ExoPlanet News
An Electronic Newsletter

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1 Editorial

Welcome to edition 103 of the ExoPlanet News!

We hope you had a good start in 2018 and we wish you a happy, healthy and successful year. Because of the holidays, this issue of the newsletter is somewhat shorter than previous editions, but nonetheless a big ”thank you” to all of you who contributed to #103! Please continue spreading the word about this newsletter as its values increases with the number of subscribers and contributors. Also please remember that at the moment we can only work with submissions in .tex format; already compiled .pdf files or ascii text require extra efforts on our side. The correct templates, as well as all previous editions of ExoPlanet News, can be found at http://nccr-planets.ch/exoplanetnews/. In addition to abstracts of recently accepted publications, conference/workshop announcements are highly valued by most of our readers. With the year still being young, please consider reminding organizers of upcoming events to submit an abstract to ExoPlanet News.

All abstracts, but also suggestions and feedback, should be sent to exoplanetnews@nccr-planets.ch.
The next issue of the newsletter will probably appear in mid February 2018.

Thanks for all your support and best regards from Switzerland

Sascha P. Quanz
Yann Alibert
Adrien Leleu
Christoph Mordasini

2 Abstracts of refereed papers

Spin–Orbit Misalignment and Precession in the *Kepler*-13Ab Planetary System

M. K. Herman[1], E. J. W. de Mooij[2,3], C. X. Huang[4], R. Jayawardhana[5]

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The Astronomical Journal, published (2018AJ....155...13H)

Gravity darkening induced by rapid stellar rotation provides us with a unique opportunity to characterize the spin-orbit misalignment of a planetary system through analysis of its photometric transit. We use the gravity-darkened transit modeling code `simuTrans` to reproduce the transit light curve of *Kepler*-13Ab by separately analyzing phase-folded transits for 12 short-cadence *Kepler* quarters. We verify the temporal change in impact parameter indicative of spin-orbit precession identified by Szabò et al. and Masuda, reporting a rate of change $db/dt = (-4.1 \pm 0.2) \times 10^{-5}$ day^{-1}. We further investigate the effect of light dilution on the fitted impact parameter and find that less than 1% of additional light is sufficient to explain the seasonal variation seen in the *Kepler* quarter data. We then extend our precession analysis to the phase curve data from which we report a rate of change $db/dt = (-3.2 \pm 1.3) \times 10^{-5}$ day^{-1}. This value is consistent with that of the transit data at a lower significance and provides the first evidence of spin-orbit precession based solely on the temporal variation of the secondary eclipse.

Download/Website: `https://doi.org/10.3847/1538-3881/aa991f`

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Chemical fingerprints of hot Jupiter planet formation

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Astronomy & Astrophysics, in press (arXiv:1712.01035)

The current paradigm to explain the presence of Jupiters with small orbital periods (P < 10 days; hot Jupiters) that involves their formation beyond the snow line following inward migration, has been challenged by recent works that explored the possibility of *in situ* formation. We aim to test whether stars harbouring hot Jupiters and stars with more distant gas-giant planets show any chemical peculiarity that could be related to different formation processes. Our methodology is based on the analysis of high-resolution échelle spectra. Stellar parameters and abundances of C, O, Na, Mg, Al, Si, S, Ca, Sc, Ti, V, Cr, Mn, Co, Ni, Cu, and Zn for a sample of 88 planet hosts are derived. The sample is divided into stars hosting hot (a < 0.1 au) and cool (a > 0.1 au) Jupiter like planets. The metallicity and abundance trends of the two subsamples are compared and set in the context of current models of planet formation and migration. Our results show that stars with hot Jupiters have higher metallicities than stars with cool distant gas-giant planets in the metallicity range +0.00/+0.20 dex. The data also shows a tendency of stars with cool Jupiters to show larger abundances of α elements. No abundance differences between stars with cool and hot Jupiters are found when considering iron peak, volatile elements or the C/O, and Mg/Si ratios. The corresponding p-values from the statistical tests comparing the cumulative distributions of cool and hot planet hosts are 0.20, < 0.01, 0.81, and 0.16 for metallicity, α, iron-peak, and volatile elements, respectively. We confirm previous works suggesting that more distant planets show higher planetary masses as well as larger eccentricities. We note differences in age and spectral type between the hot and cool planet hosts samples that might affect the abundance comparison. The differences in the distribution of planetary mass, period, eccentricity, and stellar host metallicity suggest a different formation

mechanism for hot and cool Jupiters. The slightly larger α abundances found in stars harbouring cool Jupiters might compensate their lower metallicities allowing the formation of gas-giant planets.

Download/Website: `https://arxiv.org/abs/1712.01035`

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The physics of protoplanetesimal dust agglomerates. X. High-velocity collisions between small and large dust agglomerates as growth barrier.

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The Astrophysical Journal, accepted

In a protoplanetary disk, dust aggregates in the μm to mm size range possess mean collision velocities of 10 to 60 m s^{-1} with respect to dm- to m-size bodies. We performed laboratory collision experiments to explore this parameter regime and found a size- and velocity-dependent threshold between erosion and growth. By using a local Monte Carlo coagulation calculation and complementary a simple semi-analytical timescale approach, we show that erosion considerably limits particle growth in protoplanetary disks and leads to a steady-state dust-size distribution from μm to dm sized particles.

Download/Website: `http://arxiv.org/abs/1712.04215`

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Orbital misalignment of the Neptune-mass exoplanet GJ 436b with the spin of its cool star

V. Bourrier[1], *C. Lovis*[1], *H. Beust*[2], *D. Ehrenreich*[1], *G. W. Henry*[3], *N. Astudillo-Defru*[1], *R. Allart*[1], *X. Bonfils*[2], *D. Ségransan*[1], *X. Delfosse*[2], *H. M. Cegla*[1], *A. Wyttenbach*[1], *Kevin Heng*[4], *B. Lavie*[1], *F. Pepe*[1]

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Nature, published online (1712.06638)

The angle between the spin of a star and its planets orbital planes traces the history of the planetary system. Exoplanets orbiting close to cool stars are expected to be on circular, aligned orbits because of strong tidal interactions with the stellar convective envelope. Spin-orbit alignment can be measured when the planet transits its star, but such ground-based spectroscopic measurements are challenging for cool, slowly-rotating stars. Here we report the characterization of a planet three-dimensional trajectory around an M dwarf star, derived by mapping the spectrum of the stellar photosphere along the chord transited by the planet. We find that the eccentric orbit of the Neptune-mass exoplanet GJ 436b is nearly perpendicular to the stellar equator. Both eccentricity and misalignment, surprising around a cool star, can result from dynamical interactions (via Kozai migration) with a yet-undetected outer companion. This inward migration of GJ 436b could have triggered the atmospheric escape that now sustains its giant exosphere. Eccentric, misaligned exoplanets orbiting close to cool stars might thus hint at the presence of unseen perturbers and illustrate the diversity of orbital architectures seen in exoplanetary systems.

