ExoPlanet News
An Electronic Newsletter

No. 123, 16. September 2019

Editors: S. P. Quanz,Y. Alibert, A. Leleu, C. Mordasini
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Contents

1 Editorial

Welcome to edition 123 of the ExoPlanet News!

A big “Thank You” to all of you who sent input for this edition of the newsletter! Please keep sending contributions in the form of accepted papers covering all fields related to (exo)planet research, conference or workshop announcements, job ads or any other information relevant to the wider exoplanet community. The current Latex template for submitting contributions of any kind, as well as all previous editions of ExoPlanet News, can be found at http://nccr-planets.ch/exoplanetnews/.

The next issue will appear 14 October 2019.

Thanks for all your support and best regards from Switzerland

Yann Alibert
Sascha P. Quanz
Adrien Leleu
Christoph Mordasini

2 Abstracts of refereed papers

Dust accretion in binary systems: implications for planets and transition discs

Yayaati Chachan[1,2,3], *Richard A. Booth*[2], *Amaury H. M. J. Triaud*[2,4], *Cathie Clarke*[2]

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[2] Institute of Astronomy, University of Cambridge, Madingley Road, Cambridge CB3 0HA, UK
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[4] School of Physics & Astronomy, University of Birmingham, Edgbaston, Birmingham B15 2TT, UK

Monthly Notices of the Royal Astronomical Society, in press (arXiv:1908.11377)

The presence of planets in binary systems poses interesting problems for planet formation theories, both in cases where planets must have formed in very compact discs around the individual stars and where they are located near the edge of the stable circumbinary region, where *in situ* formation is challenging. Dust dynamics is expected to play an important role in such systems, since dust trapping at the inner edge of circumbinary discs could aid *in situ* formation, but would simultaneously starve the circumstellar discs of the solid material needed to form planets. Here we investigate the dynamics of dust in binary systems using Smooth Particle Hydrodynamics. We find that all our simulations tend towards dust trapping in the circumbinary disc, but the timescale on which trapping begins depends on binary mass ratio (q) and eccentricity as well as the angular momentum of the infalling material. For $q \gtrsim 0.1$, we find that dust can initially accrete onto the circumstellar discs, but as the circumbinary cavity grows in radius, dust eventually becomes trapped in the circumbinary disc. For $q = 0.01$, we find that increasing the binary eccentricity increases the time required for dust trapping to begin. However, even this longer timescale is likely to be shorter than the planet formation timescale in the inner disc and is insufficient to explain the observed pre-transitional discs. This indicates that increase in companion eccentricity alone is not enough to allow significant transfer of solids from the outer to the inner disc.

Download/Website: `https://arxiv.org/abs/1908.11377`

Contact: `ychachan@caltech.edu`

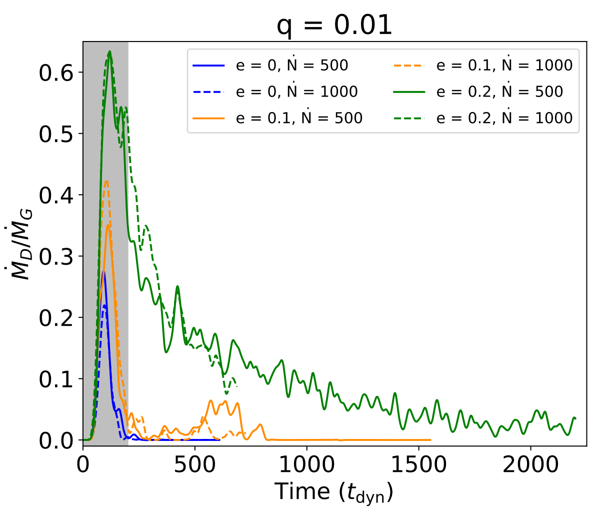

Figure 1: The ratio of accretion rates of dust and gas onto a $q = 0.01$ binary for different eccentricities and resolutions. The initial transient phase during which the circumstellar and circumbinary discs are forming is greyed out. After this phase, dust accretion for the circular binary and $e = 0.1$ binary is already negligible. As the eccentricity is increased, the duration for which dust accretion persists becomes much longer ($\sim$ 30 orbits for a circular binary and $>$ 300 orbits for a binary with $e = 0.2$). Note that this plot does not show the ratio of absolute accretion rates.

