ExoPlanet News
An Electronic Newsletter

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Contents

1 Editorial

Welcome to the thirty-fifth edition of ExoPlanet News. Thanks to all our contributors for sending in another set of interesting contributions for this month's newsletter. We have a particularly good set of conference announcements and job adverts this month. Remember that past editions of this newsletter, submission templates and other information can be found at the ExoPlanet News website: http://exoplanet.open.ac.uk.
We will take a break next month, so the next edition will not appear until the beginning of February 2011. Please send anything relevant to exoplanet@open.ac.uk, and it will appear then.

Best wishes
Andrew Norton & Glenn White
The Open University

2 Abstracts of refereed papers

The giant planet orbiting the cataclysmic binary DP Leonis

K. Beuermann[1], *J. Buhlmann*[2], *J. Diese*[2], *S. Dreizler*[1], *F. V. Hessman*[1], *T.-O. Husser*[1], *G. F. Miller*[4], *N. Nickol*[2], *R. Pons*[2], *D. Ruhr*[2], *H. Schmülling*[2], *A. D. Schwope*[3], *T. Sorge*[2], *L. Ulrichs*[2], *D. E. Winget*[4], *K. I. Winget*[4]

[1] Institut für Astrophysik, Georg-August-Universität, Friedrich-Hund-Platz 1, 37077 Göttingen, Germany
[2] Max-Planck-Gymnasium, Theaterplatz 10, 37073 Göttingen, Germany
[3] Astrophysikalisches Institut Potsdam, An der Sternwarte 16, 14482 Potsdam, Germany
[4] Dept. of Astronomy, University of Texas at Austin, RLM 16.236, Austin, TX 78712, USA

Astronomy & Astrophysics, accepted (2010arXiv1011.3905B)

Planets orbiting post-common envelope binaries provide fundamental information on planet formation and evolution, especially for the yet nearly unexplored class of circumbinary planets. We searched for such planets in DP Leonis, an eclipsing short-period binary, which shows long-term eclipse-time variations. Using published, reanalysed, and new mid-eclipse times of the white dwarf in DP Leo, obtained between 1979 and 2010, we find agreement with the light-travel-time effect produced by a third body in an elliptical orbit. In particular, the measured binary period in 2009/2010 and the implied radial velocity coincide with the values predicted for the motion of the binary and the third body around the common center of mass. The orbital period, semi-major axis, and eccentricity of the third body are $P_{\rm c} = 28.0 \pm 2.0$ yrs, $a_{\rm c} = 8.2 \pm 0.4$ AU, and $e_{\rm c} = 0.39 \pm 0.13$. Its mass of $\sin i_{\rm c}\, M_{\rm c} = 6.1 \pm 0.5\, {\rm M_{Jup}}$ qualifies it as a giant planet. It formed either as a first generation object in a protoplanetary disk around the original binary or as a second generation object in a disk formed in the common envelope shed by the progenitor of the white dwarf. Even a third generation origin in matter lost from the present accreting binary can not be entirely excluded. We searched for, but found no evidence for a fourth body.

Contact: beuermann@astro.physik.uni-goettingen.de

The NASA-UC Eta-Earth Program: III. A Super-Earth orbiting HD 97658 and a Neptune-mass planet orbiting Gl 785

Andrew W. Howard[1,2], *John Asher Johnson*[3], *Geoffrey W. Marcy*[1], *Debra A. Fischer*[4], *Jason T. Wright*[5,6], *Gregory W. Henry*[7], *Howard Isaacson*[1], *Jeff A. Valenti*[8], *Jay Anderson*[8] *Nikolai E. Piskunov*[9]

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[4] Department of Astronomy, Yale University, New Haven, CT 06511, USA
[5] Department of Astronomy and Astrophysics, The Pennsylvania State University, University Park, PA 16802, USA
[6] Center for Exoplanets and Habitable Worlds, The Pennsylvania State University, University Park, PA 16802, USA
[7] Center of Excellence in Information Systems, Tennessee State University, 3500 John A. Merritt Blvd., Box 9501, Nashville, TN 37209, USA
[8] Space Telescope Science Institute, 3700 San Martin Dr., Baltimore, MD 21218, USA
[9] Department of Astronomy and Space Physics, Uppsala University, Box 515, 751 20 Uppsala, Sweden

Astrophysical Journal, submitted (arXiv:1011.0414)

We report the discovery of planets orbiting two bright, nearby early K dwarf stars, HD 97658 and Gl 785. These planets were detected by Keplerian modelling of radial velocities measured with Keck-HIRES for the NASA-UC Eta-Earth Survey. HD 97658 b is a close-in super-Earth with minimum mass $M \sin i = 8.2 \pm 1.2\, M_{\rm Earth}$, orbital period $P = 9.494 \pm 0.005$ days, and an orbit that is consistent with circular. Gl 785 b is a Neptune-mass planet with $M \sin i = 21.6 \pm 2.0\, M_{\rm Earth}$, $P = 74.39 \pm 0.12$ days, and orbital eccentricity 0.30 ± 0.09. Photometric observations with the T12 0.8 m automatic photometric telescope at Fairborn Observatory show that HD 97658 is photometrically constant at the radial velocity period to 0.09 mmag, supporting the existence of the planet.