Download/Website: `https://www.nature.com/articles/nature24677`

Download/Website: `https://arxiv.org/abs/1712.06638`

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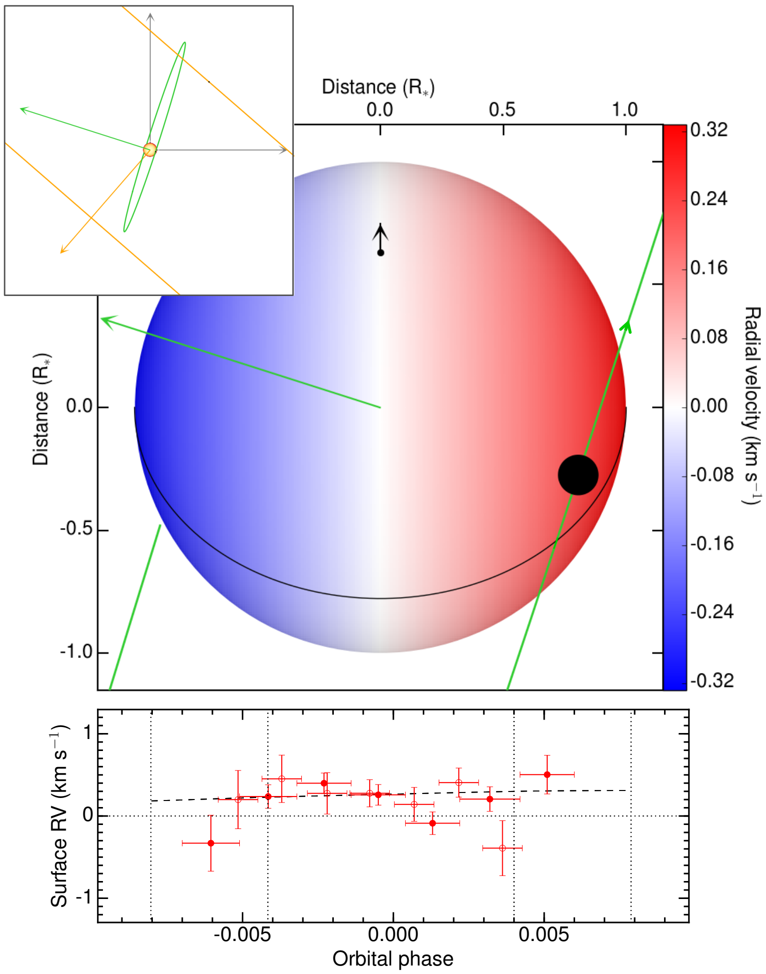

Figure 1: The highly misaligned orbit of the Neptune-mass exoplanet GJ 436b around its M dwarf host star. *Lower panel* : Intrinsic radial velocities of the stellar photosphere along the transit chord, extracted with the *reloaded RM* technique (red points). They are plotted with their best-fit model (dashed line) as a function of GJ 436b orbital phase. Dotted lines are transit contacts. The redshift of the surface radial velocities shows that GJ 436b occults regions of the photosphere moving away from the observer, while their stability shows that the planet transits at about the same stellar longitude. *Upper panel* : Derived architecture for the GJ 436 system, projected on the plane of the sky. Stellar disk color corresponds to its surface RV field. The black arrow from south to north pole is the inclined stellar spin. A solid black line represents the stellar equator. GJ 436b (black disk) orbital axis is shown as a green arrow of same length as the half stellar spin axis, and its orbital trajectory as a solid green curve. The inset is a zoom out of this image, showing in orange a possible orbit for the perturber that could have led to this architecture via Kozai migration.

Predictions of planet detections with near infrared radial velocities in the up-coming SPIRou Legacy Survey-Planet Search

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The Astronomical Journal, in press

The SPIRou near infrared spectro-polarimeter is destined to begin science operations at the Canada-France-Hawaii Telescope in mid-2018. One of the instrument's primary science goals is to discover the closest exoplanets to the Solar System by conducting a 3-5 year long radial velocity survey of nearby M dwarfs at an expected precision of ∼ 1 m/s; the SPIRou Legacy Survey-Planet Search (SLS-PS). In this study we conduct a detailed Monte-Carlo simulation of the SLS-PS using our current understanding of the occurrence rate of M dwarf planetary systems and physical models of stellar activity. From simultaneous modelling of planetary signals and activity, we predict the population of planets detected in the SLS-PS. With our fiducial survey strategy and expected instrument performance over a nominal survey length of ~ 3 years, we expect SPIRou to detect $85.3^{+29.3}_{-12.4}$ planets including $20.0^{+16.8}_{-7.2}$ habitable zone planets and $8.1^{+7.6}_{-3.2}$ Earth-like planets from a sample of 100 M1-M8.5 dwarfs out to 11 pc. By studying mid-to-late M dwarfs previously inaccessible to existing optical velocimeters, SPIRou will put meaningful constraints on the occurrence rate of planets around those stars including the value of $\eta_\oplus$ at an expected level of precision of $\lesssim 45\%$. We also predict a subset of $46.7^{+16.0}_{-6.0}$ planets may be accessible with dedicated high-contrast imagers on the next generation of ELTs including $4.9^{+4.7}_{-2.0}$ potentially imagable Earth-like planets. Lastly, we compare the results of our fiducial survey strategy to other foreseeable survey versions to quantify which strategy is optimized to reach the SLS-PS science goals. The results of our simulations are made available to the community on https://github.com/r-cloutier/SLSPS_Simulations.

Download/Website: `https://arxiv.org/abs/1712.06673`

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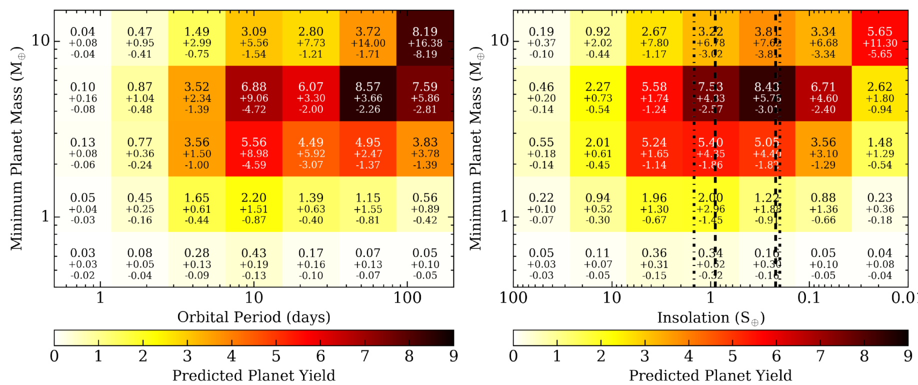

Figure 2: The predicted yield of new exoplanet detections from the SPIRou Legacy Survey-Planet Search as a function of minimum planet mass and orbital period (*left*) or insolation (*right*). The *vertical dashed lines* in the insolation panel indicate the approximate 'water-loss' and 'maximum greenhouse' insolation limits on the habitable zone. The *vertical dashed-dotted lines* indicate the more conservative 'recent-Venus' and 'early-Mars' habitable zone limits.