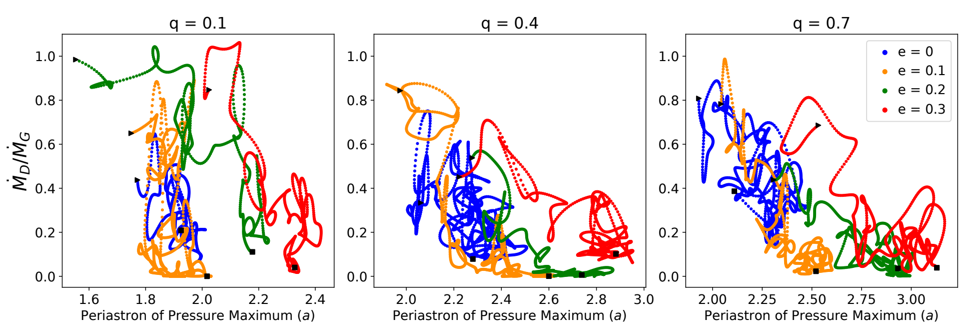

Figure 2: Plots showing the ratio of dust accretion to gas accretion onto the binary against the mean periastron of the pressure maximum. The ability of the binary to accrete dust from the circumbinary disc's pressure maximum depends on the maximum's position. The time evolution begins with with ► and ends with ■. The outward movement of the disc periastron correlates with decline in dust accretion.

The Effect of the Approach to Gas Disk Gravitational Instability on the Rapid Formation of Gas Giant Planets

Alan P. Boss[1]

[1] Department of Terrestrial Magnetism, Carnegie Institution for Science, 5241 Broad Branch Road, NW, Washington, DC 20015-1305, USA

The Astrophysical Journal, in press

Observational evidence suggests that gas disk instability may be responsible for the formation of at least some gas giant exoplanets, particularly massive or distant gas giants. With regard to close-in gas giants, Boss (2017) used the β cooling approximation to calculate hydrodynamical models of inner gas disk instability, finding that provided disks with low values of the initial minimum Toomre stability parameter (i.e., $Q_i < 2$ inside 20 au) form, fragmentation into self-gravitating clumps could occur even for β as high as 100 (i.e., extremely slow cooling). Those results implied that the evolution of disks toward low Q_i must be taken into account. This paper presents such models: initial disk masses of 0.091 $M_\odot$ extending from 4 to 20 au around a 1 $M_\odot$ protostar, with a range (1 to 100) of β cooling parameters, the same as in Boss (2017), but with all the disks starting with $Q_i = 2.7$, i.e., gravitationally stable, and allowed to cool from their initial outer disk temperature of 180 K to as low as 40 K. All the disks eventually fragment into at least one dense clump. The clumps were again replaced by virtual protoplanets (VPs) and the masses and orbits of the resulting ensemble of VPs compare favorably with those of Boss (2017), supporting the claim that disk instability can form gas giants rapidly inside 20 au, provided that sufficiently massive protoplanetary disks exist.

Download/Website: `https://aboss.dtm.carnegiescience.edu/ftp-files -- beta-evolve.pdf`

Contact: `aboss@carnegiescience.edu`

Nulling at short wavelengths: theoretical performance constraints and a demonstration of faint companion detection inside the diffraction limit with a rotating-baseline interferometer

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[2] University of Bern, Center for Space and Habitability, Gesellschaftsstrasse 6, 3012, Bern, Switzerland

Monthly Notices of the Royal Astronomical Society, published (2019MNRAS.tmp.2124S)

