ExoPlanet News
An Electronic Newsletter

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Contents

1 Editorial

Welcome to the forty-second edition of ExoPlanet News.

After our summer break, we have a larger than normal selection of recent abstracts in various areas of Exoplanet science, and a couple of upcoming conferences too, as well as several jobs and positions along with other announcements.

Tthe next edition is planned for the beginning of October 2011, so please send anything relevant to exoplanet@open.ac.uk, and it will appear then. 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.

Best wishes
Andrew Norton & Glenn White
The Open University

2 Abstracts of refereed papers

A lower mass for the exoplanet WASP-21b

S. C. C. Barros [1], D. L. Pollacco [1], N. P. Gibson [1,2], I. D. Howarth [3], F. P. Keenan [1], E. K. Simpson [1], I. Skillen [4], I. A. Steele [5]

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Monthly Notices of the Royal Astronomical Society, in press (arXiv:1106.2118)

We present high precision transit observations of the exoplanet WASP-21b, obtained with the RISE instrument mounted on 2.0m Liverpool Telescope. A transit model is fitted, coupled with an MCMC routine to derive accurate system parameters. The two new high precision transits allow to estimate the stellar density directly from the light curve. Our analysis suggests that WASP-21 is evolving off the main sequence which led to a previous overestimation of the stellar density. Using isochrone interpolation, we find a stellar mass of $0.86 \pm 0.04 \mathrm{R}_{\odot}$ which is significantly lower than previously reported ($1.01 \pm 0.03 \mathrm{M}_{\odot}$). Consequently, we find a lower planetary mass of $0.27 \pm 0.01 \mathrm{M}_{\mathrm{Jup}}$. A lower inclination ($87.4 \pm 0.3$ degrees) is also found for the system than previously reported, resulting in a slightly larger stellar ($R_* = 1.10 \pm 0.03\,\mathrm{R}_{\odot}$) and planetary radius ($R_p = 1.14 \pm 0.04\,\mathrm{R}_{\mathrm{Jup}}$). The planet radius suggests a hydrogen/helium composition with no core which strengthens the correlation between planetary density and host star metallicity. A new ephemeris is determined for the system, i.e., $\mathrm{T}_0 = 2455084.51974 \pm 0.00020$ (HJD) and $P = 4.3225060 \pm 0.0000031$ days. We found no transit timing variations in WASP-21b.

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Mantle Convection, Plate Tectonics, and Volcanism on Hot Exo-Earths

Joost van Summeren, Clinton P. Conrad, Eric Gaidos

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Astrophysical Journal Letters, published (astro-ph/1106.4341)

Recently discovered exoplanets on close-in orbits should have surface temperatures of hundreds to thousands of Kelvin. They are likely tidally locked and synchronously rotating around their parent stars and, if an atmosphere is absent, have surface temperature contrasts of many hundreds to thousands of Kelvin between permanent day and night sides. We investigated the effect of elevated surface temperature and strong surface temperature contrasts for Earth-mass planets on the (i) pattern of mantle convection, (ii) tectonic regime, and (iii) rate and distribution of partial melting, using numerical simulations of mantle convection with a composite viscous/pseudo-plastic rheology. Our simulations indicate that if a close-in rocky exoplanet lacks an atmosphere to redistribute heat, a $\gtrsim 400$ K surface temperature contrast can maintain an asymmetric degree 1 pattern of mantle convection in which the surface of the planet moves preferentially toward subduction zones on the cold night side. The planetary surface features a hemispheric dichotomy, with plate-like tectonics on the night side and a continuously evolving mobile lid on the day side with diffuse surface deformation and vigorous volcanism. If volcanic outgassing establishes an atmosphere and redistributes heat, plate tectonics is globally replaced by diffuse surface deformation and volcanism accelerates and becomes distributed more uniformly across the planetary surface.

Download/Website: http://arxiv.org/abs/1106.4341

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Radio Interferometric Planet Search II: Constraints on sub-Jupiter-Mass Companions to GJ 896A

Geoffrey C. Bower[1], *Alberto Bolatto*[1,2], *Eric B. Ford*[1,3], *Adam Fries*[1], *Paul Kalas*[1], *Karol Sanchez*[1], *Phoebe Sanderbeck*[4], *Vincent Viscomi*[1]

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Astrophysical Journal, in press (arXiv:1107.3180)

We present results from the Radio Interferometric Planet (RIPL) search for companions to the nearby star GJ 896A. We present 11 observations over 4.9 years. Fitting astrometric parameters to the data reveals a residual with peak-to-peak amplitude of ~ 3 mas in right ascension. This residual is well-fit by an acceleration term of 0.458 ± 0.032 mas/y^2. The parallax is fit to an accuracy of 0.2 mas and the proper motion terms are fit to accuracies of 0.01 mas/y. After fitting astrometric and acceleration terms residuals are 0.26 mas in each coordinate, demonstrating that stellar jitter does not limit the ability to carry out radio astrometric planet detection and characterization. The acceleration term originates in part from the companion GJ 896B but the amplitude of the acceleration in declination is not accurately predicted by the orbital model. The acceleration sets a mass upper limit of 0.15 M_J at a semi-major axis of 2 AU for a planetary companion to GJ 896A. For semi-major axes between 0.3 and 2 AU upper limits are determined by the maximum angular separation; the upper limits scale from the minimum value in proportion to the inverse of the radius. Upper limits at larger radii are set by the acceleration and scale as the radius squared. An improved solution for the stellar binary system could improve the exoplanet mass sensitivity by an order of magnitude.

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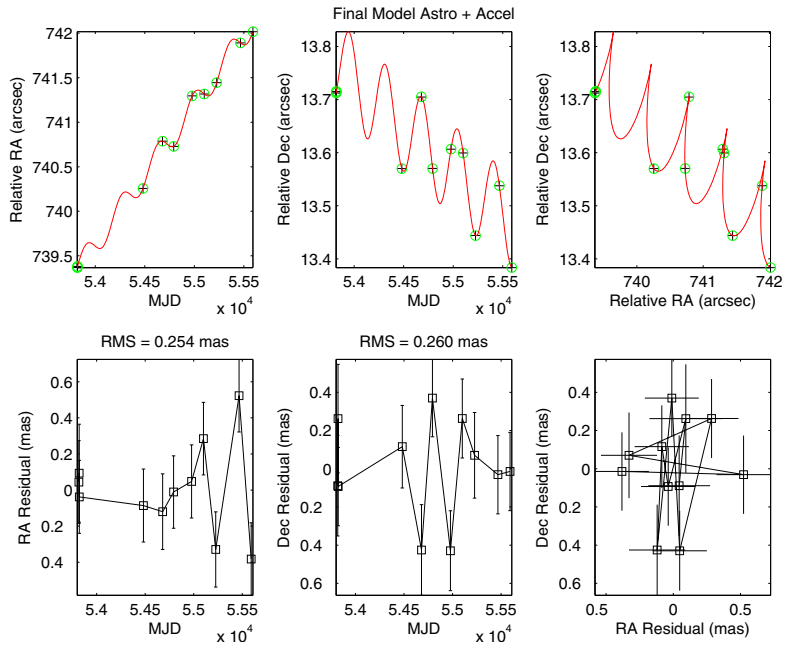

Figure 1: (Bower et al.) Fitted astrometric plus acceleration model and astrometric data for GJ 896A. Top row shows astrometric data (black crosses) with the initial (optically-determined) astrometric model (green circles at the epoch of observation and red lines for the continuous calculation). Positions in the top row are given in arcsec relative to a fiducial position of 23^h31^m, 19°56'. Bottom row shows residuals after subtraction of the model. The symbols in the top row are much larger than the errors; in the bottom row, errors include statistical and systematic contributions.