On fragmentation of turbulent self-gravitating discs in the long cooling time regime

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Monthly Notices of the Royal Astronomical Society, in press(arXiv:1712.05610)

It has recently been suggested that in the presence of driven turbulence discs may be much less stable against gravitational collapse than their non turbulent analogs, due to stochastic density fluctuations in turbulent flows. This mode of fragmentation would be especially important for gas giant planet formation. Here we argue, however, that stochastic density fluctuations due to turbulence do not enhance gravitational instability and disc fragmentation in the long cooling time limit appropriate for planet forming discs. These fluctuations evolve adiabatically and dissipate away by decompression faster than they could collapse. We investigate these issues numerically in 2D via shearing box simulations with driven turbulence and also in 3D with a model of instantaneously applied turbulent

velocity kicks. In the former setting turbulent driving leads to additional disc heating that tends to make discs more, rather than less, stable to gravitational instability. In the latter setting, the formation of high density regions due to convergent velocity kicks is found to be quickly followed by decompression, as expected. We therefore conclude that driven turbulence does not promote disc fragmentation in protoplanetary discs and instead tends to make the discs more stable. We also argue that sustaining supersonic turbulence is very difficult in discs that cool slowly.

Download/Website: `http://www.roe.ac.uk/ wkmr`

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Zones, spots, and planetary-scale waves beating in brown dwarf atmospheres

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Science, published (ADS-2017Sci...357..683A)

Brown dwarfs are massive analogs of extrasolar giant planets and may host types of atmospheric circulation not seen in the solar system. We analyzed a long-term Spitzer Space Telescope infrared monitoring campaign of brown dwarfs to constrain cloud cover variations over a total of 192 rotations. The infrared brightness evolution is dominated by beat patterns caused by planetary-scale wave pairs and by a small number of bright spots. The beating waves have similar amplitudes but slightly different apparent periods because of differing velocities or directions. The power spectrum of intermediate-temperature brown dwarfs resembles that of Neptune, indicating the presence of zonal temperature and wind speed variations. Our findings explain three previously puzzling behaviors seen in brown dwarf brightness variations.

Download/Website: `http://science.sciencemag.org/content/357/6352/683`

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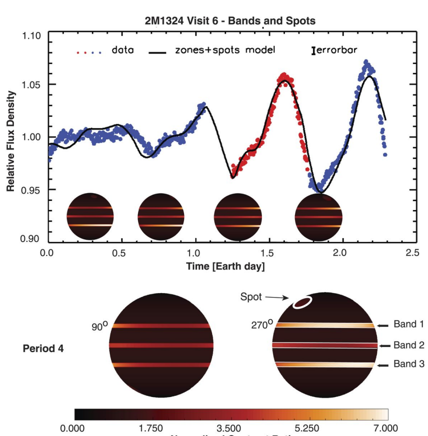

Figure 3: A Markov Chain Monte Carlo surface brightness model using Aeolus was fitted to the evolving light curve by using three sinusoidally modulated bands and a bright spot. The prominent light curve evolution is dominated by the beating effect caused by the phase shift between two modulations with slightly different periods.

Modelling the KIC8462852 light curves: compatibility of the dips and secular dimming with an exocomet interpretation

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Monthly Notices of the Royal Astronomical Society, 2018, 473, 5286

This paper shows how the dips and secular dimming in the KIC8462852 light curve can originate in circumstellar material distributed around a single elliptical orbit (e.g., exocomets). The expected thermal emission and wavelength dependent dimming is derived for different orbital parameters and geometries, including dust that is optically thick to stellar radiation, and for a size distribution of dust with realistic optical properties. We first consider dust distributed evenly around the orbit, then show how to derive its uneven distribution from the optical light curve and to predict light curves at different wavelengths. The fractional luminosity of an even distribution is approximately the level of dimming times stellar radius divided by distance from the star at transit. Non-detection of dust thermal emission for KIC8462852 thus provides a lower limit on the transit distance to complement the 0.6 au upper limit imposed by 0.4 day dips. Unless the dust distribution is optically thick, the putative 16% century-long secular dimming must have disappeared before the *WISE* 12 μm measurement in 2010, and subsequent 4.5 μm observations require transits at > 0.05 au. However, self-absorption of thermal emission removes these constraints for opaque dust distributions. The passage of dust clumps through pericentre is predicted to cause infrared brightening lasting 10s of days and dimming during transit, such that total flux received decreases at wavelengths $< 5\,\mu$m, but increases to potentially detectable levels at longer wavelengths. We suggest that lower dimming levels than seen for KIC8462852 are more common in the Galactic population and may be detected in future transit surveys.

Download/Website: `http://arxiv.org/abs/1710.05929`

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Interior structures and tidal heating in the TRAPPIST-1 planets

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Astronomy & Astrophysics, in press (arXiv:1712.05641)

With seven planets, the TRAPPIST-1 system has among the largest number of exoplanets discovered in a single system so far. The system is of astrobiological interest, because three of its planets orbit in the habitable zone of the ultracool M dwarf. We aim to determine interior structures for each planet and estimate the temperatures of their rock mantles due to a balance between tidal heating and convective heat transport to assess their habitability. We also aim to determine the precision in mass and radius necessary to determine the planets' compositions. Assuming the planets are composed of uniform-density noncompressible materials (iron, rock, H_2O), we determine possible compositional models and interior structures for each planet. We also construct a tidal heat generation model using a single uniform viscosity and rigidity based on each planet's composition. The compositions for planets b, c, d, and e remain uncertain given the error bars on mass and radius. With the exception of TRAPPIST-1c, all have densities low enough to indicate the presence of significant H_2O. Planets b and c experience enough heating from planetary tides to maintain magma oceans in their rock mantles; planet c may have surface eruptions of silicate magma, potentially detectable with next-generation instrumentation. Tidal heat fluxes on planets d, e, and f are twenty times higher than

Earth's mean heat flow. Planets d and e are the most likely to be habitable. Planet d avoids the runaway greenhouse state if its albedo is greater than about 0.3. Determining the planet's masses within ~ 0.1 – 0.5 Earth masses would confirm or rule out the presence of H_2O and/or iron. Understanding the geodynamics of ice-rich planets f, g, and h requires more sophisticated modeling that can self-consistently balance heat production and transport in both rock and ice layers.

Download/Website: https://tinyurl.com/trappist1-interiors

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On the Growth and Detectability of Land Plants on Habitable Planets around M Dwarfs

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Astrobiology, published (10.1089/ast.2016.1617)

One signature of life on the Earth is the vegetation red edge (VRE) feature of land plants, a dramatic change of reflectivity at wavelength near 0.7 m. Potentially habitable planets around M dwarfs are tidally locked, which potentially limits the distribution of land plants. In this work a biogeochemical model is used to model the distributions of land plants on potentially habitable planets around M dwarfs using climate data in GCM simulations. When considering the effects of clouds, the observation time needed for the detection of VRE on nearby p=1 exoplanets around nearby M dwarfs is on the order of days using 25-m2 telescope if a large continent faces Earth observers during observations. For p=1.5 exoplanets the detection time could be similar if land plants developed capability to endure dark/cold environment for extended period of time and the continent configuration favors observations. Our analysis suggests that hypothetical exovegetation VRE features be easier to detect than Earth vegetation and that VRE detection is possible for nearby exoplanets even in cloudy situation.