The Palomar Fiber Nuller (PFN) is a rotating-baseline nulling interferometer that enables high-accuracy near-infrared (NIR) nulling observations with full azimuth coverage. To achieve NIR null-depth accuracies of several x 10-4, the PFN uses a common-mode optical system to provide a high degree of symmetry, single-mode-fiber beam combination to reduce sensitivity to pointing and wavefront errors, extreme adaptive optics to stabilize the fiber coupling and the cross-aperture fringe phase, rapid signal calibration and camera readout to minimize temporal effects, and a statistical null-depth fluctuation analysis to relax the phase stabilization requirement. Here we describe the PFN final design and performance, and provide a demonstration of faint-companion detection by means of nulling-baseline rotation, as originally envisioned for space-based nulling interferometry. Specifically, the Ks-band null-depth rotation curve measured on the spectroscopic binary eta Peg reflects both a secondary star 1.08 +/- 0.06 x 10-2 as bright as the primary, and a null-depth contribution of 4.8 +/- 1.6 x 10-4 due to the size of the primary star. With a 30 mas separation at the time, eta Peg B was well inside both the telescope diffraction-limited beam diameter (88 mas) and typical coronagraphic inner working angles. Finally, we discuss potential improvements that can enable a number of small-angle nulling observations on larger telescopes.

Download/Website: `https://doi.org/10.1093/mnras/stz2163`

Contact: `eugene.serabyn@jpl.nasa.gov`

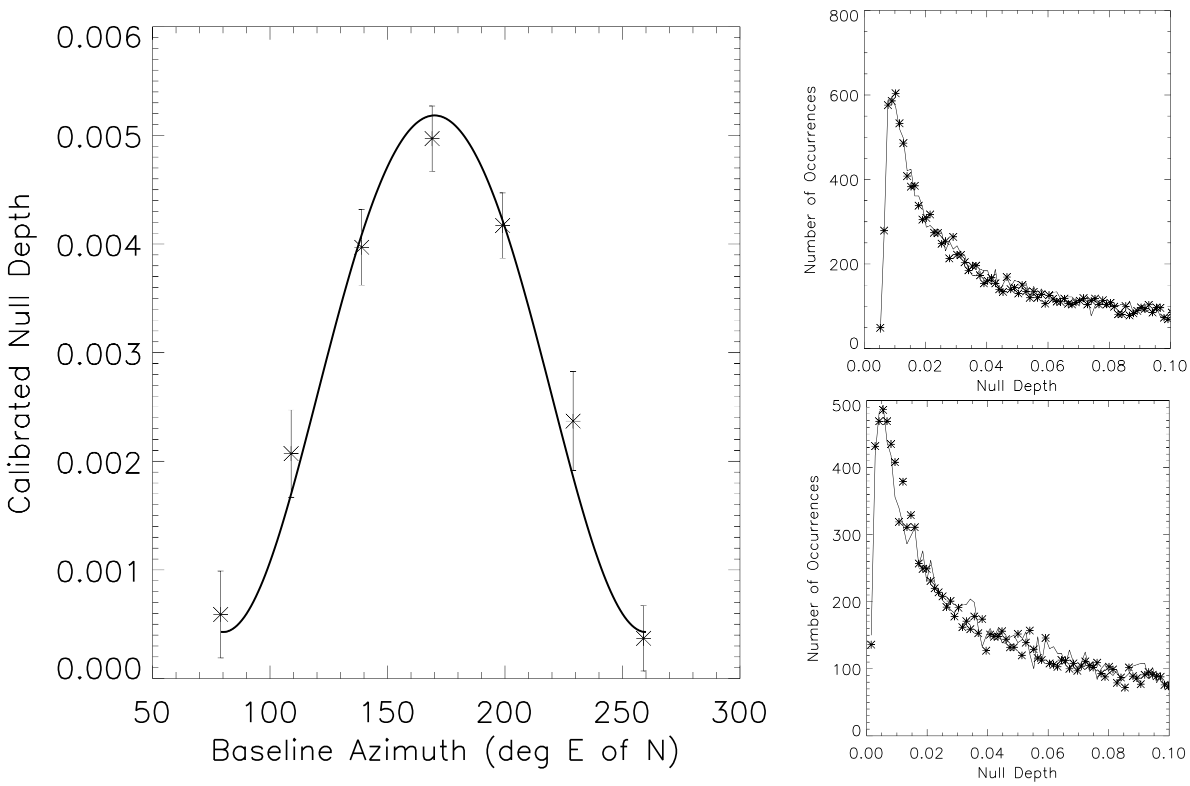

Figure 3: Left: Calibrated null depths measured on eta Peg vs. baseline position angle on the sky over a full 180 degrees of baseline rotation. Right: individual raw (uncalibrated) null-depth histograms corresponding to baseline orientations of, top right: 170 deg (the observed null-depth maximum), and, bottom right: 260 deg (the observed null-depth minimum). The shift in peak position reflects the different null depths.