55 Cancri: Stellar Astrophysical Parameters, a Planet in the Habitable Zone, and Implications for the Radius of a Transiting Super-Earth

Kaspar von Braun[1], Tabetha S. Boyajian[2,3], Theo A. ten Brummelaar[6], Stephen R. Kane[1], Gerard T. van Belle[4], David R. Ciardi[1], Sean N. Raymond[9,10], Mercedes López-Morales[5,8], Harold A. McAlister[2], Gail Schaefer[6], Stephen T. Ridgway[7], Laszlo Sturmann[6], Judit Sturmann[6], Russel White[2], Nils H. Turner[6], Chris Farrington[6], and P. J. Goldfinger[6]

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Astrophysical Journal, in press (2011arXiv1106.1152V)

The bright star 55 Cancri is known to host five planets, including a transiting super-Earth. The study presented here yields directly determined values for 55 Cnc's stellar astrophysical parameters based on improved interferometry: $R = 0.943 \pm 0.010 R_{sun}$, $T_{\rm EFF} = 5196 \pm 24$ K. We use isochrone fitting to determine 55 Cnc's age to be 10.2 $\pm$ 2.5 Gyr, implying a stellar mass of $0.905 \pm 0.015 M_{sun}$. Our analysis of the location and extent of the system's habitable zone (0.67–1.32 AU) shows that planet f, with period $\sim$ 260 days and $M \sin i = 0.155 M_{Jupiter}$, spends the majority of the duration of its elliptical orbit in the circumstellar habitable zone. Though planet f is too massive to harbor liquid water on any planetary surface, we elaborate on the potential of alternative low-mass objects in planet f's vicinity: a large moon, and a low-mass planet on a dynamically stable orbit within the habitable zone. Finally, our direct value for 55 Cancri's stellar radius allows for a model-independent calculation of the physical diameter of the transiting super-Earth 55 Cnc e ($\sim 2.05 \pm 0.15 R_{earth}$), which, depending on the planetary mass assumed, implies a bulk density of 0.76 ρ_{earth} or 1.07 ρ_{earth}.

Download/Website: `http://adsabs.harvard.edu/abs/2011arXiv1106.1152V`

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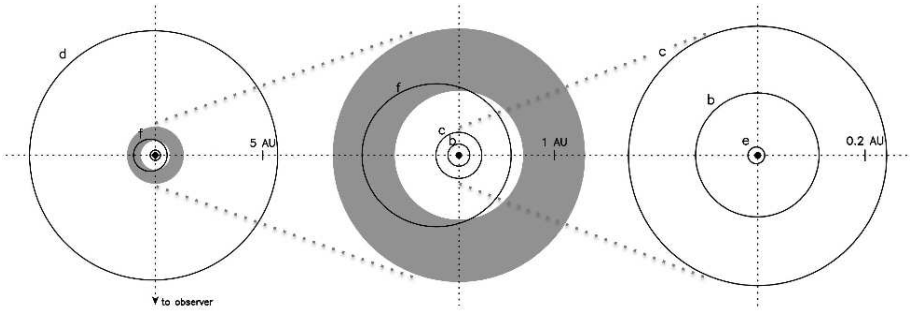

Figure 2: (von Braun et al.) A top-down view of the 55 Cnc system, showing the full orbital architecture centered on the star at increasing zoom levels from left to right (note different scales on ordinate). The habitable zone is indicated by the gray shaded region. Orbital element values are adopted from table 10 in Dawson and Fabrycky (2010). Planet d is well beyond the outer edge of the HZ (left panel). Planet f periodically dips into and out of the HZ during its elliptical ($e \simeq 0.3$) orbit (left and middle panels). See also von Braun et al. (2011b). Planets b, c, and e (the transiting super-Earth) are well inside the system's HZ (right panel).

Treating dynamical stability as an observable: a 5:2 MMR configuration for the extrasolar system HD 181433

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Monthly Notices of the Royal Astronomical Society, in press (arXive-1108.0360)

The three-planet extrasolar system of HD 181433 has been detected with HARPS. The best-fit solution, announced by the discovery team, describes a highly unstable, self-disrupting configuration. In fact, a narrow observational window, only partially covering the longest orbital period, can lead to solutions representing unrealistic scenarios. Taking into account the *dynamical stability* as an additional observable while interpreting the RV data, we can analyse the phase space in a neighbourhood of the statistically best-fit and derive dynamically stable configurations that reproduce the observed RV signal. Our Newtonian stable best-fit model is capable of surviving for at least 250 Myrs. The two giant companions are found to be locked in the 5:2 MMR as Jupiter and Saturn in the Solar System. This mechanism does not allow close encounters even in case of highly eccentric orbits. Moreover, planets *c* and *d* are located in regions spanned by many other strong low-order MMRs. We study the dynamics of some plausible scenarios and we illustrate the behaviours caused by secular apsidal resonances and mean motion resonances. Furthermore, we find a terrestrial planet in the habitable zone of HD 181433 can retain stability. Apart from filling an empty gap in the system, this body could offer a harbour for life indeed. Additional measurements are necessary in order to investigate this hypothesis and can confirm the predictions outlined in the paper.