Download/Website: http://online.liebertpub.com/doi/10.1089/ast.2016.1617

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Efficient Metal Emissions in the Upper Atmospheres of Close-in Exoplanets

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Earth and Planetary Physics, in press

Atmospheric escape is a key process controlling the long term evolution of planets. Radiative cooling competes for energy against atmospheric escape in planetary upper atmospheres. In this work, we use a population balance method and a Monte Carlo model to calculate the previously ignored emissions of metals (C, N, O and their ions) and compare them with the most efficient cooling mechanisms in hot Jupiters' upper atmosphere, radiative recombination of H II and Ly-α emission of H I. The results show that the emissions of C, N, O and their ions are strong non-linear functions of environmental parameters (temperature, density, etc.) and should be efficient cooling mechanisms in the upper atmospheres of close-in exoplanets.

Download/Website: http://www.eppcgs.org/

Contact: tianfengco@mail.tsinghua.edu.cn

Secular dynamics of multiplanetary circumbinary systems: stationary solutions and binary-planet secular resonance

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Celestial Mechanics and Dynamical Astronomy, in press (2017arXiv171102252A)

We present an analytical formalism to study the secular dynamics of a system consisting of $N-2$ planets orbiting a binary star in outer orbits. We introduce a canonical coordinate system and expand the disturbing function in terms of canonical elliptic elements, combining both Legendre polynomials and Laplace coefficients, to obtain a general formalism for the secular description of this type of configuration. With a quadractic approximation of the development, we present a simplified analytical solution for the planetary orbits for both the single planet and the two-planet cases. From the two-planet model, we show that the inner planet accelerates the precession rate of the binary pericenter, which, in turn, may enter in resonance with the secular frequency of the outer planet, characterizing a secular resonance. We calculate an analytical expression for the approximate location of this resonance and apply it to known circumbinary systems, where we show that it can occur at relatively close orbits, for example at 2.4*au* for the Kepler-38 system. With a more refined model, we analyse the dynamics of this secular resonance and we show that a bifurcation of the corresponding fixed points can affect the long term evolution and stability of planetary systems. By comparing our results with complete integrations of the exact equations of motion, we verified the accuracy of our analytical model.

Download/Website: `https://arxiv.org/abs/1711.02252`

Download/Website: `https://doi.org/10.1007/s10569-017-9809-1`

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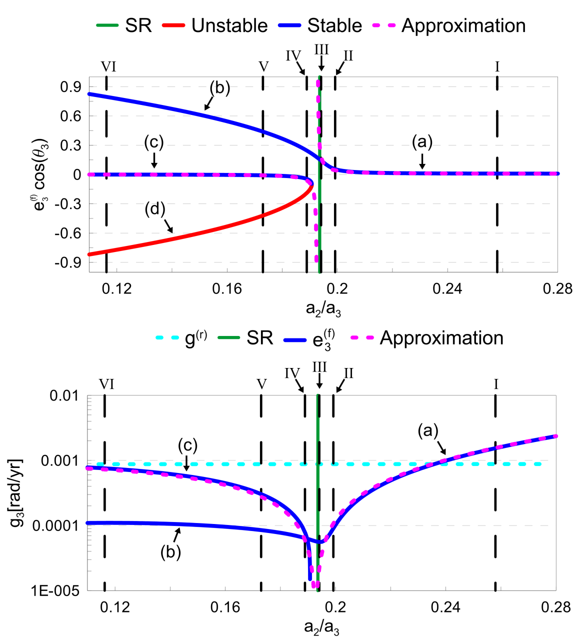

Figure 4: Eccentricity of the fixed-point (top) and its frequency (bottom) of a fictional outer planet ($j = 3$) in the Kepler-38 system in function of the semimajor axis ratio (a_2/a_3) calculated with the high-order model. The curve in blue display the position of the elliptic (stable) fixed points, while the curve in red displays the position of the hyperbolic (unstable) ones. The vertical dashed green curve represents the position of the Secular Resonance (SR) for the system, while the vertical dashed lines in black are associated with a Roman numeral (I to VI), each corresponding to a series of integrated orbits for different initial values of $e_3 \cos\theta_3$, that are presented at Figure 6 on the published article. The eigenvalues of the unstable family (d) are not presented in the bottom panel.

3 Jobs and Positions

1+2-YEAR POST-DOCTORAL INTERDISCIPLINARY POSITION IN THE FIELD OF EXOPLANETS

Prof. Leen Decin
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Leuven, Belgium, between April 1st 2018 and January 1st 2019 or to be negotiated

The Institute of Astronomy (IoA) of the KU Leuven university (Belgium) is seeking a post-doctoral candidate for a project focusing on exoplanet atmosphere modelling and understanding the intricate host star - exoplanet interaction, both in terms of dynamics and chemistry. The ideal candidate has expertise in theoretical modelling and/or retrieval algorithms, to further develop in-house dynamical and chemistry exoplanet modelling tools and confront model observables with new exoplanet spectra obtained by JWST.

The candidate will join the research group of Prof. L. Decin (IoA, KU Leuven), in collaboration with dr. L. Carone (MPIA, Heidelberg, Germany) and dr. O. Venot (Universit de Paris, France), and interacting closely with other staff members of IoA and departments of mathematics and chemistry.

A 1(+2)-year contract will be offered, with the additional 2-years awarded after positive evaluation. The salary will be commensurate to the standard scale for post-docs in Belgium and depend on years of experience after PhD. Foreseen starting date is between April 1st 2018 and January 1st 2019 but can be negotiated.

The candidate must have a PhD degree in astrophysics, (theoretical) physics or (applied) mathematics. The application package should be sent as one single PDF containing: (1) curriculum vitae with full publication list, (2) statement of interest (max. 2 pages), (3) summary of the research experience (max. 3 pages). Applicants must provide names and contact details of two reference persons prepared to send confidential recommendation letters if requested. Short-listed applicants will be invited for an interview (live/Skype).

The application material should be sent by e-mail to Clio.Gielen(at)kuleuven.be with subject EXOPLANET-applicant-name, latest by February 15th 2018.

More information can be found on http://fys.kuleuven.be/ster/vacancies.

Download/Website: `http://fys.kuleuven.be/ster/vacancies`

Contact: `clio.gielen@kuleuven.be`

Post-doctoral research associate in protoplanetary discs and planet formation

Richard Alexander

Dept. of Physics & Astronomy, University of Leicester, UK

The Theoretical Astrophysics Group at the University of Leicester invites applications for one or more post-doctoral Research Associate positions. These positions are funded by a European Research Council (ERC) grant awarded to Dr Richard Alexander, and will initially be for a period of three years, with the possibility of extension depending on progress and funding considerations.

The project ("BuildingPlanS") will use large suites of numerical simulations to link the architectures of observed exoplanet systems to their formation in protoplanetary discs. The successful applicant will be expected to carry out independent and collaborative research for this project, and will also have opportunities to collaborate more widely within the Theoretical Astrophysics Group (whose existing research programme includes star and planet formation, AGN physics, accretion discs, galactic dynamics dark matter). We are therefore particularly interested in candidates with expertise in protoplanetary discs, planet formation and migration, or numerical hydrodynamics, but all applicants with a strong background in theoretical astrophysics are encouraged to apply.

Applicants must have a PhD in astrophysics (or a related discipline), or expect to be awarded a PhD before taking up the position. The position is available from 1st May 2018, but the starting date can be flexible. The salary scale is £33,518 to £38,833, depending on experience. The successful applicant will have access to substantial expenses for relocation, travel and computing equipment, as well as extensive access to high-performance computing facilities.