Planetary systems in a star cluster I: the Solar system scenario

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Monthly Notices of the Royal Astronomical Society, (DOI:10.1093/mnras/stz2346 /arXiv:1908.07747)

Young stars are mostly found in dense stellar environments, and even our own Solar system may have formed in a star cluster. Here, we numerically explore the evolution of planetary systems similar to our own Solar system in star clusters. We investigate the evolution of planetary systems in star clusters. Most stellar encounters are tidal, hyperbolic, and adiabatic. A small fraction of the planetary systems escape from the star cluster within 50 Myr; those with low escape speeds often remain intact during and after the escape process. While most planetary systems inside the star cluster remain intact, a subset is strongly perturbed during the first 50 Myr. Over the course of time, 0.3% – 5.3% of the planets escape, sometimes up to tens of millions of years after a stellar encounter occurred. Survival rates are highest for Jupiter, while Uranus and Neptune have the highest escape rates. Unless directly affected by a stellar encounter itself, Jupiter frequently serves as a barrier that protects the terrestrial planets from perturbations in the outer planetary system. In low-density environments, Jupiter provides protection from perturbations in the outer planetary system, while in high-density environments, direct perturbations of Jupiter by neighbouring stars is disruptive to habitable-zone planets. The diversity amongst planetary systems that is present in the star clusters at 50 Myr, and amongst the escaping planetary systems, is high, which contributes to explaining the high diversity of observed exoplanet systems in star clusters and in the Galactic field.

Download/Website: `https://arxiv.org/abs/1908.07747`

Contact: `flammini.francesco@xjtlu.edu.cn`

Tidal circularization of gaseous planets orbiting white dwarfs

Dimitri Veras[1,2]

Jim Fuller[3]

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MNRAS, In Press, arXiv:1908.08052

A gas giant planet which survives the giant branch stages of evolution at a distance of many au and then is subsequently perturbed sufficiently close to a white dwarf will experience orbital shrinkage and circularization due to star-planet tides. The circularization timescale, when combined with a known white dwarf cooling age, can place coupled constraints on the scattering epoch as well as the active tidal mechanisms. Here, we explore this coupling across the entire plausible parameter phase space by computing orbit shrinkage and potential self-disruption due to chaotic f-mode excitation and heating in planets on orbits with eccentricities near unity, followed by weakly dissipative equilibrium tides. We find that chaotic f-mode evolution activates only for orbital pericentres which are within twice the white dwarf Roche radius, and easily restructures or destroys ice giants but not gas giants. This type of internal thermal destruction provides an additional potential source of white dwarf metal pollution. Subsequent tidal evolution for the surviving planets is dominated by non-chaotic equilibrium and dynamical tides which may be well-constrained by observations of giant planets around white dwarfs at early cooling ages.

Download/Website: `https://arxiv.org/abs/1908.08052`

Contact: `d.veras@warwick.ac.uk`

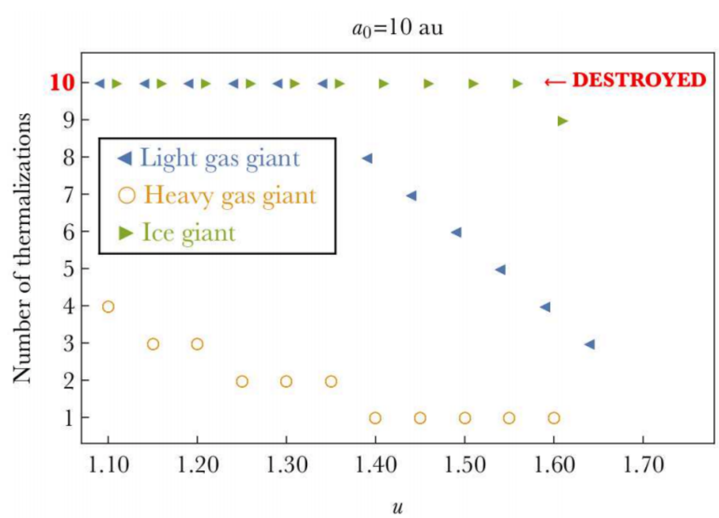

Figure 4: Number of thermalization events for three different types of planets on highly eccentric orbits around white dwarfs, when built up energy from chaotic tidal interactions is released within the planet. The x-axis refers to the initial orbital pericentre in units of the host star disruption (or Roche) radius. A total of 10 thermalization events may disrupt the planet, which we denote here as "destroyed". Ice giants may be frequently destroyed when chaotic tidal evolution is active.