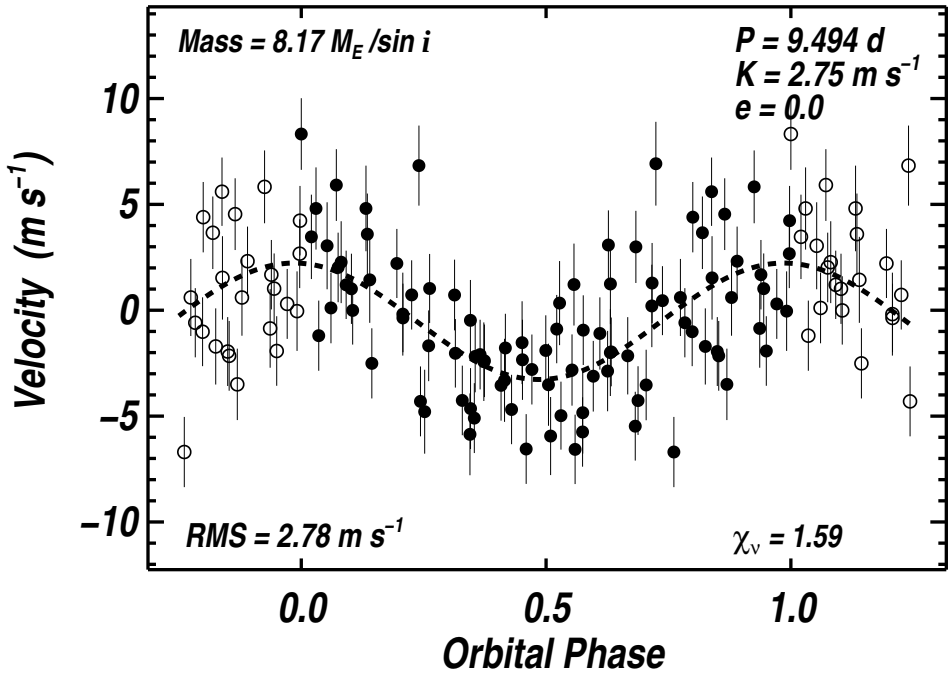

Figure 1: (Howard et al.) Single-planet model for the radial velocities of HD 97658, as measured by Keck-HIRES. The dashed line shows the best-fit circular orbital solution. Filled circles represent phased measurements while the open circles represent the same velocities wrapped one orbital phase. The error bars show the quadrature sum of measurement uncertainties and $1.5\,{\rm m\,s^{-1}}$ jitter.

The Physics or Protoplanetesimal Dust Agglomerates. V. Multiple Impacts of Dusty Agglomerates at Velocities Above the Fragmentation Threshold

S. Kothe, C. Güttler, J. Blum
Institute for Geophysics and extraterrestrial Physics, Braunschweig University, Germany

Astrophysical Journal, in press (arXiv: 1009.4341)

In recent years, a number of new experiments have advanced our knowledge on the early growth phases of protoplanetary dust aggregates. Some of these experiments have shown that collisions between porous and compacted agglomerates at velocities above the fragmentation threshold velocity can lead to growth of the compact body, when the porous collision partner fragments upon impact and transfers mass to the compact agglomerate. To obtain a deeper understanding of this potentially important growth process, we performed laboratory and drop tower experiments to study multiple impacts of small, highly porous dust-aggregate projectiles onto sintered dust targets. The projectile and target consisted of 1.5 μm monodisperse, spherical SiO_2 monomers with volume filling factors of 0.15 ± 0.01 and 0.45 ± 0.05, respectively. The fragile projectiles were accelerated by a solenoid magnet and combined with a projectile magazine with which 25 impacts onto the same spot on the target could be performed in vacuum. We measured the mass-accretion efficiency and the volume filling factor for different impact velocities between 1.5 and 6.0 m s^-1. The experiments at the lowest impact speeds were performed in the Bremen drop tower under microgravity conditions to allow partial mass transfer also for the lowest adhesion case. Within this velocity range, we found a linear increase of the accretion efficiency with increasing velocity. In the laboratory experiments, the accretion efficiency increases from 0.12 to 0.21 in units of the projectile mass. The recorded images of the impacts showed that the mass transfer from the projectile to the target leads to the growth of a conical structure on the target after less than 100 impacts. From the images, we also measured the volume filling factors of the grown structures, which ranged from 0.15 (uncompacted) to 0.40 (significantly compacted) with increasing impact speed. The velocity dependency of the mass-transfer efficiency and the packing density of the resulting aggregates augment our knowledge of the aggregate growth in protoplanetary disks and should be taken into account for future models of protoplanetary dust growth.

Download/Website: `http://arxiv.org/abs/1009.4341`

Contact: `s.kothe@tu-bs.de`

Non-convergence of the critical cooling timescale for fragmentation of self-gravitating discs

Farzana Meru[1,2] *& Matthew R. Bate*[1]
[1] School of Physics, University of Exeter, Stocker Road, Exeter, EX4 4QL
[2] Institut für Astronomie und Astrophysik, Universität Tübingen, Auf der Morgenstelle 10, 72076 Tübingen, Germany

Monthly Notices of the Royal Astronomical Society, in press (arXiv:1011.1033)

We carry out a resolution study on the fragmentation boundary of self-gravitating discs. We perform three-dimensional Smoothed Particle Hydrodynamics simulations of discs to determine whether the critical value of the cooling timescale in units of the orbital timescale, $\beta_{\rm crit}$, converges with increasing resolution. Using particle numbers ranging from 31,250 to 16 million (the highest resolution simulations to date) we do not find convergence. Instead, fragmentation occurs for longer cooling timescales as the resolution is increased. These results suggest that at the very least, the critical value of the cooling timescale is longer than previously thought. However, the absence of convergence also raises the question of whether or not a critical value exists. In light of these results, we caution against using cooling timescale or gravitational stress arguments to deduce whether gravitational instability may or may not have been the formation mechanism for observed planetary systems.