Applications should be submitted electronically, via `http://www2.le.ac.uk/offices/jobs` (reference SEN00946). Informal enquiries should be directed to Dr Richard Alexander (email address below). Applications received by January 31st 2017 will be given full consideration.

Download/Website: `http://www.astro.le.ac.uk/users/rda5/`

Contact: `richard.alexander@leicester.ac.uk`

4 Conference announcements

IAU general assembly mini-conference: recent advances in planetary astronomy

Nader Haghighipour & Gonzalo Tancredi

Vienna, Austria, August 24 & 27, 2018

We would like to announce a two-day mini-conference on recent advances on planetary astronomy. The conference is organized by the IAU Division F (Planetary Systems & Astrobiology) in conjunction with the 30th General Assembly of the International Astronomical Union that will be held in August 2018 in Vienna. The purpose of this program is to bring together researchers from all fields of planetary astronomy (Solar system and extrasolar planets) to present their new findings in form of oral and poster presentations, and discuss the current state of research in our field.

The mini-conference is held on August 24 & 27, 2018 during the IAU General Assembly and at the same venue.

Registration is now open and abstracts are accepted from all fields of planetary astronomy for oral and poster presentations. **The deadline for early registration discount is January 31.** Participants in this workshop will receive admission to all scientific activities of the IAU General Assembly including the Focus Meeting 1 on asteroid families, IAU Symposium 345 on the origin of life and planetary systems, and a training school in Astrobiology held on August 17-18, 2018 by the University of Vienna.

We look forward to seeing you in Vienna.

Download/Website: `http://www.ifa.hawaii.edu/planetsdays2018/`

Contact: `nader@ifa.hawaii.edu`

B1.3 at COSPAR2018
"Growing Up: the Long Journey of Planetary Systems from Interstellar Volatiles and Refractories to Asteroids, Comets, and Planets"

Main Scientific Organizers: Diego Turrini[1] & Maria Drozdovskaya[2]
Deputy Organizers: Martin Rubin[2] & Sho Sasaki[3]
[1] INAF-IAPS; Italy
[2] University of Bern; Switzerland
[3] Osaka University; Japan

Pasadena, CA, U.S.A., 14-22 July, 2018

Dear Colleagues,

We wish to invite you to attend event B1.3:

"Growing Up: the Long Journey of Planetary Systems from Interstellar Volatiles and Refractories to Asteroids, Comets, and Planet",

jointly organized by Commission B "Space Studies of the Earth-Moon System, Planets, and Small Bodies of the Solar System" and Commission E "Research in Astrophysics from Space" at the 42nd COSPAR Scientific Assembly (https://www.cospar-assembly.org) that will be held in Pasadena, California, USA, on 14-22 July 2018.

********************IMPORTANT DATE*****************************
ABSTRACT SUBMISSION DEADLINE is 9 FEBRUARY 2018
****

Scientific Rationale:

The path starting from interstellar materials and leading to the formation of planetary systems is complex and still not completely understood. To advance our understanding, the history of the different planetary bodies needs to be studied together with their evolving surroundings. The initial interstellar volatile composition, its chemical evolution and the growth of refractory particles into the primordial planetesimals are tightly coupled to the emergence of a star-disc system from a prestellar core. The evolution of the star-disc system, in turn, deeply affects the growth of the planetesimals into planets and the composition of their cores and atmospheres. Finally, the physical and compositional characteristics of the different planetary bodies are influenced by the evolution of the planetary system as a whole. The aim of this COSPAR event, co-organized by Commissions B and E, is to provide researchers studying prestellar cores and protoplanetary discs, small bodies and meteorites, the Solar System and exoplanets with an interdisciplinary venue for presenting and comparatively discussing new data and results to advance our understanding of the long journey interstellar materials undertake to form the rich variety of planetary systems orbiting the Sun and other stars. This scientific event is sponsored by the Center for Space and Habitability of the University of Bern (www.csh.unibe.ch).

Scientific Organizing Committee:

Francesca Altieri (INAF-IAPS; Italy)
Daniel Angerhausen (Center for Space and Habitability, University of Bern; Switzerland)
Nicolas Biver (Observatoire Paris-Site de Meudon, LESIA; France)
Ilse Cleeves (Harvard-Smithsonian Center for Astrophysics; U.S.A.)
Gennaro D'Angelo (Los Alamos National Laboratory; U.S.A.)
Björn Davidsson (JPL, Caltech; U.S.A.)

Lucas Ellerbroek (Anton Pannekoek Institute for Astronomy, University of Amsterdam; The Netherlands)
Kenji Furuya (Center for Computational Sciences, University of Tsukuba; Japan)
Sebastiaan Krijt (Department of the Geophysical Sciences, University of Chicago; U.S.A.)
Francesco Marzari (Department of Physics and Astronomy, University of Padova; Italy)
Paola Pinilla (Department of Astronomy, University of Arizona; U.S.A.)
Motohide Tamura (University of Tokyo; Astrobiology Center, NINS; Japan)
Mark Wyatt (Institute of Astronomy, University of Cambridge; U.K.)
Hajime Yano (Department of Interdisciplinary Space Sciences, JAXA-ISAS; Japan)

Confirmed Invited Speakers:

Yuri Aikawa (University of Tokyo; Japan)
Adrian Brunini (FCAG/UNLP; Argentina)
Benoît Carry (Observatoire de la Côte dAzur; France)
Duncan Forgan (University of St Andrews; U.K.)
Meredith Hughes (Wesleyan University; U.S.A.)
Masahiro Ikoma (University of Tokyo; Japan)
Karen Meech (University of Hawaii; U.S.A.)
Laura Pérez (NRAO; U.S.A.)
Caroline Smith (The Natural History Museum; U.K.)
Akira Tsuchiyama (Kyoto University; Japan)
Diana Valencia (MIT; U.S.A.)

We look forward to seeing many of you in Pasadena this summer!

Download/Website: `https://www.cospar-assembly.org`
Contact: `maria.drozdovskaya@csh.unibe.ch`

"Astrochemistry: Past, Present, and Future" A meeting in celebration of Ewine van Dishoeck

Caltech-Pasadena, CA, U.S.A., 10-13 July, 2018

Astrochemistry, the study of molecules in astrophysical environments, has become an invaluable part of astrophysical studies ranging from planet forming disks to high-z galaxies. This development was made possible by the arrival of a suite of new telescopes in the past decade *Spitzer*, *Herschel* and ALMA and was realized by the pioneering work and ongoing leadership by Ewine van Dishoeck. To honor Ewine's outstanding contributions to astrochemistry this 4-day meeting will review the successes in astrochemistry in unveiling star and planet formation, present ongoing astrochemical theoretical and laboratory studies, and observational investigations focused on ALMA, and peer into the future of astrochemistry in the age of *JWST*.

The meeting is organized around five science themes:

- The astrochemical water trail
- Photon-dominated regions during star and planet formation
- Origins of astrochemical complexity
- Role of dust and grain growth for planet formation
- Chemistry as a tracer of physics in astronomical environments

Within each theme, we imagine exploring the past, present, and future questions that characterize(d) it, and discuss how observations, theory, laboratory efforts and new instrumentation contribute(d) to solving these questions.