Download/Website: `http://arxiv.org/abs/1108.0360`

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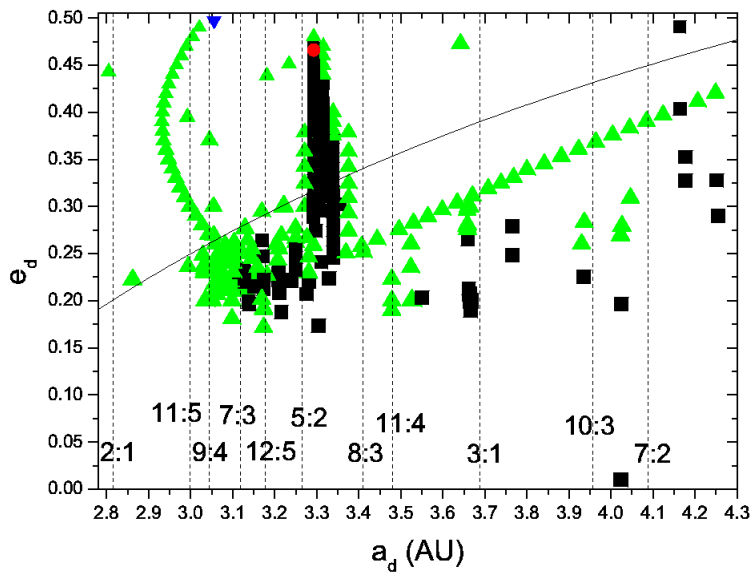

Figure 3: (Campanella) The best fits obtained for the HD 181433 planetary system in terms of the eccentricity and semi-major axis of planet *d*; the collision line is depicted, the nominal positions of the most relevant MMR are also labelled and marked by dashed lines. The statistically best-fit is indicated with an inverted triangle (blue), the stable best-fit is denoted with a circle (red). With triangles (green) we represent unstable configurations while with squares (black) we refer to models stable for at least 1 Myrs. The size of each symbol is proportional to its χ^2_{red}, i.e. smaller symbols indicate better fits. The 5:2 and 7:2 MMRs retain stability even for values of e_d over the collision line.

WASP-35b, WASP-48b and HAT-P-30b/WASP-51b: Two new planets and an independent discovery of a HAT planet.

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Astronomical Journal, published (2011AJ....142...86E)

We report the detection of WASP-35b, a planet transiting a metal-poor ([Fe/H] = -0.15) star in the Southern hemisphere, WASP-48b, an inflated planet which may have spun-up its slightly evolved host star of $1.75R_{\odot}$ in the Northern hemisphere, and the independent discovery of HAT-P-30b / WASP-51b, a new planet in the Northern hemisphere. Using WASP, RISE, FTS and TRAPPIST photometry, with CORALIE, SOPHIE and NOT spectroscopy, we determine that WASP-35b has a mass of $0.72 \pm 0.06M_J$ and radius of $1.32 \pm 0.05R_J$, and orbits with a period of 3.16 days, WASP-48b has a mass of $0.98 \pm 0.09M_J$, radius of $1.67 \pm 0.10R_J$ and orbits in 2.14 days, while HAT-P-30b/WASP-51b, with an orbital period of 2.81 days, is found to have a mass of $0.76 \pm 0.05M_J$ and radius of $1.42 \pm 0.03R_J$, agreeing with values of $0.71 \pm 0.03M_J$ and $1.34 \pm 0.07R_J$ reported for HAT-P-30b.

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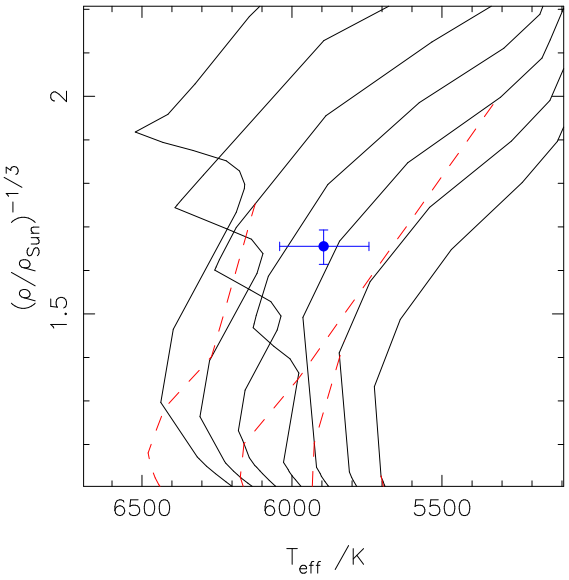

Figure 4: (Enoch et al.) Isochrone tracks from Marigo et al. (2008) for the slightly evolved WASP-48 ($\sim$ 8 Gyr, $1.75R_{\odot}$). Isochrones (solid lines, left to right) are 3.16, 3.98, 5.01, 6.30, 7.94, 10.0, 12.5 Gyr. Evolutionary tracks (dashed lines) are for 1.2, 1.1, 1.0, 0.9 $M_{\odot}$ stars.

Habitability of extrasolar planets and tidal spin evolution

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Origins of Life and Evolution of Biospheres, in press (http://arxiv.org/abs/1108.4347)

Stellar radiation has conservatively been used as the key constraint to planetary habitability. We review here the effects of tides, exerted by the host star on the planet, on the evolution of the planetary spin. Tides initially drive the rotation period and the orientation of the rotation axis into an equilibrium state but do not necessarily lead to synchronous rotation. As tides also circularize the orbit, eventually the rotation period does equal the orbital period and one hemisphere will be permanently irradiated by the star. Furthermore, the rotational axis will become perpendicular to the orbit, i.e. the obliquity ψ (see figure) converges to zero. In the final state, the planetary surface will not experience seasonal variations of the insolation. We illustrate here how tides alter the spins of planets in the traditional habitable zone. As an example, we show that, neglecting perturbations due to other companions, the Super-Earth Gl581d performs two rotations per orbit and that any primordial obliquity has been eroded.

Download/Website: `http://arxiv.org/abs/1108.4347`

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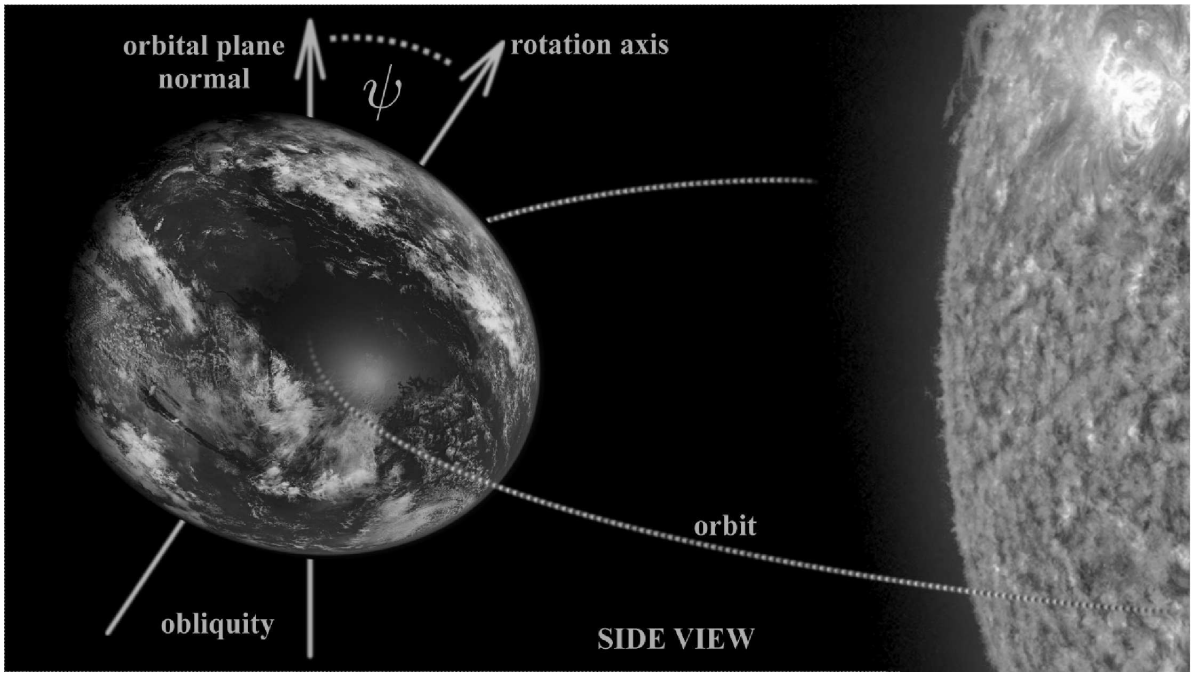