Download/Website: `http://arxiv.org/abs/1011.1033`

Contact: `farzana@astro.ex.ac.uk`

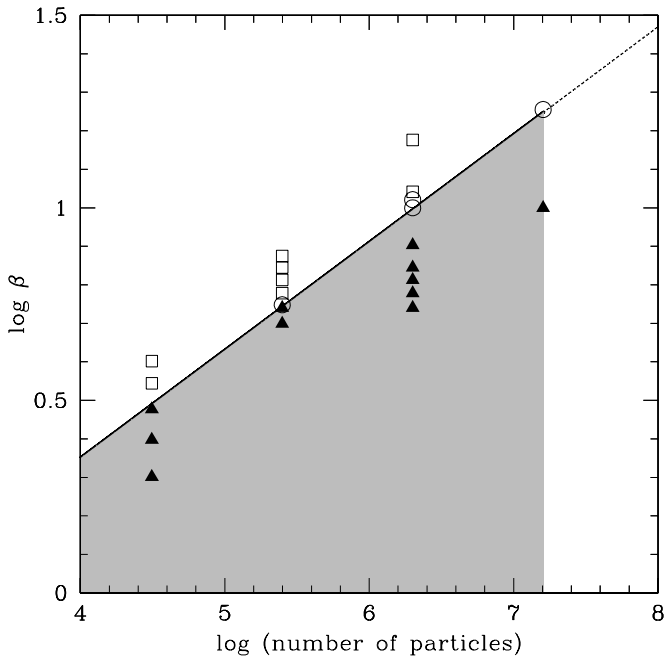

Figure 2: (Meru & Bate) Graph of the cooling timescale in units of the orbital timescale, β, against resolution of the non-fragmenting (open squares), fragmenting (solid triangles) and borderline (open circles) simulations. The borderline simulations are those that fragment but whose fragments are sheared apart and no further evidence of fragmentation is seen. The solid black line shows a dividing line between the fragmenting and non-fragmenting cases and the grey region is where fragmentation can take place. The graph shows no evidence of convergence of results with increased resolution. The thin dotted line shows how the trend will continue if convergence is not reached with higher resolution than 16 million particles. If convergence can be reached, the dotted line is expected to follow a flatter profile.

A Population of Very Hot Super-Earths in Multiple-Planet Systems Should be Uncovered by *Kepler*

Kevin C. Schlaufman[1,3], *D. N. C. Lin*[1,4], *S. Ida*[2]

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[2] Tokyo Institute of Technology, Ookayama, Meguro-ku, Tokyo 152-8551, Japan
[3] NSF Graduate Research Fellow
[4] Kavli Institute of Astronomy and Astrophysics, Peking University, Beijing, China

Astrophysical Journal Letters, published (2010ApJ...724L..53S)

We simulate a *Kepler*-like observation of a theoretical exoplanet population and show that the observed orbital period distribution of the *Kepler* giant planet candidates is best matched by an average stellar specific dissipation function Q'_* in the interval $10^6 < Q'_* < 10^7$. In that situation, the few super-Earths that are driven to orbital periods $P < 1$ day by dynamical interactions in multiple-planet systems will survive tidal disruption for a significant fraction of the main-sequence lifetimes of their stellar hosts. Consequently, though these very hot super-Earths are not characteristic of the overall super-Earth population, their substantial transit probability implies that they should be significant contributors to the full super-Earth population uncovered by *Kepler*. As a result, the CoRoT-7 system may be the first representative of a population of very hot super-Earths that we suggest should be found in multiple-planet systems preferentially orbiting the least-dissipative stellar hosts in the *Kepler* sample.

Download/Website: `http://arxiv.org/abs/1010.3705`

Contact: `kcs@ucolick.org`

Transmission spectroscopy of the sodium ‘D’ doublet in WASP-17b with the VLT

P.L. Wood, P.F.L. Maxted, B. Smalley & N. Iro
Keele University, Staffordshire ST5 5BG, UK

Monthly Notices of the Royal Astronomical Society, in press (ArXiv:1011.4385)

The detection of increased sodium absorption during primary transit implies the presence of an atmosphere around an extrasolar planet, and enables us to infer the structure of this atmosphere. Sodium has only been detected in the atmospheres of two planets to date – HD 189733b and HD 209458b. WASP-17b is the least dense planet currently known. It has a radius approximately twice that of Jupiter and orbits an F6-type star. The transit signal is expected to be about 5 times larger than that observed in HD 209458b. We obtained 24 spectra with the GIRAFFE spectrograph on the VLT, 8 during transit. The integrated flux in the sodium doublet at wavelengths 5889.95 and 5895.92 Å was measured at bandwidths 0.75, 1.5, 3.0, 4.0, 5.0, and 6.0 Å. We find a transit depth of 0.55 ± 0.13 per cent at 1.5 Å. This suggests that, like HD 209458b, WASP-17b has an atmosphere depleted in sodium compared to models for a cloud-free atmosphere with solar sodium abundance. We observe a sharp cut-off in sodium absorption between 3.0 and 4.0 Å which may indicate a layer of clouds high in the atmosphere.

Download/Website: `http://arxiv.org/abs/1011.4385`

Contact: `plw@astro.keele.ac.uk`

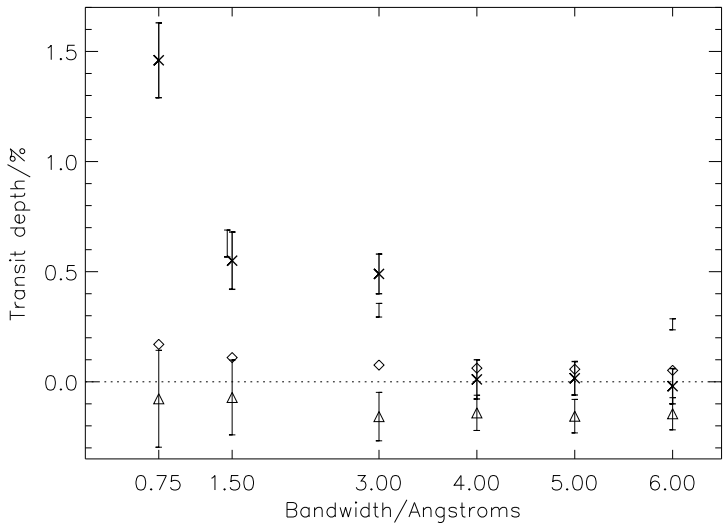

Figure 3: (Wood et al.) Transit depths for WASP-17b shown as crosses with error bars. S08 values for HD 209458b, scaled up by factors $4.2 - 5.1$, are shown as plain error bars; transit depths for the comparison star are shown as triangles with error bars. Diamonds represent the uncertainties due to photon noise.

3 Conference announcements

Exploring Strange New Worlds: From Giant Planets to Super Earths

Chas Beichman[1], *Malcolm Fridlund*[2], *Dawn Gelino*[1], *Jeff Hall*[3], *Conference Chairs*

[1] NASA Exoplanet Science Institute, 770 South WIlson Ave., Pasadena, CA
[2] European Space Agency, ESTEC, P. O. Box 299, Noordwijk, The Netherlands
[3] Lowell Observatory, 1400 West Mars Hill Rd., Flagstaff, AZ

Flagstaff, Arizona, May 1-6, 2011

The NASA Exoplanet Exploration Program and the NASA Exoplanet Science Institute are co-hosting the 6th in a series of international scientific conferences on the topic of present and future observations of exoplanets from space. The conference will present state-of-the art results from the Spitzer and Hubble Space Telescopes, the Kepler and CoRoT transit missions, as well as relevant ground-based facilities. Noted theoreticians will provide perspective and interpretation of the observational results of the physical characterization of planets ranging in size from gas and icy giants, super Earths, and (ultimately) Earth analogs. Speakers will emphasize how exoplanet observations help us understand the formation and evolution of objects in our own Solar System.