Invited (confirmed) speakers:
Ted Bergin, John Black, Paola Caselli, Ilse Cleeves, Neal Evans, Edith Fayolle, Kenji Furuya, Thomas Henning, Eric Herbst, Lars Kristensen, Thanja Lamberts, Harold Linnartz, David Neufeld, Paola Pinilla, Leonardo Testi, Xander Tielens, Floris van der Tak & Catherine Walsh

Please note, there are a limited number of possible attendees due to space restrictions. Registration is therefore on a first come first service basis.

Important dates:
February 16, 2018 - Abstract submission due for consideration as a contributed talk
March 16, 2018 - Conference Registration and Poster Abstract Submission

SOC:
Karin Oberg, Agata Karska, Jes Jorgensen (co-chairs)
Ruud Visser, Nienke van der Marel, Frank Helmich, Michiel Hogerheijde, Maria Drozdovskaya, Geoff Blake

LOC:
Geoff Blake (chair)
Edith Fayolle, Umut Yildiz, Olivia Wilkins, Cam Buzzard, Christine Benoit

Download/Website: `http://www.cfa.harvard.edu/events/2018/astrochem18`

Contact: `astrochemistry2018@gmail.com`

Summer School: Basics of Astrobiology

B. Elmegreen[1], M. Gargaud[2], M. Güdel[3], N. Haghighipour[4], T. Lüftinger[3], V. Tóth[5], Conference Chairs

[1] IBM Research, Yorktown Heights, NY, USA
[2] Universit́ de Bordeaux, France
[3] University of Vienna, Austria
[4] University of Hawaii, USA
[5] Eötvös University, Budapest, Hungary

Department of Astrophysics, University of Vienna, Austria, 17-18 August 2018

Just before the IAU General Assembly 2018 in Vienna, a summer school on the topic of ”Basics of Astrobiology” will be organized at the Observatory of the University of Vienna. The school is associated with the IAU Symposium 345 ”ORIGINS: From the Protosun to the First Steps of Life” (scheduled for 20-23 August). The training school will cover the bascis of astrobiology, from the formation of stars and planetary systems to the early conditions of life on planets, including atmospheres and planetary interiors, and the formation and early evolution of life itself.

The school is open to all interested students and professionals, with an emphasis on graduate students, post-docs and young scientists. Registration is open and there is no registration fee for this Training School! To register, please send a short e-mail containing your name, institute/university affiliation, and dietary constraints to: summerschool.astrobiology (at) univie.ac.at. Acceptance is on a ”first come first served basis”. Space is limited, so register soon to secure a seat. Lunch (including a vegetarian option) and coffee breaks will be offered free of charge at the venue. We look forward to welcoming you in Vienna! Please find additional info at:

Download/Website: `http://ninlil.elte.hu/boa/`

Contact: `summerschool.astrobiology@univie.ac.at`

5 Other announcements

Call for Exoplanet Science Working Group members for the Origins Space Telescope Large Mission Concept Study

The Origins Space Telescope (OST) is the mission concept for the Far-Infrared Surveyor in NASA's Astrophysics Roadmap (http://origins.ipac.caltech.edu/). OST is one of four large mission concepts currently being studied by NASA in preparation for the upcoming Astrophysics 2020 Decadal Survey. The telescope will have a dedicated mid-infrared (5 - 25 μm) instrument to support exoplanet research via transmission and emission (both dayside and phase-resolved) spectroscopy for bodies as small as the Earth, as well as high-contrast coronagraphy of Jupiter and Saturn analogs. Given the synergistic connections with many exoplanet research areas, particularly the ground-based detection and characterization communities, we seek members from a broad range of disciplines to support this work. Those with expertise in low-mass stars and noise mitigation are also encouraged to apply.

The search for life outside of our solar system is a key objective in NASA's strategic plan and a priority for the Astrophysics division, whose goal is to "Discover how the universe works, explore how it began and evolved, and search for life on planets around other stars." One of OST's primary science goals is to search for and detect biosignatures (O_3/N_2O and CH_4) in the atmospheres of transiting rocky exoplanets orbiting in the habitable zones of nearby M dwarfs. By directly measuring the thermal and chemical properties of rocky-planet atmospheres, the planned survey would also provide constraints for the inner edge of the habitable zone, the distribution of rocky planets with tenuous vs. substantial atmospheres, and climate models to assess the likelihood for habitability.

The exoplanet science case and associated instrument definition is currently under development by the OST Exoplanet Science Working Group (SWG), which is currently led by Kevin Stevenson, Jonathan Fortney, and Tiffany Kataria. If you are interested in joining the SWG and would like to be considered for membership, please send an email to ExoSWG@gmail.com with a CV and list of relevant publications. For more information, please see our AAS Flyer (http://bit.ly/2BBnunA). If you will be in National Harbor for the 2018 Winter AAS meeting, you are invited to attend numerous events, including Monday's ExoPAG meeting where OST will be discussed, a catered special session (#207, "Exoplanet Characterization Through Emission Spectroscopy: A Roadmap To Detecting Biosignatures," Wednesday at 10:00am in Maryland D), and numerous posters and Hyperwall presentations.

The deadline for consideration is January 19, 11:59 PM EST.

Sincerely,

The OST Exoplanet SWG Leadership Team
(Kevin Stevenson, Jonathan Fortney, and Tiffany Kataria)

6 As seen on astro-ph

The following list contains all the entries relating to exoplanets that we spotted on astro-ph during December 2017.

