactions and the rotational evolution of low-mass stars. The Pleiades' anomaly** by *Florian Gallet et al.*

astro-ph/1808.08870: **Role of gaseous giants in the dynamical evolution of terrestrial planets and water delivery in the habitable zone** by *Mariana B. Sánchez, Gonzalo C. de Elía, Luciano A. Darriba*

astro-ph/1808.09009: **New Methods for Finding Activity-Sensitive Spectral Lines: Combined Visual Identification and an Automated Pipeline Find a Set of 40 Activity Indicators** by *A. W. Wise et al.*

astro-ph/1808.09355: **Radio SETI Observations of the Interstellar Object 'Oumuamua** by *G. R. Harp et al.*

astro-ph/1808.09426: **Infrared Variability of Two Dusty White Dwarfs** by *Siyi Xu et al.*

astro-ph/1808.09451: **Influence of Stellar Metallicity on Occurrence Rates of Planets and Planetary Systems** by *Wei Zhu*

astro-ph/1808.09460: **Constraining the Time Interval for the Origin of Life on Earth** by *Ben K. D. Pearce et al.*

astro-ph/1808.09472: **Diverse protoplanetary disk morphology produced by a Jupiter-mass planet** by *Jaehan Bae, Paola Pinilla, Tilman Birnstiel*

astro-ph/1808.09514: **Starspot occultations in infrared transit spectroscopy: the case of WASP-52b** by *Giovanni Bruno et al.*

astro-ph/1808.09554: **Investigating the possibility of reversing giant planet migration via gap edge illumination** by *P. D. Hallam, S.-J. Paardekooper*

astro-ph/1808.09558: **The effects of stellar activity on optical high-resolution exoplanet transmission spectra** by *Paul Wilson Cauley et al.*

astro-ph/1808.09575: **Spitzer Phase Curves of KELT-1b and the Signatures of Nightside Clouds in Thermal Phase Observations** by *Thomas G. Beatty et al.*

astro-ph/1808.09872: **Threshold radii of volatile-rich planets** by *Michael Lozovsky et al.*

astro-ph/1808.09967: **Dust Production and Depletion in Evolved Planetary Systems** by *J. Farihi et al.*

astro-ph/1808.09977: **Hydrohalite Salt-albedo Feedback Could Cool M-dwarf Planets** by *Aomawa L. Shields, Regina C. Carns*

astro-ph/1808.10017: **Retrieval of planetary and stellar properties in transmission spectroscopy with Aura** by *Arazi Pinhas et al.*

astro-ph/1808.10236: **A Quantitative Comparison of Exoplanet Catalogs** by *Dolev Bashi, Ravit Helled, Shay Zucker*

astro-ph/1808.10246: **Selective Aggregation Experiments on Planetesimal Formation and Mercury-Like Planets** by *Gerhard Wurm*

astro-ph/1808.10344: **Mapping the Conditions for Hydrodynamic Instability on Viscous Models of Protoplanetary Disks** by *Thomas Pfeil, Hubert Klahr*

astro-ph/1808.10510: **Scaling Relations Associated with Millimeter Continuum Sizes in Protoplanetary Disks** by *Sean M. Andrews et al.*

astro-ph/1808.10707: **Metallicity effect and planet mass function in pebble-based planet formation models** by *Natacha Brügger et al.*

astro-ph/1808.10790: **Molecule mapping of HR8799b using OSIRIS on Keck: Strong detection of water and carbon monoxide, but no methane** by *D. J. M. Petit dit de la Roche, H. J. Hoeijmakers, I. A. G. Snellen* astro-ph/1808.00233: **Radioactive nuclei from cosmochronology to habitability** by *M. Lugaro, U. Ott, Á. Kereszturi*

astro-ph/1808.00406: **Characterisation of the HD 219134 multi-planet system I. Observations of stellar magnetism, wind, and high-energy flux** by *C. P. Folsom et al.*

astro-ph/1808.01920: **Multiple rings in the transitional disk of GM Aurigae revealed by VLA and ALMA** by *Enrique Macias et al.*

astro-ph/1808.02187: **Extreme precision photometry from the ground with beam-shaping diffusers for K2, TESS and beyond** by *Gudmundur Stefansson et al.*

astro-ph/1808.02220: **CO destruction in protoplanetary disk midplanes: inside versus outside the CO snow surface** by *Arthur D. Bosman, Ewine F. van Dishoeck, Catherine Walsh*

astro-ph/1808.02485: **The Strongest Magnetic Fields on the Coolest Brown Dwarfs** by *Melodie Kao et al.*

astro-ph/1808.02493: **Long-lived protoplanetary disks in multiple systems: the VLA view of HD 98800** by *Álvaro Ribas et al.*

astro-ph/1808.02808: **Non-detection of Contamination by Stellar Activity in the Spitzer Transit Light Curves of TRAPPIST-1** by *Brett M. Morris et al.*

astro-ph/1808.03652: **Characterization of Low Mass K2 Planet Hosts Using Near-Infrared Spectroscopy** by *Romy Rodríguez Martínez et al.*

astro-ph/1808.03922: **Double-peaks of the solar cycle: An explanation from a dynamo model** by *Bidya Binay Karak, Sudip Mandal, Dipankar Banerjee*

astro-ph/1808.04996: **Orbital characterization of GJ1108A system, and comparison of dynamical mass with model-derived mass for resolved binaries** by *T. Mizuki et al.*

astro-ph/1808.06147: **Active modes and dynamical balances in MRI-turbulence of Keplerian disks with a net vertical magnetic field** by *D. Gogichaishvili et al.*

astro-ph/1808.07062: **Solving Kepler's equation CORDIC-like** by *Mathias Zechmeister*

astro-ph/1808.07320: **Fast spectrophotometry of WD 1145+017** by *P. Izquierdo et al.*

astro-ph/1808.07396: **Revisiting the pre-main-sequence evolution of stars II. Consequences of planet formation on stellar surface composition** by *Masanobu Kunitomo et al.*

astro-ph/1808.07484: **The FRIED grid of mass loss rates for externally irradiated protoplanetary discs** by *Thomas J. Haworth et al.*

astro-ph/1808.07798: **A review on substellar objects beyond the deuterium burning mass limit: planets, brown dwarfs or what?** by *Jose A. Caballero*

astro-ph/1808.08258: **Methanol and its relation to the water snowline in the disk around the young outbursting star V883 Ori** by *Merel L.R. van 't Hoff et al.*

astro-ph/1808.09954: **The Star-Planet Activity Research CubeSat (SPARCS): A Mission to Understand the Impact of Stars in Exoplanets** by *David R. Ardila et al.*

astro-ph/1808.10220: **Structure Formation in a Young Protoplanetary Disk by a Magnetic Disk Wind** by *Sanemichi Z. Takahashi, Takayuki Muto*

astro-ph/1808.10682: **Constraining Gas-Phase Carbon, Oxygen, and Nitrogen in the IM Lup Protoplanetary Disk** by *L. Ilsedore Cleeves et al.*

astro-ph/1808.01475: **Polarization Analysis and Probable Origin of Bright Noctilucent Clouds with Large Particles in June 2018** by *Oleg S. Ugolnikov, Igor A. Maslov*

astro-ph/1808.08141: **Limitations of Chemical Propulsion for Interstellar Escape from Habitable Zones around Low-Mass Stars** by *Manasvi Lingam, Abraham Loeb*

astro-ph/1808.08612: **Non-linear Waves and Instabilities Leading to Secondary Reconnection in Reconnection Outflows** by *Giovanni Lapenta et al.*