Speakers will also look toward the future with a focus on the exoplanet observations using the James Webb Space Telescope (JWST) and ESA's GAIA astrometric mission. Speakers from the four JWST instrument teams will address the capabilities of JWST for coronagraphy and transit follow-up. The conference will end with discussions of the missions and technologies endorsed by the Astro2010 Decadal Review such as micro-lensing opportunities with NASA's WFIRST and ESA's EUCLID projects and a large optical/UV telescope. Similar discussions will be held on plans of other space agencies.

Important Dates

- Nov. 16, 2010: Meeting website open and first announcement
- Jan. 21, 2011: Second announcement
- Jan. 31, 2011: Financial aid applications due
- Feb. 18, 2011: Decisions on financial aid for students announced (via email)
- Feb. 28, 2011: Abstract submission deadline
- Mar. 15, 2011: Early registration ends/deadline to purchase tickets for Wed. trips and Grand Canyon day trip
- Mar. 31, 2011: Final announcement with final agenda including poster/contributed talk decisions
- Apr. 2, 2011: Hotel reservation deadline for conference rate and final announcement
- Apr. 22, 2011: Deadline for submitting electronic posters
- May 1-6, 2011: Conference at High Country Conference Center, Flagstaff, AZ

Download/Website: `http://nexsci.caltech.edu/conferences/Flagstaff`
Contact: `StrangeNewWorlds@ipac.caltech.edu`

Early Kepler Science Results

Eric B. Ford
for the Kepler Science Team

218th AAS in Boston, MA, May 23-25, 2011

Searching for Exoplanets with Kepler (Monday afternoon): NASA's Kepler mission set out to determine the frequency of rocky planets in or near the habitable zone of nearby stars. As of February 1, 2011, Kepler's first two major public data releases will have provided the astronomical community with over four months of nearly continuous, high-precision photometry for over 150,000 stars targeted as part of the Kepler planet search, including at least 706 stars with transiting planet candidates (Borucki et al. 2010). This session will provide an overview of the status of the Kepler mission and exoplanet search status. Members of the Kepler science team will present recent progress, such as the results of the Kepler follow-up observing program's effort to confirm planet candidates identified by Kepler. The session will conclude with a discussion of the Kepler team's methods for validating planet candidates which lack dynamical confirmation, which will likely prove essential for planet candidates associated with faint target stars.

Kepler and the Architecture of Planetary Systems (Tuesday morning): This session will present activities of the Kepler Science Team's Multiple Planet working group and Transit Timing Variations working group. Invited talks will describe how transit timing variations are being used to confirm Kepler planet candidates and characterize their masses and orbits. Additional talks will address statistical properties of multiple planet systems. As Kepler announced six candidate multiple planet systems in summer 2010, this session may include a few contributed talks beyond the Kepler science team.

Exoplanet Characterization with Kepler (Tuesday afternoon): This session will begin with an overview of the activities of the Kepler Giant Planet Working group. Invited talks will present results from Spitzer follow-up observations, as well as the theoretical interpretation of Kepler photometry of giant planets and follow-up observations. As Kepler announced hundreds of giant planet candidates in summer 2010, this session may include a few contributed talks beyond the Kepler science team.

Astrophysics with Kepler I & II (Wednesday): In addition to exoplanet studies, Kepler data represents a treasure trove of unprecedented photometric data that has already enabled a broad range of astrophysical studies, including binary stars, variable stars, astroseismology, white dwarf science. These special session provide a venue for recent non-exoplanet results from the Kepler Science Team, the Kepler Guest Observer program and entire astronomical community. Invited talks will address the extent of stellar activity as a function of stellar type and present highlights of the Eclipsing Binary working group, and overview of results from the Guest Observer program and Kepler Astroseismic Science Consortium. The session is expected to include several contributed talks presented results based on Kepler data from the broader astronomical community.

2011 Sagan Summer Workshop: Exploring Exoplanets with Microlensing

C. Brinkworth
NASA Exoplanet Science Institute, California Institute of Technology, Pasadena, CA, USA

Pasadena, CA, July 25-29, 2011

The 2011 Sagan Exoplanet Summer Workshop: “Exploring Exoplanets with Microlensing”, will take place on the Caltech campus July 25 - 29, 2011. The workshop is intended for graduate students and postdocs interested in learning more about the microlensing technique, however all interested parties are welcome to attend. A preliminary list of topics to be covered includes:

- History of Microlensing Theory, Detection, and Follow-up Teams
- Introduction to Microlensing Photometric Techniques
- HST/AO Data Reduction
- Modeling of Microlensing Data
- Extracting the Physical Parameters of Planetary Events
- Null Results and Detection Efficiency
- Future Prospects and Challenges of Microlensing

The workshop will include hands-on group projects to give participants direct experience with the microlensing technique. Attendees will also have the opportunity to present brief summaries of their research. Financial assistance for travel and accommodations will be available for successful applicants.

Workshop registration and the on-line application for financial assistance will be available in early February 2011.
Download/Website: `http://nexsci.caltech.edu/workshop/2011`
Contact: `sagan_workshop@ipac.caltech.edu`

1st Announcement of the PLATO Science Conference

H. Rauer et al.
University of Technology, Berlin

Berlin, 24-25 February 2011

PLATO (PLAnetary Transits and Oscillations of stars) is one of the three medium class (M class) missions selected for definition study in the framework of the ESA Cosmic Vision 2015-2025 program. The main objectives of PLATO

are the detection and characterization of Earth Analogue systems; the search for exoplanets around the brightest stars of solar type at all orbital periods and with all physical sizes; the search for exoplanets around nearby M-type dwarfs with all physical sizes and at all orbital periods, including at orbital distances such that these planets fall within the habitable zones of these very cool stars; the search for and characterization of exoplanets over a wide variety of sizes, masses, and orbits around bright stars; and a full characterization of very bright stars of all masses and ages using seismic analysis. PLATO will use three complementary techniques: ultra-high precision photometric monitoring of very large samples of bright stars, ground-based follow-up in radial velocity, and seismic analysis of the host stars to obtain accurate stellar parameters (mass, radius, age, ...).