December 2017

astro-ph/1712.00026: **Eccentricity evolution during planet-disc interaction** by *Enrico Ragusa et al.*
astro-ph/1712.00415: **Possible detection of a bimodal cloud distribution in the atmosphere of HAT-P-32 A b from multi-band photometry** by *Jeremy Tregloan-Reed et al.*
astro-ph/1712.00437: **Tumbling motion of 1I/'Oumuamua reveals body's violent past** by *Michal Drahus et al.*
astro-ph/1712.00457: **Constraints on the Spin Evolution of Young Planetary-Mass Companions** by *Marta L. Bryan et al.*
astro-ph/1712.00935: **Habitability in Brown Dwarf Systems** by *Emeline Bolmont*
astro-ph/1712.01010: **Equilibrium chemistry down to 100 K - Impact of silicates and phyllosilicates on carbon/oxygen ratio** by *P. Woitke et al.*
astro-ph/1712.01035: **Chemical fingerprints of hot Jupiter planet formation** by *J. Maldonado, E. Villaver, C. Eiroa*
astro-ph/1712.01040: **Theoretical Validation of Potential Habitability via Analytical and Boosted Tree Methods: An Optimistic Study on Recently Discovered Exoplanets** by *Snehanshu Saha et al.*
astro-ph/1712.01042: **A free-floating planet candidate from the OGLE and KMTNet surveys** by *Przemek Mroz et al.*
astro-ph/1712.01046: **The RoPES project with HARPS and HARPS-N. I. A system of super-Earths orbiting the moderately active K-dwarf HD 176986** by *A. Surez Mascareo et al.*
astro-ph/1712.01121: **A Comparison of Simulated JWST Observations Derived from Equilibrium and Non-Equilibrium Chemistry Models of Giant Exoplanets** by *Sarah D. Blumenthal et al.*
astro-ph/1712.01198: **Elemental Abundances of Kepler Objects of Interest in APOGEE. I. Two Distinct Orbital Period Regimes Inferred from Host Star Iron Abundances** by *Robert F. Wilson et al.*
astro-ph/1712.01281: **Studying tidal effects in planetary systems with Posidonius. A N-body simulator written in Rust** by *Sergi Blanco-Cuaresma, Emeline Bolmont*
astro-ph/1712.01285: **Spitzer Secondary Eclipses of Qatar-1b** by *Emily Garhart et al.*
astro-ph/1712.01805: **Distinguishing the albedo of exoplanets from stellar activity** by *L. M. Serrano et al.*
astro-ph/1712.01823: **1I/'Oumuamua as a Tidal Disruption Fragment From a Binary Star System** by *Matija uk*
astro-ph/1712.02127: **Precession Effects on Liquid Planetary Core** by *Min Liu, Ligang Li*
astro-ph/1712.02187: **The Chemical Composition of Mercury** by *Larry R. Nittler et al.*
astro-ph/1712.02189: **Dynamics of "jumping" Trojans: perturbative treatment** by *Vladislav Sidorenko*
astro-ph/1712.02386: **Case Studies of Exocomets in the System of HD 10180** by *Birgit Loibnegger, Rudolf Dvorak, Manfred Cuntz*
astro-ph/1712.02790: **Collisional stripping of planetary crusts** by *Philip J. Carter et al.*
astro-ph/1712.02808: **Theoretical transmission spectra of exoplanet atmospheres with hydrocarbon haze: Effect of creation, growth, and settling of haze particles. I. Model description and first results** by *Yui Kawashima, Masahiro Ikoma*
astro-ph/1712.02813: **Hydrogen dimers in giant-planet infrared spectra** by *L.N. Fletcher, M. Gustafsson, G.S. Orton*
astro-ph/1712.02994: **Upper atmospheres and ionospheres of planets and satellites** by *Antonio Garca Muoz, Tommi T. Koskinen, Panayotis Lavvas*
astro-ph/1712.03171: **Breakthrough revisited: investigating the requirements for growth of dust beyond the bouncing barrier** by *Richard A. Booth et al.*
astro-ph/1712.03241: **KELT-21b: A Hot Jupiter Transiting the Rapidly-Rotating Metal-Poor Late-A Primary of a Likely Hierarchical Triple System** by *Marshall C. Johnson et al.*

astro-ph/1712.03384: **A comparative study of WASP-67b and HAT-P-38b from WFC3 data** by *Giovanni Bruno et al.*

astro-ph/1712.03614: **Carbon cycling and habitability of Earth-size stagnant lid planets** by *Bradford J. Foley, Andrew J. Smye*

astro-ph/1712.03746: **Simultaneous, Multi-Wavelength Variability Characterization of the Free-Floating Planetary Mass Object PSO J318.5-22** by *Beth Biller et al.*

astro-ph/1712.03961: **Producing Distant Planets by Mutual Scattering of Planetary Embryos** by *Kedron Silsbee, Scott Tremaine*

astro-ph/1712.03986: **Can gravitational microlensing detect extragalactic exoplanets? Self-lensing models of the Small Magellanic Cloud** by *Przemek Mroz, Radoslaw Poleski*

astro-ph/1712.03989: **Efficiency of radial transport of ices in protoplanetary disks probed with infrared observations: the case of CO2** by *Arthur D. Bosman, Alexander G. G. M. Tielens, Ewine F. van Dishoeck*

astro-ph/1712.04042: **The California-Kepler Survey. IV. Metal-rich Stars Host a Greater Diversity of Planets** by *Erik A. Petigura et al.*

astro-ph/1712.04069: **Atmospheric circulation, chemistry, and infrared spectra of Titan-like exoplanets around different stellar types** by *Juan M. Lora, Tiffany Kataria, Peter Gao*

astro-ph/1712.04178: **Shifting of the resonance location for planets embedded in circumstellar disks** by *F. Marzari*

astro-ph/1712.04215: **The physics of protoplanetesimal dust agglomerates. X. High-velocity collisions between small and large dust agglomerates as growth barrier** by *Rainer Schrpler et al.*

astro-ph/1712.04324: **HATS-50b through HATS-53b: four transiting hot Jupiters orbiting G-type stars discovered by the HATSouth survey** by *Th. Henning et al.*

astro-ph/1712.04409: **Explaining the elongated shape of 'Oumuamua by the Eikonal abrasion model** by *Gbor Domokos et al.*

astro-ph/1712.04435: **Ejection of rocky and icy material from binary star systems: Implications for the origin and composition of 1I/'Oumuamua** by *Alan P. Jackson et al.*

astro-ph/1712.04454: **Robo-AO Kepler Survey IV: the effect of nearby stars on 3857 planetary candidate systems** by *Carl Ziegler et al.*

astro-ph/1712.04483: **A Candidate Transit Event around Proxima Centauri** by *Yiting Li et al.*

astro-ph/1712.04950: **A 3pi Search for Planet Nine at 3.4 microns with WISE and NEOWISE** by *A. M. Meisner et al.*

astro-ph/1712.04995: **The Dynamical History Of 2060 Chiron And Its Proposed Ring System** by *Jeremy Wood et al.*

astro-ph/1712.05044: **Identifying Exoplanets with Deep Learning: A Five Planet Resonant Chain around Kepler-80 and an Eighth Planet around Kepler-90** by *Christopher J. Shallue, Andrew Vanderburg*

astro-ph/1712.05217: **Direct imaging of an ultracool substellar companion to the exoplanet host star HD 4113A** by *A. Cheetham et al.*

astro-ph/1712.05327: **Growth and evolution of satellites in a Jovian massive disc** by *Ricardo A Moraes, Wilhelm Kley, Ernesto Vieira Neto*

astro-ph/1712.05458: **Exoplanet Radius Gap Dependence on Host Star Type** by *Li Zeng, Stein B. Jacobsen, Dimitar D. Sasselov*

astro-ph/1712.05610: **On fragmentation of turbulent self-gravitating discs in the long cooling time regime** by *Ken Rice , Sergei Nayakshin*

astro-ph/1712.05641: **Interior Structures and Tidal Heating in the TRAPPIST-1 Planets** by *Amy C. Barr, Vera Dobos, Lszl L. Kiss*

astro-ph/1712.05688: **The dynamics of the de Sitter resonance** by *Alessandra Celletti, Fabrizio Paita, Giuseppe Pucacco*

astro-ph/1712.05797: **The CARMENES search for exoplanets around M dwarfs - HD 147379b: A nearby Neptune in the temperate zone of an early-M dwarf** by *A. Reiners et al.*

astro-ph/1712.05828: **New spectro-photometric characterization of the substellar object HR 2562 B using SPHERE** by *D. Mesa et al.*

astro-ph/1712.05992: **Sulphur monoxide exposes a potential molecular disk wind from the planet-hosting disk around HD100546** by *Alice Booth et al.*

astro-ph/1712.06044: **On Distinguishing Interstellar Objects Like 'Oumuamua From Products of Solar System Scattering** by *Jason T. Wright*

astro-ph/1712.06158: **Effect of Core Cooling on the Radius of Sub-Neptune Planets** by *A. Vazan, C. W. Ormel, C. Dominik*