Figure 5: (Heller et al.) Side view of the planetary orbit. Due to the non-zero obliquity ψ of this hypothetical planet, its tidal bulges are not aligned with the orbital plane. The resulting tidal torque leads to an evolution of the rotation period and of ψ.

Clouds in the atmospheres of extrasolar planets. III. Impact of low and high-level clouds on the reflection spectra of Earth-like planets

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Astronomy & Astrophysics, in press

Owing to their wavelength dependent absorption and scattering properties, clouds have an important influence on spectral albedos and planetary reflection spectra. In addition, the spectral energy distribution of the incident stellar light determines the detectable absorption bands of atmospheric molecules in these reflection spectra. In this publication, we study the influence of low-level water and high-level ice clouds on low-resolution reflection spectra and planetary albedos of Earth-like planets orbiting different types of stars in both the visible and near infrared wavelength range. We use a one-dimensional radiative-convective steady-state atmospheric model coupled with a parametric cloud model, based on observations in the Earth's atmosphere to study the effect of both cloud types on the reflection spectra and albedos of Earth-like extrasolar planets at low resolution for various types of central stars. We find that the high scattering efficiency of clouds substantially causes both the amount of reflected light and the related depths of the absorption bands to be substantially larger than in comparison to the respective clear sky conditions. Low-level clouds have a stronger impact on the spectra than the high-level clouds because of their much larger scattering optical depth. The detectability of molecular features in near the UV - near IR wavelength range is strongly enhanced by the presence of clouds. However, the detectability of various chemical species in low-resolution reflection spectra depends strongly on the spectral energy distribution of the incident stellar radiation. In contrast to the reflection spectra the spectral planetary albedos enable molecular features to be detected without a direct influence of the spectral energy distribution of the stellar radiation. Here, clouds increase the contrast between the radiation fluxes of the planets and the respective central star by about one order of magnitude, but the resulting contrast values are still too low to be observable with the current generation of telescopes.

Download/Website: `http://arxiv.org/abs/1108.3274`

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Debris disc candidates in systems with transiting planets

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MNRAS Letters, in press (arXiv:1108.3324)

Debris discs are known to exist around many planet-host stars, but no debris dust has been found so far in systems with transiting planets. Using publicly available catalogues, we searched for infrared excesses in such systems. In the recently published Wide-Field Infrared Survey Explorer (*WISE*) catalogue, we found 52 stars with transiting planets. Two systems with one transiting "hot Jupiter" each, TrES-2 and XO-5, exhibit small excesses both at 12μm and 22μm at a $> 3\sigma$ level. Provided that one or both of these detections are real, the frequency of warm excesses in systems with transiting planets of 2-4% is comparable to that around solar-type stars probed at similar wavelengths with *Spitzer*'s MIPS and IRS instruments. Modelling suggests that the observed excesses would stem from dust rings with radii of several AU. The inferred amount of dust is close to the maximum expected theoretically from a collisional cascade in asteroid belt analogues. If confirmed, the presence of debris discs in systems with transiting planets may put important constraints onto formation and migration scenarios of hot Jupiters.

Download/Website: `http://arxiv.org/abs/1108.3324`

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Deriving the radial-velocity variations induced by stellar activity from high-precision photometry – Test on HD 189733 with simultaneous MOST/SOPHIE data

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Astronomy & Astrophysics, in press (arXiv:1107.4864)

Stellar activity induces apparent radial velocity (RV) variations in late-type main-sequence stars that may hamper the detection of low-mass planets and the measurement of their mass. We use simultaneous measurements of the active planet host star HD 189733 with high-precision optical photometry by the MOST satellite and high-resolution spectra by SOPHIE. We apply on this unique dataset a spot model to predict the activity-induced RV variations and compare them with the observed ones. The model is based on the rotational modulation of the stellar flux. A maximum entropy regularization is applied to find a unique and stable solution for the distribution of the active regions versus stellar longitude. The RV variations are synthesized considering the effects on the line profiles of the brightness perturbations due to dark spots and bright faculae and the reduction of the convective blueshifts in the active regions. Persistent active longitudes are revealed by the spot modelling. They rotate with slightly different periods yielding a minimum relative amplitude of the differential rotation of $\Delta\Omega/\Omega = 0.23 \pm 0.10$. Moreover, several active regions with an evolution timescale of $2 - 5$ days and an area of $0.1 - 0.3$ percent of the stellar disc are detected. The synthesized RV time series shows a remarkably good agreement with the observed one although variations on timescales shorter than $4 - 5$ days cannot be reproduced by our model (see Fig. **??** below). The method proves capable of reducing the power of the activity-induced RV variations by a factor from 2 to 10 at the rotation frequency and its harmonics up to the third. Thanks to the high-precision space-borne photometry delivered by CoRoT, Kepler, or later PLATO, it is possible to map the longitudinal distribution of active regions in late-type stars and apply the method presented in this paper to reduce remarkably the impact of stellar activity on their RV jitter allowing us to confirm the detection of low-mass planets or refine the measurement of their mass.

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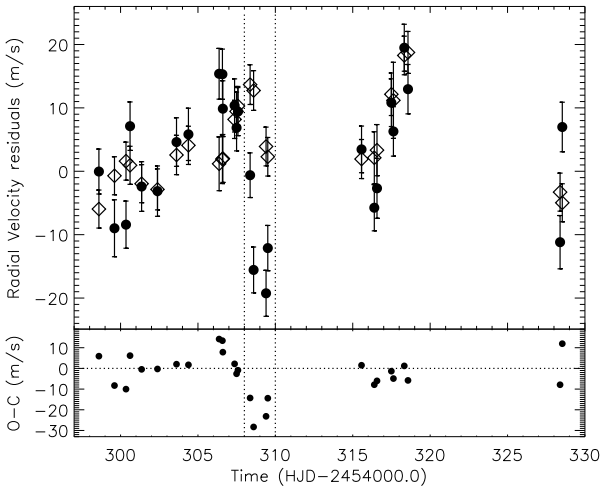

Figure 6: (Lanza et al.) *Upper panel:* The observed RV variations of HD 189733 due to stellar activity (filled dots) and the corresponding synthesized variations (open diamonds) versus time for the best fit model assuming only dark spots (no facular contribution). The vertical dotted lines mark the time interval with the steepest variations that cannot be fitted by our model. *Lower panel:* The difference between observed and synthesized variations vs. time.