This meeting aims to present to the general scientific community the PLATO mission, its scientific program, and the PLATO Mission Consortium, to provide a contact point to those interested in getting involved in PLATO, and to collect the input from the community for the PLATO definition phase. Registration:

- Registration will open soon. A registration fee of about 150 Euro will be charged.
- Deadline for registration: 6 January 2011

Scientific Organizing Committee
P. Bodin (CNES), C. Catala, co-chair (Observatoire de Paris), L. Gizon (MPS), M.-J. Goupil (Observatoire de Paris), G. Piotto (U. di Padova), D. Pollacco (Queens U.), H. Rauer, chair (TU-Berlin, DLR), S. Udry (Observatoire de Genve), W. Weiss (U. Wien), W. Zima (KU Leuven).

Local Organizing Committee
R. Titz-Weider, A. Eriksson, C. Dreyer, Sz. Csizmadia, J. Cabrera, H. Rauer.

Download/Website: `http://www-astro.physik.tu-berlin.de/plato-2011/index.html`

Contact: `http://www-astro.physik.tu-berlin.de/plato-2011/contact.html`

4 Jobs and Positions

Three Postdoctoral Positions in Exozodiacal Dust Disks

J.-C. Augereau[1], *P. Thébault*[2], *J.-B. Lebouqin*[1], *H. Beust*[1], *O. Absil*[3]
[1] Laboratoire d'Astrophysique de Grenoble (LAOG), Grenoble, France
[2] LESIA, Observatoire de Paris, Meudon, France
[3] Institut d'Astrophysique et de Géophysique, Université de Liège, Belgium

Grenoble and Paris, France, Apr.-Dec. 2011

Applications are invited for 3 Postdoctoral Fellowships in Astrophysics, two at the Laboratoire d'Astrophysique de Grenoble (LAOG, France), and one at the LESIA laboratory of Observatoire de Paris (Meudon, France). The successful applicants will participate to the 4-year EXOZODI project funded by the ANR (French National Research Agency) that will start early 2011.
The EXOZODI project aims at understanding the origin of faint exozodiacal dust disks around nearby stars that remained elusive until the first near-infrared interferometric detection in 2006 by our team around the star Vega. Their origin is still an unresolved issue. However, the richness of this subject, its connection to the general dynamical evolution of planetary systems, in particular in the innermost potentially habitable regions, makes it a fast emerging research field.

In the context of this project, we propose the following positions that can start between April and December 2011:
1. Dynamical modeling, Grenoble, 2 years, contacts: J.-C. Augereau & H. Beust
2. Dynamical simulation, Paris, 2.2 years, contacts: P. Thébault & J.-C. Augereau
3. Near-IR interferometry, Grenoble, 2 years, contacts: J.-B. Lebouquin, O. Absil & J.-C. Augereau

Inquiries about the positions and the project shall be addressed to the above listed contact persons. Interested candidates are asked to write a description of their past and present research accomplishments, to provide a CV, a publication list and two letters of recommendation that will be sent directly to the contact persons. Applications to be returned before **Feb 1st, 2011**.

Download/Website: `http://www-laog.obs.ujf-grenoble.fr/~augereau`

Contact: `augereau@obs.ujf-grenoble.fr, philippe.thebault@obspm.fr, Jean-Baptiste.Lebouquin@obs.ujf-grenoble.fr, herve.beust@obs.ujf-grenoble.fr, absil@astro.ulg.ac.be.`

Lecturer position in Astrophysics at the University of Exeter

I. Baraffe
University of Exeter, Physics and Astronomy, Stocker Road, Exeter EX4 4QL, UK

Exeter, send applications by 31 December 2010

The Astrophysics group at the University of Exeter (http://www.astro.ex.ac.uk/) invites applications for an appointment as a Lecturer in the College of Engineering, Mathematics and Physical Sciences. We are seeking to appoint innovative researchers with international quality publications. The successful applicant will work with members of the Astrophysics group and will contribute to extending the research profile of the group, in areas related or complementary to our research activities, namely star and planet formation, structure and evolution of stars and study of extra-solar planets. We encourage applications in theoretical and computational Astrophysics, particularly in the fields of star and planet formation, hydrodynamical and MHD processes in stars and planets, planetary atmospheres

and climate studies. Our activities devoted to the physics and dynamics of stars and planets are based on interdisciplinary research, with links to the Applied Mathematics group at the University of Exeter and to the Met Office of Exeter.

The successful applicant will hold a PhD in Physics, Astrophysics or a related area and have an internationally-recognised research programme in an active field of astrophysics research related or complementary to existing Exeter strengths. Appointments will be made in the salary range 31,671 to 38,951 dependent on qualifications and experience.
Application packs are available by searching under the appropriate reference number (C8613622) at http://www.admin.ex.ac.uk/personnel/jobs

Informal enquiries may be made to Professor Isabelle Baraffe (telephone +44 (0)1392 725123 email: i.baraffe@ex.ac.uk).
CLOSING DATE: 31 December 2010. Interviews will take place by mid-January 2011.