astro-ph/1712.06297: **Transiting Exoplanet Monitoring Project (TEMP). III. On the Relocation of the Kepler-9 b Transit** by *Songhu Wang et al.*

astro-ph/1712.06374: **Fine-resolution wavelet analysis of exoplanetary distributions: hints of an overshooting iceline accumulation** by *R.V. Baluev, V.Sh. Shaidulin*

astro-ph/1712.06409: **Stellar Spin-Orbit Alignment for Kepler-9, a Multi-transiting Planetary system with Two Outer Planets Near 2:1 Resonance** by *Songhu Wang et al.*

astro-ph/1712.06500: **Innocent Bystanders: Orbital Dynamics of Exomoons during Planet-Planet Scattering** by *Yu-Cian Hong et al.*

astro-ph/1712.06552: **Spectroscopy and thermal modelling of the first interstellar object 1I/2017 U1 'Oumuamua** by *Alan Fitzsimmons et al.*

astro-ph/1712.06638: **Orbital misalignment of the Neptune-mass exoplanet GJ 436b with the spin of its cool star** by *Vincent Bourrier et al.*

astro-ph/1712.06673: **Predictions of planet detections with near infrared radial velocities in the up-coming SPIRou Legacy Survey-Planet Search** by *Ryan Cloutier et al.*

astro-ph/1712.06721: **What and Whence 1I/'Oumuamua?** by *Eric Gaidos*

astro-ph/1712.06774: **The K2-HERMES Survey. I. Planet Candidate Properties from K2 Campaigns 1-3** by *Robert A. Wittenmyer et al.*

astro-ph/1712.06987: **Dependence of the Martian radiation environment on atmospheric depth: Modeling and measurement** by *Jingnan Guo et al.*

astro-ph/1712.07193: **Simulations of the Solar System's Early Dynamical Evolution with a Self-Gravitating Planetesimal Disk** by *Siteng Fan, Konstantin Batygin*

astro-ph/1712.07247: **Ejection of material –"Jurads" – from post main sequence planetary systems** by *Brad Hansen, Ben Zuckerman*

astro-ph/1712.07461: **Light-curve analysis of KOI 2700b: the second extrasolar planet with a comet-like tail** by *Z. Garai*

astro-ph/1712.07479: **Future Exoplanet Research: Science Questions and How to Address Them** by *Jean Schneider*

astro-ph/1712.07539: **Water and the interior structure of terrestrial planets and icy bodies** by *Julien Monteux et al.*

astro-ph/1712.07643: **Atmospheric Circulations of Hot Jupiters as Planetary Heat Engines** by *Daniel D.B. Koll, Thaddeus D. Komacek*

astro-ph/1712.07655: **Effects of Disk Warping on the Inclination Evolution of Star-Disk-Binary Systems** by *J. J. Zanazzi, Dong Lai*

astro-ph/1712.07669: **The Taurus Boundary of Stellar/Substellar (TBOSS) Survey II. Disk Masses from ALMA Continuum Observations** by *K. Ward-Duong et al.*

astro-ph/1712.07866: **Dust cloud evolution in sub-stellar atmospheres via plasma deposition and plasma sputtering** by *Craig R. Stark, Declan A. Diver*

astro-ph/1712.07891: **Young planets under extreme UV irradiation. I. Upper atmosphere modelling of the young exoplanet K2-33b** by *D. Kubyshkina et al.*

astro-ph/1712.08059: **Prospects for Backtracing 1I/'Oumuamua and Future Interstellar Objects** by *Qicheng Zhang* astro-ph/1712.08460: **Secondary resonances and the boundary of effective stability of Trojan motions** by *Rocio I. Paez, Christos Efthymiopoulos*

astro-ph/1712.08845: **The complex morphology of the young disk MWC 758: Spirals and dust clumps around a large cavity** by *Y. Boehler et al.*

astro-ph/1712.08894: **EXONEST: The Bayesian Exoplanetary Explorer** by *Kevin H. Knuth et al.*

astro-ph/1712.09157: **Planetary-like spirals caused by moving shadows in transition discs** by *Matas Montesinos, Nicols Cuello*

astro-ph/1712.09393: **A SEA BASS on the exoplanet HD209458b** by *Giuseppe Morello*

astro-ph/1712.10027: **Spectra of Earth-like Planets Through Geological Evolution Around FGKM Stars** by *Sarah Rugheimer, Lisa Kaltenegger*

astro-ph/1712.10060: **Exo-Milankovitch Cycles I: Orbits and Rotation States** by *Russell Deitrick et al.*

astro-ph/1712.01294: **A New Public Release of the GIZMO Code** by *Philip F. Hopkins*

astro-ph/1712.01527: **Generation of large-scale magnetic field in convective full-sphere cross-helicity dynamo** by *V.V. Pipin, N.Yokoi*

astro-ph/1712.01911: **Stellar parameters for TRAPPIST-1** by *Valerie Van Grootel et al.*

astro-ph/1712.02814: **Signatures of Star-planet interactions** by *Evgenya L. Shkolnik, Joe Llama*

astro-ph/1712.02819: **Clarifying the Status of HD 100546 as Observed by the Gemini Planet Imager** by *Thayne Currie et al.*

astro-ph/1712.03216: **Qatar Exoplanet Survey: Qatar-6b – a grazing transiting hot Jupiter** by *Khalid Alsubai et al.*

astro-ph/1712.03963: **Calibration of the island effect: Experimental validation of closed-loop focal plane wavefront control on Subaru/SCExAO** by *Mamadou N'Diaye et al.*

astro-ph/1712.04796: **Infrared spectra of complex organic molecules in astronomically relevant ice matrices. I. Acetaldehyde, ethanol, and dimethyl ether** by *J. Terwisscha van Scheltinga et al.*

astro-ph/1712.04948: **The GALEX View of "Boyajian's Star" (KIC 8462852)** by *James. R. A. Davenport et al.*

astro-ph/1712.05046: **Measuring Model-independent Masses and Radii of Single-Lined Eclipsing Binaries: Analytic Precision Estimates** by *Daniel J. Stevens, B. Scott Gaudi, Keivan G. Stassun*

astro-ph/1712.05420: **Astrometry with the WFIRST Wide-Field Imager** by *The WFIRST Astrometry Working Group: Robyn E. Sanderson et al.*

astro-ph/1712.06217: **The formation of rings and gaps in magnetically coupled disk-wind systems: ambipolar diffusion and reconnection** by *Scott S. Suriano et al.*

astro-ph/1712.07189: **Ground-based adaptive optics coronagraphic performance under closed-loop predictive control** by *Jared R. Males, Olivier Guyon*

astro-ph/1712.07275: **Small Telescope Exoplanet Transit Surveys: XO** by *Nicolas Crouzet*

astro-ph/1712.07375: **HADES RV Programme with HARPS-N at TNG. VII. Rotation and activity of M-Dwarfs from time-series high-resolution spectroscopy of chromospheric indicators** by *A. Surez Mascareo et al.*

astro-ph/1712.08599: **The HR 4796A Debris System: Discovery of Extensive Exo-Ring Dust Material** by *Glenn Schneider et al.*

astro-ph/1712.08681: **Evidence for eccentric, precessing gaseous debris in the circumstellar absorption towards WD 1145+017** by *P. Wilson Cauley et al.*

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