GMRT search for 150 MHz radio emission from the transiting extrasolar planets HD189733 b and HD209458 b

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Astronomy & Astrophysics533, A50 (2011), arXiv:1108.3730

We report a sensitive search for meter-wavelength emission at 150 MHz from two prominent transiting extrasolar planets, HD189733b and HD209458b. To distinguish any planetary emission from possible stellar or background contributions, we monitored these systems just prior to, during, and after the planet's eclipse behind the host star. No emission was detected from HD209458 b with a 3σ upper limit of 3.6 mJy. For HD189733 b we obtain a 3σ upper limit of 2.1 mJy and a marginal 2.7σ detection of $\sim$1900$\pm$700 μJy from a direction just 13" from the star's coordinates (*i.e.*, within the beam), but its association with the planet remains unconfirmed. Thus, the present GMRT observations provide unprecedentedly tight upper limits for meter wavelengths emissions from these nearest two transiting type exoplanets. We point out possible explanations of the non-detections and briefly discuss the resulting constraints on these systems.

Download/Website: `http://arxiv.org/abs/1108.3730`

Contact: `lecaveli@iap.fr`

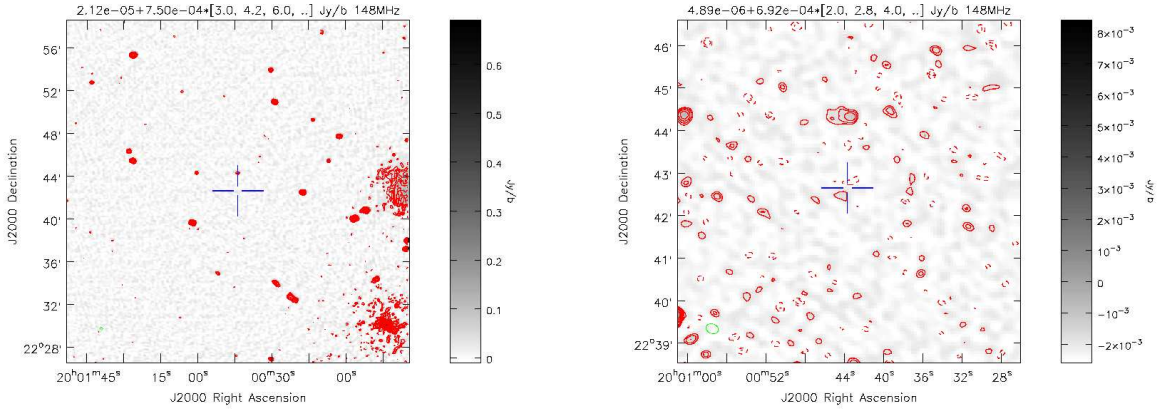

Figure 7: (Lecavalier des Etangs et al.) The HD189733 field at 150 MHz. The half-power beamwidth is $18'' \times 13''$ at a position angle of 70°. In the left panel the contour levels are at 3.0, 4.2, and 6.0 times the image RMS of 750 μJy per beam^{-1}. In the right panel the contour levels are at 2.0, 2.8, and 4.0 times the center field RMS of 690 μJy per beam^{-1}, showing the 2.7-σ source at $13''$ from HD189733 to the south east of the target position

High precision astrometry mission for the detection and characterization of nearby habitable planetary systems with the Nearby Earth Astrometric Telescope (NEAT)

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[36] SOFIA Science Center, NASA-Ames, MS 211-3,Moffett Field, CA 94035, USA

Experimental Astronomy, in press (arxiv:1107.3643)

A complete census of planetary systems around a volume-limited sample of solar-type stars (FGK dwarfs) in the Solar neighborhood ($d \leq 15\,pc$) with uniform sensitivity down to Earth-mass planets within their Habitable Zones out to several AUs would be a major milestone in extrasolar planets astrophysics. This fundamental goal can be achieved with a mission concept such as NEAT — the Nearby Earth Astrometric Telescope.
NEAT is designed to carry out space-borne extremely-high-precision astrometric measurements at the $0.05\ \mu$as (1σ) accuracy level, sufficient to detect dynamical effects due to orbiting planets of mass even lower than Earth's around the nearest stars. Such a survey mission would provide the actual planetary masses and the full orbital geometry for all the components of the detected planetary systems down to the Earth-mass limit. The NEAT performance limits can be achieved by carrying out differential astrometry between the targets and a set of suitable reference stars in

the field. The NEAT instrument design consists of an off-axis parabola single-mirror telescope (D = 1m), a detector with a large field of view located 40 m away from the telescope and made of 8 small movable CCDs located around a fixed central CCD, and an interferometric calibration system monitoring dynamical Young's fringes originating from metrology fibers located at the primary mirror. The mission profile is driven by the fact that the two main modules of the payload, the telescope and the focal plane, must be located 40 m away leading to the choice of a formation flying option as the reference mission, and of a deployable boom option as an alternative choice. The proposed mission architecture relies on the use of two satellites, of about 700 kg each, operating at L2 for 5 years, flying in formation and offering a capability of more than 20,000 reconfigurations. The two satellites will be launched in a stacked configuration using a Soyuz ST launch vehicle.

The NEAT primary science program will encompass an astrometric survey of our 200 closest F-, G- and K-type stellar neighbors, with an average of 50 visits each distributed over the nominal mission duration. The main survey operation will use approximately 70% of the mission lifetime. The remaining 30% of NEAT observing time might be allocated, for example, to improve the characterization of the architecture of selected planetary systems around nearby targets of specific interest (low-mass stars, young stars, etc.) discovered by Gaia, ground-based high-precision radial-velocity surveys, and other programs. With its exquisite, surgical astrometric precision, NEAT holds the promise to provide the first thorough census for Earth-mass planets around stars in the immediate vicinity of our Sun.