Download/Website: `http://www.admin.ex.ac.uk/personnel/jobs`

Contact: `i.baraffe@ex.ac.uk`

Postdoc position: Transiting exoplanets from space

Magali Deleuil

LAM, France, March 1st

The CoRoT team at Laboratroy of Astrophysics in Marseille (France, LAM) offers a postdoctoral research position in the field of stellar and exoplanetary astrophysics. A PhD in astrophysics, planetary science or related field is required.
The CoRoT discoveries require a continuous care in the target selection, a large effort in the space data analysis, and extended observational support from ground-based facilities both in spectroscopy and photometry. The candidate should have developed skills in observational technics, or/and data analysis, or/and development of simulations. She/he will work in collaboration with the CoRoT team at LAM and the European CoRoT Exoplanet Science Team, a fraction of her/his time being devoted to develop her or his own research program. Finally the ideal applicant would be an expert in stellar physics and general properties of stars, as needed for the required tasks of characterizing the targets and planet host stars. The CoRoT/LAM team contributes to: target selection, analysis of CoRoT lightcurves, radial velocity measurements, spectroscopic analyses, and planet-star characterization. In the context of the extension of the CoRoT mission up to 2013, the position is offered for two years, starting in March 2011, with a possible third year.
Applicants should submit their applications (pdf preferred) containing a curriculum vitae, list of publications, brief statement of research interests and relevant experience, and contact information for three references to Magali Deleuil before 30 January 2010.
More information: LAM is one of the main French space laboratories, with a staff of 71 researchers and postdocs, 69 engineers and technicians, 20 PhD and 13 temporary engineers. LAM carries out a wide range of research programmes from the solar system to the distant Universe, with particular emphasis on the fields of exoplanets and observational cosmology. LAM is one of the major contributor to the CoRoT space mission, on both technical and scientific aspects, being the institute in charge of the coordination of the CoRoT/Exoplanet program and associated follow-up observations. During CoRoT observations, LAM is operating the ”Alarm mode” that is the weekly analysis of crudely processed exoplanet light curves aiming at detecting transits, with the subsequent tuning of the temporal sampling. In addition to the light curve analyses, the CoRoT/LAM staff is deeply involved in the follow-up observations, including radial velocity measurements.

Download/Website: `http://www.oamp.fr`

Contact: `Magali.Deleuil@oamp.fr or Claire.Moutou@oamp.fr`

5 Announcements

NStED Releases Periodogram Tool and HATNet and XO Datasets

D. Ciardi on behalf of the NStED Team
NASA Exoplanet Science Institute, Pasadena, CA The NASA Exoplanet Science Institute (NExScI) is pleased to announce a significant update to the NASA Star and Exoplanet Database (NStED). NStED announces the release of an online periodogram service. Users can upload their own time series data, and retrieve a periodocity analysis. The service uses three different algorithms geared towards different science applications. The periodogram service generates a periodicity rank for each tested frequency and a phased light curve for each peak in the periodogram. Users can upload their own light curves, Kepler and CoRoT FITS files, and any time-series data set available at NStED. Both the periodogram results and the phased light curves are available for download from the periodogram results pages. The upload service is an extension of the periodogram tool already integrated with the Kepler Public Data service (see http://nsted.ipac.caltech.edu/applications/ETSS/Kepler_index.html)

NStED has also released two new transit survey datasets for a total of 7 transit datasets (480,000 light curves) including Kepler and CoRoT. The new datasets include 500 HATNet light curves in the Pleiades bringing the total to more than 6,000 HATNet light curves, and the XO Transit Survey, consisting of 2000 light curves spanning 500 days.

NStED is dedicated to collecting and serving important public data sets involved in the search for and characterization of extrasolar planets and their host stars.

New NStED Services and Datasets

- New Periodogram Upload Service: http://nsted.ipac.caltech.edu/periodogram/cgi-bin/Periodogram/nph-simpleupload
- HATNet Service: http://nsted.ipac.caltech.edu/applications/ETSS/HATNet_index.html
- XO Service: http://nsted.ipac.caltech.edu/applications/ETSS/XO_index.html

Download/Website: `http://nsted.ipac.caltech.edu`
Contact: `nstedsup@ipac.caltech.edu`

Exoplanetary magnetic fields and stellar-planetary magnetic interactions: Modelling, detection, characterization

M. Khodachenko, J.-M. Grießmeier
European Planetary Science Congress

Report of meeting, available online

In September in within the frame of the European Planetary Science Congress we organized a session: Exoplanetary magnetic fields and stellar-planetary magnetic interactions: Modelling, detection, characterization. Convener: M. Khodachenko, Co-Convener: J.-M. Grießmeier.
Now the materials of the session are available on-line with an interactive agenda and downloadable presentations, at the address below.

Session Details:
Constantly growing amount of discovered exoplanets and accumulation of data regarding their physical and orbital characteristics provides sufficient amount of material for the study of general principles and major trends of

planetary evolution. A number of actual questions regarding the evolutionary paths of exoplanetary systems and influencing key factors is nowadays under continuous tackling. Among these questions a prominent position belongs to the problem of stellar - planetary interactions, including the consideration of influences of stellar radiation and plasma flows on planetary environments and evolution of planets. Magnetic fields, those connected with the planetary intrinsic magnetic dipole, as well as the magnetic fields associated with the electric current systems induced in the planetary close surroundings, play here an important role. Being focused on the specifics of exoplanetary magnetism, this session, due to the generality of its subject, welcomes participants from the whole circle of stellar and exoplanetary physics, including the topics like stellar activity, observation and characterization of planetary systems, stellar-planetary relations, planetary evolution, dedicated computational modelling and data analysis. Special emphasis of the session is put on the transfer of the experiences gained in the studies of magnetospheres and magnetism of the solar system planets to the new field of exoplanets, taking into account the specifics of orbital location of exoplanets, stellar activity etc. Implementation of the theoretical/computational predictions to the observational and detection techniques appears as another key topic of the envisaged discussions during the session.

Download/Website: `http://europlanet-jra3.oeaw.ac.at/index.php?id=44`

6 As seen on astro-ph

The following list contains all the entries relating to exoplanets that we spotted on astro-ph during November 2010. If you see any that we missed, please let us know and we'll include them in the next issue. On that note, we begin this issue with one item which we inadvertently missed last month. As ever, the best way to ensure that we include your paper is to send us the abstract.