On the survivability of planets in young massive clusters and its implication of planet orbital architectures in globular clusters

Maxwell X. Cai[1]*, Simon Portegies Zwart*[1]*, M.B.N. Kouwenhoven*[2] *& Rainer Spurzem*[3,4,5]

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[2] Department of Mathematical Sciences, Xi'an Jiaotong-Liverpool University, 111 Ren'ai Rd., Suzhou Dushu Lake Science and Education Innovation District, Suzhou Industrial Park, Suzhou 215123, P.R. China
[3] National Astronomical Observatories and Key Laboratory of Computational Astrophysics, Chinese Academy of Sciences, 20A Datun Road, Chaoyang District, Beijing 100012, P.R. China
[4] Kavli Institute for Astronomy and Astrophysics, Peking University, 5 Yi He Yuan Road, Haidian District, Beijing 100871, P.R. China
[5] Zentrum für Astronomie, Astronomisches Rechen-Institut, University of Heidelberg, Mönchhofstrasse 12-14, D-69120 Heidelberg, Germany

MNRAS, in press, arXiv:1903.02316

As of August 2019, among the more than 4000 confirmed exoplanets, only one has been detected in a globular cluster (GC) M4. The scarce of exoplanet detections motivates us to employ direct N-body simulations to investigate the dynamical stability of planets in young massive clusters (YMCs), which are potentially the progenitors of GCs. In an $N = 128$k cluster of virial radius 1.7 pc (comparable to Westerlund-1), our simulations show that most wide-orbit planets ($a \geq 20$ au) will be ejected within a timescale of 10 Myr. Interestingly, more than 70% of planets with $a < 5$ au survive in the 100 Myr simulations. Ignoring planet-planet scattering and tidal damping, the survivability at t Myr as a function of initial semi-major axis a_0 in au in such a YMC can be described as $f_{\rm surv}(a_0, t) = -0.33 \log_{10}(a_0) \left(1 - e^{-0.0482t}\right) + 1$. Upon ejection, about 28.8% of free-floating planets (FFPs) have sufficient speeds to escape from the host cluster at a crossing timescale. The other FFPs will remain bound to the cluster potential, but the subsequent dynamical evolution of the stellar system can result in the delayed ejection of FFPs from the host cluster. Although a full investigation of planet population in GCs requires extending the simulations to multi-Gyr, our results suggest that wide-orbit planets and free-floating planets are unlikely to be found in GCs.

Download/Website: `https://arxiv.org/abs/1903.02316`

Contact: `cai@strw.leidenuniv.nl`

3 Jobs and Positions

Postdoctoral position on exoplanetary atmosphere evaporation models

Jerome Bouvier

IPAG, Grenoble, January 1st, 2020

A 3yr postdoctoral position is offered at IPAG, Grenoble, starting January 1st, 2020, to develop and/or adapt models of planetary atmosphere evaporation around young stars and predict the observable signatures of such processes. Previous experience in planetary evaporation models will be most valuable. The work will take place at IPAG in the framework of the ERC-funded project SPIDI (http://www.spidi-eu.org), and will involve collaborations with Alain Lecavelier des Etangs (IAP, Paris) and Vincent Bourrier (Obs. Geneve). Applications are to be sent to Jerome.Bouvier@univ-grenoble-alpes.fr by November 15, 2019.