Download/Website: `http://neat.obs.ujf-grenoble.fr`

Contact: `Fabien.Malbet@obs.ujf-grenoble.fr`

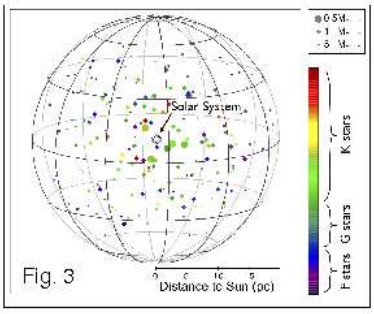

Fig. 3

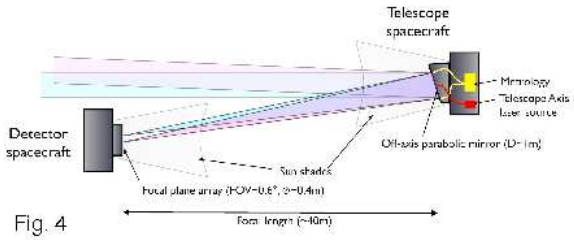

Fig. 4

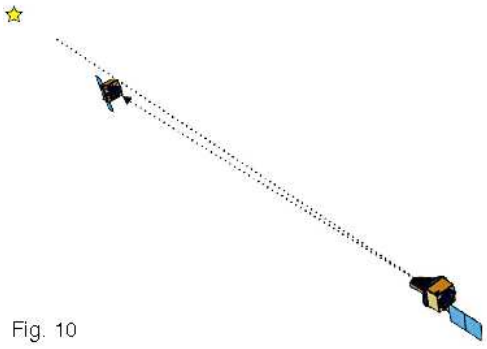

Fig. 10

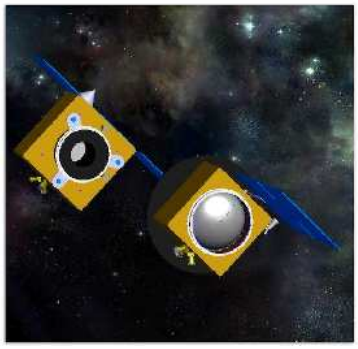

Figure 8: (Malbet et al.) *Upper left (Fig.3)* NEAT targets in the 3D sphere of our neighborhood (D up to $\sim$ 15 pc) corresponding to a volume limited sample of all stars with spectral types between F and K. *Upper right (Fig.4)* Proposed concept for a very high precision astrometry mission. It consists in two separated modules, the first one carrying the primary mirror and the second one the detector plane. *Bottom (Fig.10)* NEAT spacecraft in operation with the two satellites separated by 40m in formation flying and closer external view of the two satellites.

Homogeneous studies of transiting extrasolar planets. IV. Thirty systems with space-based light curves

John Southworth
Astrophysics Group, Keele University, Staffordshire, ST5 5BG, UK

Monthly Notices of the Royal Astronomical Society, in press (arXiv:1107.1235)

I calculate the physical properties of 32 transiting extrasolar planet and brown-dwarf systems from existing photometric observations and measured spectroscopic parameters. The systems studied include fifteen observed by the CoRoT satellite, ten by *Kepler* and five by the *Deep Impact* spacecraft. Inclusion of the objects studied in previous papers leads to a sample of 58 transiting systems with homogeneously measured properties. The *Kepler* data include observations from Quarter 2, and my analyses of several of the systems are the first to be based on short-cadence data from this satellite.
The light curves are modelled using the JKTEBOP code, with attention paid to the treatment of limb darkening, contaminating light, orbital eccentricity, correlated noise, and numerical integration over long exposure times. The physical properties are derived from the light curve parameters, spectroscopic characteristics of the host star, and constraints from five sets of theoretical stellar model predictions. An alternative approach using a calibration from eclipsing binary star systems is explored and found to give comparable results whilst imposing a much smaller computational burden.
My results are in good agreement with published properties for most of the transiting systems, but discrepancies are identified for CoRoT-5, CoRoT-8, CoRoT-13, Kepler-5 and Kepler-7. Many of the errorbars quoted in the literature are underestimated. Refined orbital ephemerides are given for CoRoT-8 and for the *Kepler* planets. Asteroseismic constraints on the density of the host stars are in good agreement with the photometric equivalents for HD 17156 and TrES-2, but not for HAT-P-7 and HAT-P-11.
Complete error budgets are generated for each transiting system, allowing identification of the observations best-suited to improve measurements of their physical properties. Whilst most systems would benefit from further photometry and spectroscopy, HD 17156, HD 80606, HAT-P-7 and TrES-2 are now extremely well characterised. HAT-P-11 is an exceptional candidate for studying starspots. The orbital ephemerides of some transiting systems are becoming uncertain and they should be re-observed in the near future.
The primary results from the current work and from previous papers in the series have been placed in an online catalogue, from where they can be obtained in a range of formats for reference and further study. TEPCat is available at `http://www.astro.keele.ac.uk/~jkt/tepcat/`

Download/Website: `http://www.astro.keele.ac.uk/~jkt/tepcat/`

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

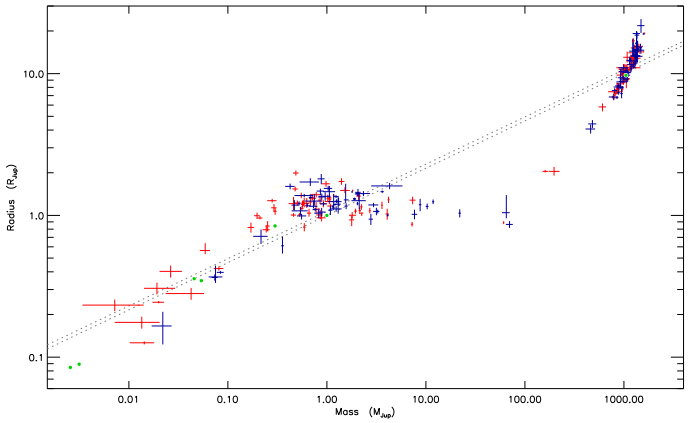

Figure 9: (Southworth) Plot of the masses versus the radii of all published transiting planets and their host stars. Blue crosses show the objects studied in the current series of papers and red crosses show results taken from the literature. The Solar system bodies are shown by green filled circles. The grey dotted lines show the loci where density is equal to that of Jupiter (upper line) or the Sun (lower line).