Exoplanets

astro-ph/1010.5370: **Relaxation Time and Dissipation Interaction in Hot Planet Atmospheric Flow Simulations** by *Heidar Thor Thrastarson, James Y-K. Cho*

astro-ph/1011.0117: **Hot Jupiter Magnetospheres** by *George B. Trammell, Phil Arras, Zhi-Yun Li*

astro-ph/1011.0143: **The Occurrence and Mass Distribution of Close-in Super-Earths, Neptunes, and Jupiters** by *Andrew W. Howard, Geoffrey W. Marcy, John Asher Johnson et al.*

astro-ph/1011.0186: **Aliases of the first eccentric harmonic : Is GJ 581g a genuine planet candidate?** by *Guillem Anglada-Escude*

astro-ph/1011.0336: **The radius anomaly in the planet/brown dwarf overlapping mass regime** by *Jeremy Leconte, Gilles Chabrier, Isabelle Baraffe*

astro-ph/1011.0428: **A Model for Thermal Phase Variations of Circular and Eccentric Exoplanets** by *Nicolas B. Cowan, Eric Agol*

astro-ph/1011.0435: **Asteroseismology of the Transiting Exoplanet Host HD 17156 with HST FGS** by *Ronald L. Gilliland, Peter R. McCullough, Edmund P. Nelan et al.*

astro-ph/1011.0439: **Improving Transit Predictions of Known Exoplanets with TERMS** by *Stephen R. Kane, David Ciardi,Debra Fischer et al.*

astro-ph/1011.0440: **Precise Estimates of the Physical Parameters for the Exoplanet System HD-17156 Enabled by HST FGS Transit and Asteroseismic Observations** by *Philip Nutzman, Ronald L. Gilliland, Peter R. McCullough et al.*

astro-ph/1011.0751: **Polarimetry of cool atmospheres: From the Sun to exoplanets** by *Svetlana V. Berdy*

astro-ph/1011.1019: **Warm Spitzer Photometry of the Transiting Exoplanets CoRoT-1 and CoRoT-2 at Secondary Eclipse** by *Drake Deming, Heather Knutson, Eric Agol et al.*

astro-ph/1011.1471: **System Geometries and Transit / Eclipse** by *Kaspar von Braun, Stephen R. Kane, Suvrath Mahadevan etal.*

astro-ph/1011.1486: **Effects of Turbulence, Eccentricity Damping, and Migration Rate on the Capture of Planets into Mean Motion Resonance** by *Jacob A. Ketchum, Fred C. Adams, Anthony M. Bloch*

astro-ph/1011.2094: **The HARPS search for southern extrasolar planets XXV. Results from the metal-poor sample** by *N.C. Santos, M. Mayor, X. Bonfils et al.*

astro-ph/1011.2144: **On planetary mass determination in the case of super-Earths orbiting active stars. The case of the CoRoT-7 system** by *S.Ferraz-Mello, M.Tadeu dos Santos, C.Beauge et al.*

astro-ph/1011.2201: **Two Wide Planetary-Mass Companions to Solar-Type Stars in Upper Scorpius** by *Michael J. Ireland, Adam L. Kraus, Frantz Martinache et al.*

astro-ph/1011.2229: **System parameters, transit times and secondary eclipse constraints of the exoplanet systems HAT-P-4, TrES-2, TrES-3 and WASP-3 from the NASA EPOXI Mission of Opportunity** by *Jessie L. Christiansen, Sarah Ballard, David Charbonneau et al.*

astro-ph/1011.2338: **Astrometric search for a planet around VB 10** by *P.F. Lazorenko, J. Sahlmann, D. Segransan et al.*

astro-ph/1011.2411: **High-resolutionspectroscopic view of planet formation sites** by *Smadar Naoz, Will M. Farr, Yoram Lithwick et al.*

astro-ph/1011.2501: **Retrograde Hot Jupiters from Secular Planet-Planet Interactions** by *Smadar Naoz, Will M. Farr, Yoram Lithwick et al.*

astro-ph/1011.2590: **Possible detection of phase changes from the non-transiting planet HD 46375b by CoRoT** by *P. Gaulme, M. Vannier, T. Guillot et al.*

astro-ph/1011.2671: **HD 46375: seismic and spectropolarimetric analysis of a young Sun hosting a Saturn-like planet** by *P. Gaulme, S. Deheuvels, W. W. Weiss et al.*

astro-ph/1011.2690: **Possible detection of phase changes from the non-transiting planet HD 46375b by CoRoT** by *P. Gaulme, M. Vannier, T. Guillot et al.*

astro-ph/1011.2710: **Formation of Early Water Oceans on Rocky Planets** by *Linda T. Elkins-Tanton*

astro-ph/1011.3455: **Prospects for Detection of Exoplanet Magnetic Fields Through Bow-Shock Observations During Transits** by *A. A. Vidotto, M. Jardine, Ch. Helling*

astro-ph/1011.3538: **The Penn State - Torun Planet Search: target characteristics and recent results** by *P. Zielinski, A.Niedzielski, A. Wolszczan et al.*

astro-ph/1011.3905: **The giant planet orbiting the cataclysmic binary DP Leonis** by *K. Beuermann, J. Buhlmann, J. Diese et al.*

astro-ph/1011.3991: **Statistical Analysis for Projected Exoplanet Quantities** by *Robert A. Brown*

astro-ph/1011.4066: **Secondary Eclipse Photometry of WASP-4b with Warm Spitzer** by *Ingrid M. Beerer, Heather A. Knutson, Adam Burrows et al.*

astro-ph/1011.4068: **e Lick-Carnegie Survey: Four New Exoplanet Candidates** by *Stefano Meschiari, Gregory Laughlin, Steven S. V. et al.*

astro-ph/1011.4156: **Exoplanet-atmospheres at high spectral resolution: A CRIRES survey of hot-Jupiters** by *Ignas Snellen, Remco de Kok, Ernst de Mooij et al.*

astro-ph/1011.4270: **On the Frequency of Jupiter Analogs** by *Robert A. Wittenmyer, C.G. Tinney, Simon J. O'Toole et al.*

astro-ph/1011.4385: **Transmission spectroscopy of the sodium 'D' doublet in WASP-17b with the VLT** by *Patricia LWood, Pierre F L Maxted, Barry Smalley et al.*

astro-ph/1011.4804: **Hamiltonian model of capture into mean motion resonance** by *Alexander Mustill, Mark Wyatt*

astro-ph/1011.4918: **Images of a fourth planet orbiting HR 8799** by *C. Marois, B. Zuckerman, Q. M. Konopacky et al.*

astro-ph/1011.4938: **The visitor from an ancient galaxy: A planetary companion around an old, metal-poor red horizontal branch star** by *Rainer J. Klement, Johny Setiawan, Thomas Henning et al.*

astro-ph/1011.4994: **The HARPS search for southern extra-solar planets. XXVII. Up to seven planets orbiting HD 10180:probing the architecture of low-mass planetary systems** by *C. Lovis, D. Segransan, M. Mayor et al.*

astro-ph/1011.5335: **Stellar characterization of CoRoT/Exoplanet fields with MATISSE** by *J.-C. Gazzano, P.*

de Laverny, M. Deleuil et al.