Contact: `Jerome.Bouvier@univ-grenoble-alpes.fr`

TESS Postdoctoral Scholar

Steve B. Howell

The NASA Ames Research Center, Division of Space Science and Astrobiology (`https://www.nasa.gov/content/space-science-and-astrobiology-ames`) has an immediate opening for one or two Postdoctoral Scholars to work on exoplanet and stellar astrophysics related to NASA's TESS, JWST, and WFIRST missions. The postdoctoral scholar will help lead our community-based science program to assess and characterize stellar multiplicity and exoplanet properties of TESS candidate systems utilizing our high-resolution speckle imaging instruments. The NASA Ames program works closely with the NASA Exoplanet Archive, located at Caltech, and makes use of the WIYN 3.5-m telescope on Kitt Peak and the twin 8-m Gemini telescopes located in Chile and Hawaii.

The post-doctoral scholar will participate scientifically in the TESS Follow-Up Observation Program (TFOP; `https://tess.gsfc.nasa.gov/ground_based_followup.html`), observing runs at the telescope listed above, and spend time working with the community. Additionally, it is expected that the post-doctoral scholar will engage in collaborative research within the program, formulate research programs, and write scientific papers.

How to Apply: Submit a cover letter, CV, statement of research interests, list of publications, and three names of references to resumes@baeri.org. In your cover letter, please specify that your application is for the Postdoc/Research Exoplanet Scientist position at NASA Ames. For technical questions, contact Dr. Steve B. Howell (steve.b.howell@nasa.gov).

See URL for full job advertisement

Download/Website: `https://jobregister.aas.org/ad/3c8966e6`

Contact: `resumes@baeri.org`

Residential fellowship "Exoplanets and Biological Activity on Other Worlds"

Ulrike Heiter, coordinator for SCAS-Exoplanets
Department of Physics and Astronomy, Uppsala University, Sweden

Swedish Collegium for Advanced Study, from Sep 2020

We would like to draw your attention to the opportunity to apply for a residential fellowship at the Swedish Collegium for Advanced Study (SCAS) in Uppsala, focusing on the theme "Exoplanets and Biological Activity on Other Worlds" within the Natural Sciences Programme.
Fellowships are normally awarded for either one academic year or one semester, although short-term visits (at least three months, within either autumn or spring semester) are possible.
At the time of application, the candidate must have held a PhD (or equivalent degree) for at least three years.
The deadline for applications for the academic year 2020-21 is on **31 October 2019**.
Further information and application instructions can be found on the Website linked below.

Download/Website: `http://www.swedishcollegium.se/subfolders/Fellowships/Natural_Sciences.html`

Contact: `ulrike.heiter@physics.uu.se`

Lecturer, Senior Lecturer or Reader in Exoplanet Characterisation

School of Physics and Astronomy, Cardiff University, UK
Closing date: Thursday, 7 November 2019; Cardiff University Post reference: 9049BR

The School of Physics and Astronomy at Cardiff University has one of the largest astronomy groups in the UK with 26 academic staff in astronomy-related activities including galactic and extragalactic astrophysics, ground-based and space-borne instrumentation development, and gravitational waves. We have an immediate vacancy for an open-ended academic position, at Lecturer, Senior Lecturer, or Reader level, in the field of exoplanet science. The appointment will be made at a level commensurate with experience.

This position is part of a long-term strategic plan for astronomy at Cardiff to broaden current research to exoplanet science using space and ground based facilities. We are part of the international consortium that will provide the science payload for the European Space Agency's ARIEL satellite, dedicated to the systematic characterisation of exoplanet atmospheres and scheduled for launch in 2028. It is expected that the new appointee will become a key member of the Cardiff ARIEL team and of the international ARIEL consortium.

You will have a PhD in Physics or Astrophysics from a leading university programme with an excellent track record in exoplanet research, through observations, instrumentation, or theory, demonstrated by publications in high quality academic journals and evidence of success in gaining and enhancing research income. You will be an excellent teacher and have clearly demonstrated the ability to teach effectively at University level. Applications should include a covering letter, CV, and concise research and teaching statements.

This post is full-time and open-ended. More information about the post may be obtained by contacting Prof. Matt Griffin (Head of the Astronomy Instrumentation Group, and UK ARIEL Co-PI; matt.griffin@astro.cf.ac.uk) or Prof. Steve Eales (Head of the Astronomy Group; steve.eales@astro.cf.ac.uk). More information about working at Cardiff University may be obtained by contacting Glesni Lloyd (Lloydgw@cardiff.ac.uk).