3 Conference announcements

Planets around Stellar Remnants

T. Henning[1]*, A. Wolszczan*[2]
[1] Max Planck Institute for Astronomy, Heidelberg, Germany
[2] Penn State University, Department of Astronomy & Astrophysics, University Park, PA, USA

Arecibo Observatory, Arecibo, Puerto Rico, January 23-27, 2012

This meeting will summarize our current understanding of planetary companions to subdwarfs, white dwarfs, neutron stars and black holes, 20 years after the announcement of planets around the millisecond pulsar, PSR B1257+12. Discussion will include the following general topics:

•Known stellar remnant planets and prospects for future detections
•Disks around white dwarfs and neutron stars
•Dynamics of planetary systems around evolving stars
•"Second chance" planet formation
•Habitability of planets around stellar remnants

Deadlines:

•Preregistration: September 30, 2011
•Registration: October 31, 2011
•Abstract submission: November 30, 2011

Download/Website: `http://www.mpia-hd.mpg.de/PLANETS2012/index.html`

Contact: `alex@astro.psu.edu`

Science with a Wide-field Infrared Telescope in Space *and* The 16th International Conference on Gravitational Microlensing

Caltech

Pasadena, CA, February 13-17, 2012

Please join us for this two-part, week long conference that capitalizes on the synergy between the top ranked space-based recommendation of the Astronomy and Astrophysics Decadal Survey report and the burgeoning field of microlensing. The conference will begin with two and a half days (Feb. 13-15) focusing on the scientific potential of observations with a wide-field infrared survey telescope in space to probe the nature of dark energy, conduct searches for exoplanets using gravitational microlensing, and as a general facility for wide-area surveys. The second half of the week (Feb. 15-17) will be the 16th in a series of conferences to discuss the latest results from microlensing searches and the perspectives opened by new methodologies and observational and computational facilities.

This meeting is being hosted by NASA, the Infrared Processing and Analysis Center (IPAC) at the California Institute of Technology, the Jet Propulsion Laboratory (JPL), and the Goddard Space Flight Center (GSFC). It will take place at the Pasadena Hilton.

Download/Website: `http://ipac.caltech.edu/wfir2012/`

Contact: `wfir2012@ipac.caltech.edu`

NEAT 2011 Workshop

F. Malbet on behalf of the NEAT consortium

Institut de Planétologie et d'Astrophysique de Grenoble (IPAG: ex-LAOG), France, 21-22 November 2011

The NEAT (Nearby Earth Astrometric Telescope) mission is a proposition that has been submitted to ESA for its 2010 call for M-size mission within the Cosmic Vision 2015-2025 plan. The main scientific goal of the NEAT mission is to detect and characterize planetary systems in an exhaustive way down to 1 Earth mass in the habitable zone and further away, around nearby stars for F, G, and K spectral types. This survey would provide the actual planetary masses, the full characterization of the orbits including their inclination, for all the components of the planetary system down to that mass limit. The main science drivers are identification of Terrestrial planets in the habitable zone of nearby solar-type stars, constraints for planetary formation scenario, interaction of planets in planetary systems, exploration of a new part of the parameter space to understand the diversity of exoplanets.
The consortium that supported this proposal includes 67 scientists mainly from Europe. We felt that the science cases of this mission are very compelling even though the technical maturity is not yet achieved. With the aim of proposing again this mission at the next ESA-CV call for proposal, but also of looking at other versions at different scales (precursors), we organize a 2-day workshop to discuss the science and the instrument aspects. This workshop is open to anybody interested by the potentiality of high precision astrometry for exoplanet science.
The format of the workshop will leave a lot of time for discussion and also for bringing new ideas. We plan to have 1.5h panel discussions on different topics where the participants will have the opportunity to show approximately 5 slides in order to introduce the discussion. We are also open for new contributions. We will not request any organizational fee, but each participant should take care of his/her own accommodation (a list of hotels will be provided). Lunches will be provided for both days.

Registration There is no fee registration. If you are interested to join and participate to the discussions, please contact the workshop organizer Fabien Malbet (`Fabien.Malbet@obs.ujf-grenoble.fr`).

Preliminary Program

Monday 21 November - **Science Day**

09:30 ***Introduction*** *to the NEAT proposal* - F. Malbet
10:00 **Science case 1** (1.5h): *Constraints for the formation of planetary systems and orbits evolution*,
Chairman : R. Liseau
Participants : C. Mordasini / Y. Alibert - *initial mass function*, S. Raymond (TBC) - *system evolution*, J. Laskar (TBC) / N. Rambaux - *orbit interaction*, A.Crida - *origin of Solar System*, H. Beust (TBC) - *orbit evolution*
11:30 **Science case 2** (1.5h): *identification of Terrestrial planets in the habitable zone of nearby solar-type stars*
Chairman : C. Eiroa
Participants : A. Lger, M. Shao, D. Queloz, C. Cockell (TBC), L. Kaltenegger (TBC)
13:00 Lunch buffet (1h)
14:00 **Science case 3** (1.5h): *diversity of exoplanets (different stellar hosts, various ages, types of planets,...)*
Chairman : A. Sozzetti
Participants : C. Beichman (TBC), M. Lattanzi (TBC), J. Bouvier - young stars, A.-M. Lagrange - A stars, D. Sgransan (TBC) - M stars, O. Absil (TBC) - debris disks

15:30 **Science issues** (1h)
Chairman : A. Lger
Participants : N. Meunier / A.-M. Lagrange - *stellar activity*, A. Sozetti - *planetary systems around background reference stars*, F. Baudin (TBC) - *activity of background reference K giants*
16:30 **Science case 4** (1.5h): additional science cases
Chairman : A. Quirrenbach
Participants : E. Moraux (TBC) - *young stellar cluster dynamics*, P. Tanga (TBC) - *near Earth objects*, G. Dubus - *compact galactic objects*, H. Rottgering - *active galactic nuclei*, M. Shao - *planetary navigation*,....
18:00 ESA Cosmic Vision: M. McCaughrean (TBC), W. Benz (TBC)
18:30 Other contributions
20:00 Workshop dinner in town

Tuesday 22 November - **Instrument Day**

09:00 **NEAT instrument proposal** (2h)
Chairman: L. Labadie
+ *4 main requirements for ultra-high precision differential astrometry* - M. Shao (15')
+ *Payload concept* - F. Malbet (15')
+ *Present status of lab demonstration* - C. Ziang, P. Kern (30')
+ *Spacecraft system requirements* - R. Goullioud (15')
+ Questions/Discussion (15')
11:00 **Instrument/Mission discussion** (2h)
Chairman: P.-O. Lagage
+ *Error budget and scaling (including effect of pixel size)* - R. Goullioud (10')
+ *Available technology: PRISMA results* - B. Jakobsson (15')
+ *Comparison between formation flying and deployable boom options* - E. Hinglais (TBC) (15')
+ *Detector requirements* - Ph. Feautrier (10')
+ *Effects of radiation* - A. Brown (10')
+ *Scaling options* - L. Labadie (10')
+ *Baffling against scattered light* - M. Shao (10')
+ *Mission operation: number of pointings, number of visits* - A. Lger (10')
+ Questions/discussion (30')
13:00 Lunch buffet (1h)
14:00 **Discussion of possible actions** (2h)
Double Blind test study (1h)
Chairman : W. Traub
Participants : A. Lger, A.-M. Lagrange, A. Sozzetti, G. Duvert (TBC)
NEAT precursors: balloon experiment, smaller mission,... for which science (1h)
Chairman : D. Mouillet (TBC)
Participants : M. Shao, R. Goullioud
16:00 List of actions and conclusion of the workshop (1h) - F. Malbet.
17:00 End of the workshop

Download/Website: `http://neat.obs.ujf-grenoble.fr/NEAT2011WS.html`
Contact: `Fabien.Malbet@obs.ujf-grenoble.fr`

4 Jobs and Positions

Tenure track assistant professor for astronomy / planetary sciences

W. Benz
Center for Space and Habitabilty, Sidlerstrasse 5, 3012 Berne, Switzerland

Berne, Due: November 15, 2011; Start: Fall 2012

The successful candidate should have an outstanding research record in planetary evolution. A focus on habitability and its potentially detectable signatures would be of particular interest. She/he is expected to contribute to the multi-disciplinary research activities of the newly created Centre for Space and Habitability, to participate actively in the teaching of physics at both the undergraduate and graduate level, and to attract external funding. Expected starting date: Fall 2012.