astro-ph/1011.5507: **Non-Detection of L-band Line Emission from the Exo-Planet HD189733b** by *Avi M. Mandell, L. Drake Deming, Geoffrey A. Blake et al.*

astro-ph/1011.5595: **Physical Properties of the Transiting Planetary System TrES-3** by *Jae Woo Lee, Jae-Hyuck Youn, Seung-Lee Kim et al.*

astro-ph/1011.5664: **The spin-orbit angles of the transiting exoplanets WASP-1b, WASP-24b, WASP-38b and HAT-P-8b from Rossiter-McLaughlin observations** by *E. K. Simpson, D. Pollacco, A. Collier Ca et al.*

astro-ph/1011.5798: **Predicted dynamos for terrestrial extra-solar planets and their influence in habitability** by *Natalia Gomez-Perez, Mercedes Lopez-Morales, Thomas Ruedas*

astro-ph/1011.5882: **WASP-31b: a low-density planet transiting a late-F-type star** by *D. R. Anderson, A. Collier Cameron, C. Hellier et al.*

astro-ph/1011.6125: **Volatiles and refratories in solar analogs: no terrestial planet connection** by *J. I. Gonzalez Hernandez, G. Israelian, N. C. Santos et al.*

astro-ph/1011.6135: **Forming Habitable Planets around Dwarf Stars: Application to OGLE-06-109L** by *Su Wang, Ji-Lin Zhou*

astro-ph/1011.6376: **A Giant Planet Around a Metal-poor Star of Extragalactic Origin** by *Johny Setiawan, Rainer J. Klement,Thomas Henning et al.*

astro-ph/1011.6395: **TASTE: The Asiago Search for Transit timing variations of Exoplanets. I. Overview and improved parameters for HAT-P-3b and HAT-P-14b** by *V. Nascimbeni, G. Piotto, L. R. Bedin et al.*

astro-ph/1011.6483: **White Dwarf Planets from GAIA** by *Roberto Silvotti, Alessandro Sozzetti, Mario Lattanzi*

astro-ph/1011.6606: **Table of Contents: Planetary Systems Beyond the Main Sequence 2010** by *Sonja Schuh, Horst Drechsel, Ulrich Heber*

Disks

astro-ph/1011.0201: **Runaway Growth During Planet Formation: Explaining the Size Distribution of Large Kuiper Belt Objects** by *Hilke E. Schlichting, Reem Sari*

astro-ph/1011.1496: **Dynamics of Protoplanetary Disks** by *Philip J. Armitage*

astro-ph/1011.2496: **Dissecting the Moth: Discovery of an off-centered ring in the HD 61005 debris disk with high-resolution imaging** by *Esther Buenzli, Christian Thalmann, Arthur Vigan et al.*

astro-ph/1011.3150: **An Investigation of the Loss of Planet-Forming Potential in Intermediate Sized Young Embedded Star Clusters** by *Lisa Holden, Edward Landis, Jeremy Spitzig et al.*

astro-ph/1011.4420: **Impact of grainevolution on the chemical structure of protoplanetary disks** by *A.I. Vasyunin , D.S. Wiebe, T. Birnstiel et al.*

astro-ph/1011.4796: **Microwave Emission from the Edgeworth-Kuiper Belt and the Asteroid Belt Constrained from WMAP** by *Kazuhide Ichikawa, Masataka Fukugita*

astro-ph/1011.4834: **Observing dust settling and coagulation in circumstellar discs: Selected constraints from high resolution imaging** by *Juergen Sauter, Sebastian Wolf*

astro-ph/1011.4882: **The cold origin of the warm dust around epsilon Eridani** by *Martin Reidemeister, Alexander V. Krivov,Christopher C. Stark et al.*

astro-ph/1011.6135: **Forming Habitable Planets around Dwarf Stars: Application to OGLE-06-109L** by *Su Wang, Ji-Lin Zhou*

astro-ph/1011.6575: **Protoplanetary Disks of Binary Systems in Orion** by *S. Daemgen, M. G. Petr-Gotzens, S. Correia*

Instrumentation and Techniques

astro-ph/1011.0439: **Improving Transit Predictions of Known Exoplanets with TERMS** by *Stephen R. Kane, David Ciardi, Debra Fischer et al.*

astro-ph/1011.1125: **The effect of M dwarf starspot activity on low-mass planet detection thresholds** by *J.R. Barnes, S.V. Jeffers, H.R.A. Jones*

astro-ph/1011.1466: **Quantifying thechallenges of detecting unseen planetary companions with transit timing variations** by *Dimitri Veras, Eric B. Ford, Matthew J. Payne*

astro-ph/1011.1550: **Characterizing Kepler Asteroseismic Targets** by *Joanna Molenda-Zakowicz, David W. Latham, Giovanni Catanzaro et al.*

astro-ph/1011.2975: **A Visual Guide to Planetary Microlensing** by *Leslie A. Rogers, Paul L. Schechter*

astro-ph/1011.3538: **The Penn State - Torun Planet Search: target characteristics and recent results** by *P. Zielinski (1), A. Niedzielski (1), A. Wolszczan et al.*

astro-ph/1011.3583: **The Penn State - Torun Planet Search: target characteristics and recent results** by *P. Zielinski (1), A. Niedzielski (1), A. Wolszczan*

astro-ph/1011.5579: **Stellar noise and planet detection. I. Oscillations, granulation and sun-like spots** by *X. Dumusque, N. C. Santos, S. Udry et al.*

astro-ph/1011.5581: **Stellar noise and planet detection. II. Radial-velocity noise induced by magnetic cycles** by *X. Dumusque, C. Lovis, S. Udry et al.*

astro-ph/1011.5659: **Blend Analysis of HATNet Transit Candidates** by *J. D. Hartman, G. A. Bakos, G. Torres*

astro-ph/1011.6597: **The Potential of the Timing Method to Detect Evolved Planetary Systems** by *Roberto Silvotti, Robert Szabo, Pieter Degroote*