Salary:
Lecturer: £42,036 - £48,677 per annum (Grade 7)
Senior Lecturer: £50,132 - £58,089 per annum (Grade 8)
Reader: £59,828 - £61,618 per annum (Grade 8, points 50 and 51)

Cardiff University and the School of Physics and Astronomy are committed to supporting and promoting equality and diversity. Our inclusive environment welcomes applications from talented people from diverse backgrounds. We strongly welcome female applicants and those from any ethnic minority group, as they are underrepresented in our School. The School of Physics and Astronomy has a Juno Practitioner accreditation that recognises good employment practice and a commitment to develop the careers of women working in science. The University is committed to ensuring that we sustain a positive working environment for all staff to flourish and achieve. As part of this commitment, the University has developed a flexible and responsive framework of procedures to support staff in managing their work and personal commitments wherever possible. Applications are welcome from individuals who wish to work part-time or full time.

Download/Website: `See Academic Vacancies at https://www.cardiff.ac.uk/jobs`

Contact: `matt.griffin@astro.cf.ac.uk or steve.eales@astro.cf.ac.uk`

4 Conference announcements

Protostars & Planets VII

Shu-ichiro Inutsuka, Motohide Tamura, Yuri Aikawa, Takayuki Muto, and Kengo Tomida

Kyoto, Japan, April 1-7, 2021

We are planning to organize an international conference, Protostars & Planets VII (PP7), at Kyoto in April 2021, which will be the first conference of the series held in Asia. This series of conference has provided important opportunity for the scientists working on the formation of stars and planets. We would like to have a series of review talks summarizing the development in our field in recent years. As in the previous Protostars & Planets Series, we will publish those reviews as a new volume, *PROTOSTARS AND PLANETS VII*, in the Space Science Series of University of Arizona Press. The information of the meeting is the following:

Meeting Name: Protostars & Planets VII (PP7)
Venue: Kyoto International Conference Center, Kyoto, Japan
Date: April 1 (Thu) - 7 (Wed), 2021
Call for Chapter Proposals: Winter of 2019

List of Editors:
Shu-ichiro Inutsuka (Nagoya University), Motohide Tamura (University of Tokyo), Yuri Aikawa (University of Tokyo), Takayuki Muto (Kogakuin University), and Kengo Tomida (Osaka University)

Scientific Advisory Committee:
Joao Alves (Austria), Philippe Andre (France), Isabelle Baraffe (UK), John Carpenter (Chille), Paola Caselli (Germany), Weng-Ping Chen (Taiwan), Kees Dullemond (Germany), Tristan Guillot (France), Alyssa Goodman (USA), Lynne Hillenbrand (USA), Thomas Henning (Germany), Shigeru Ida (Japan), Doug Johnstone (Canada), Inga Kamp (Netherlands), Mark Krumholz (Australia), Jeong-Eun Lee (Korea), Victoria Meadows (USA), Michael Meyer (USA), Richard Nelson (UK), Toshikazu Onishi (Japan), Eve Ostriker (USA), Ilaria Pascucci (USA), Yasuhito Sekine (Japan), Shogo Tachibana (Japan), Mario Tafalla (Spain), Ewine van Dishoeck (Netherland), and Jonathan Williams (USA)

Download/Website: `www.ppvii.org`

Contact: `ppvii-web@ppvii.org`

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 16, 2019

Note: All new planetary data can be viewed in the Confirmed Planets (`http://bit.ly/2MqFnub`), Composite Planet Data (`http://bit.ly/2l84Qw9`), and Extended Planet Data (`http://bit.ly/2NLy1Ci`) tables. New microlensing solutions are in the Microlensing Data table (`http://bit.ly/2JQr18O`).

August 29, 2019

A second planet detected in the nearby beta Pictoris system is in the archive this week. See the beta Pic c Overview page (`http://bit.ly/2NEhTox`) and read the discovery paper by Lagrange et al. (`http://bit.ly/2MLneL0`)
We've also added 18 more stellar and planet parameter sets for various objects, which can be viewed in the Extended Planet Data interactive table.
Also, the number of TESS Objects of Interest (TOI) in ExoFOP-TESS has surpassed the 1,000-mark! These TESS candidates were identified by the TESS Project for further investigation. Browse the TOIs in our new interactive table (`http://bit.ly/2H9H26v`) or the ExoFOP-TESS site (`http://bit.ly/2DWCKO5`).

August 15, 2019

We have three noteworthy updates this week:
New Confirmed Planets and Parameters: There are 12 new planets this week, plus a slew of planet parameter sets. The new planets are: K2-43 c, K2-146 c, K2-198 c & d, LTT 1445 A b, HAT-P-69 b, HAT-P-70 b, HATS-54 b, HATS-55 b, HATS-56 b, HATS-57 b, and HATS-58 A b.
New Model Atmospheres Data Set! The archive now serves the Frontier Development Lab PyATMOS data set, comprising ~124,000 model atmosphere structure profiles for Earth-like planets. This data set was provided by a collaboration between the 2018 Frontier Development Lab program (`http://bit.ly/2MiU6e1`) led by William Fawcett and Daniel Angerhausen.
Our new interface allows you to interactively search, filter, and preview the models, and to download a single model, your chosen subset of the models, or the entire data set as a bulk download. To access the data from the interactive table (`http://bit.ly/2z2HsqU`) or read the documentation (`http://bit.ly/2P0nXKm`), click the Data drop-down menu from any archive web page and select Contributed Data Sets. The FDL PyATMOS links are at the bottom of the page under Synthetic Data.
New TESS Project Candidates Table! We've created a new interactive table of TESS Objects of Interest (TOI) that were identified by the TESS Project, as well as previously known transiting planets and false positives detected by TESS. This list is built periodically from the TOI list available on ExoFOP-TESS, which is updated twice daily. Access the interactive table (`http://bit.ly/2H9H26v`) from the archive home page either by clicking the TESS Project Candidates count box, the TESS Project Candidates button, or the TESS tab of the Transit Surveys area.
Please Note: The time and date of the last update for the Exoplanet Archive's TOI list is included the tab at the top of the interactive table. For the most up-to-date versions of the TOI candidates, see the TOI list on the ExoFOP-TESS site (`http://bit.ly/2DWCKO5`).

August 1, 2019

Two TESS systems that are in the news, TOI 270 and GJ 357, were added to the archive this week:

TOI 270 b, c, & d: With planets that straddle a known gap in observed planet radii, this system promises to help us learn more about how exoplanets and their atmospheres form. For more details, read NASA's press release (`https://go.nasa.gov/2kjWKnq`) and the discovery paper (`https://go.nature.com/2lSUGmU`).
GJ 357 b, c, & d includes the first nearby super-Earth that could potentially harbor life. Read the media alert (`https://go.nasa.gov/2lVpMdh`) and the discovery paper (`http://bit.ly/2kAH0N5`).

Download/Website: `https://exoplanetarchive.ipac.caltech.edu`

Contact: `mharbut@caltech.edu`

6 As seen on astro-ph

August 2019

astro-ph/1908.00006: **An Exo-Kuiper Belt and An Extended Halo around HD 191089 in Scattered Light** by *Bin Ren et al.*

astro-ph/1908.00014: **Investigating Trends in Atmospheric Compositions of Cool Gas Giant Planets Using Spitzer Secondary Eclipses** by *Nicole L. Wallack et al.*

astro-ph/1908.00203: **Sensitivity Analyses of Exoplanet Occurrence Rates from Kepler and Gaia** by *Megan I. Shabram et al.*

astro-ph/1908.00619: **The HST PanCET Program: Exospheric Mg II and Fe II in the Near-UV transmission spectrum of WASP-121b using Jitter Decorrelation** by *David K. Sing et al.*

astro-ph/1908.00647: **Close-in giant-planet formation via in-situ gas accretion and their natal disk properties** by *Yasuhiro Hasegawa, Tze Yeung Mathew Yu, Bradley M. S. Hansen*

astro-ph/1908.00897: **Planetesimals to Terrestrial Planets: collisional evolution amidst a dissipating gas disk** by *Kevin J. Walsh, Harold F. Levison*

astro-ph/1908.00991: **Photon-weighted barycentric correction and its importance for precise radial velocities** by *René Tronsgaard et al.*

astro-ph/1908.01048: **Analytical estimates of secular frequencies for binary star systems** by *Ákos Bazsó, Elke Pilat-Lohinger*

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