The current scientific research of the division is in the field of the origin and characterization of the solar and extra-solar planets and planetary systems. This includes the in-situ and remote exploration of planets, satellites, small bodies of the solar system, laboratory investigations of meteorites and the theory of planet formation. Within the Centre, there is the potential for collaboration with activities in atmospheric physics, climate physics, geophysical processes, cosmochemistry and life sciences.

The University of Bern particularly encourages women to apply for this position.

Applications (in English) including a curriculum vitae, a list of publications, copies of the five most relevant publications, and an outline of current and planned future research should be sent as a single PDF file or as a hard copy by November 15, 2011 to: Prof. S. Decurtins, Dean, Faculty of Science, University of Berne, Sidlerstrasse 5, CH-3012 Berne (Switzerland), e-mail:dekan@natdek.unibe.ch.

Download/Website: `http://www.space.unibe.ch`

Contact: `wbenz@space.unibe.ch`

Postdoctoral Researcher in Theory of Brown Dwarf and Planetary Atmospheres

C. Helling
University of St Andrews, UK

St Andrews, 28 October 2011

The School of Physics & Astronomy of the University of St Andrews is seeking an ambitious postdoctoral researcher to work on brown dwarf and planetary atmosphere theory.
Applications are invited for an active postdoctoral researcher in the area of charge separation and discharge processes to be applied to brown dwarfs and planetary atmospheres. The applicant will be part of a newly forming research group LEAP (www.leap-2010.eu) that studies charge processes in planetary atmospheres and is funded by the European Research Council under the FP7 work program Ideas.
The successful candidate is expected to play a leading role in modelling non-equilibrium gas-phase chemistry under the influence of charge processes in a dusty environment.
The School of Physics & Astronomy of the University of St Andrews offers a young, vibrant and modern work environment with 40% of the astronomy staff members and 57% of the postdoctoral researchers being women. The research in St Andrews combines theoretical, numerical and observational research in extra-solar planets, in protoplanetary disk, in star formation, in magnetic activity, and in star-planet interaction as well as in gravitational lensing and galaxy dynamics.
Applicants for this position should have a PhD in astronomy, astrophysics, or a closely related field. The appointment will be for an initial period of two years with a likely extension to a total of three years, and is in collaboration with Dr Christiane Helling funded by an ERC starting grant with funds for computing, publications, travel, etc.

The ideal starting date is 1 March 2012. For further enquiries, please contact Christiane Helling (Christiane.Helling@st-andrews.ac.uk).
Candidates should send a CV, publication list, and a brief statement of research interest by Friday, 28 October 2011, and arrange for two letters of reference to be sent by the referees by the same date. Interviews will be held in early December 2011. We encourage online application https://www.vacancies.st-andrews.ac.uk/, if you are unable to do this, call +44 (0)1334 462571 for an application pack.
The University of St Andrews is an equal opportunity employer.

Download/Website: `www.leap-2010.eu`

Contact: `ch80@st-and.ac.uk`

2012 NASA Sagan Fellowship Program

Dawn M. Gelino, NASA Exoplanet Science Institute

Applications Due: Nov. 3, 2011, Start Date: Fall 2011

The NASA Exoplanet Science Institute announces the 2012 Sagan Postdoctoral Fellowship Program and solicits applications for fellowships to begin in the Fall of 2012.

The Sagan Fellowships support outstanding recent postdoctoral scientists to conduct independent research that is broadly related to the science goals of the NASA Exoplanet Exploration area. The primary goal of missions within this program is to discover and characterize planetary systems and Earth-like planets around nearby stars.

The proposed research may be theoretical, observational, or instrumental. This program is open to applicants of any nationality who have earned (or will have earned) their doctoral degrees on or after January 1, 2009, in astronomy, physics, or related disciplines. The fellowships are tenable at U.S. host institutions of the fellows' choice, subject to a maximum of one new fellow per host institution per year. The duration of the fellowship is up to three years: an initial one-year appointment and two annual renewals contingent on satisfactory performance and availability of NASA funds.

Note: Starting with the call for 2012 Sagan Fellows, we are accepting the submission of up to two host institutions. The purpose of designating first and second-choice institutions in the application is to provide the program with flexibility should there be several highly ranked applications at any single institution.

The Announcement of Opportunity, which includes detailed program policies and application instructions is available at the web site: http://nexsci.caltech.edu/sagan/fellowship.shtml

Applicants must follow the instructions given in this Announcement. Applications must be submitted electronically through the above website. Inquiries about the Sagan Fellowships may be directed to saganfellowship@ipac.caltech.edu

The deadline for both applications and letters of reference is Thursday, November 3, 2011. Offers will be made before February 1, 2012 and new appointments are expected to begin on or about September 1, 2012.

Download/Website: `http://nexsci.caltech.edu/sagan/fellowship.shtml`

Contact: `saganfellowship@ipac.caltech.edu`

PhD position in Theory of Brown Dwarf and Planetary Atmospheres

C. Helling
University of St Andrews, UK

St Andrews, 1 November 2011

The School of Physics & Astronomy of the University of St Andrews (www.st-andrews.ac.uk) offers a PhD position on brown dwarf and planetary atmosphere theory.
We are looking for an excellent graduate student. The graduate student will be part of a newly forming research group LEAP (www.leap-2010.eu) that studies charge processes in planetary atmospheres and is funded by the European Research Council under the FP7 work program Ideas. The PhD student will benefit from the SUPA graduate school, the university's GradSkill program as well as from the lively atmosphere in the department.
The School of Physics & Astronomy of the University of St Andrews offers a young, vibrant and modern work environment with 40% of the astronomy staff members being women. The research in St Andrews combines theoretical, numerical and observational research in extra-solar planets, in protoplanetary disk, in star formation, in magnetic activity, and in star-planet interaction as well as in gravitational lensing and galaxy dynamics.
Applicants for this graduate position should have a degree in astronomy, astrophysics, or a closely related field. The graduate student will work under the supervision of Dr Christiane Helling funded by an ERC starting grant with funds for computing, publications, travel, etc.
The ideal starting date is 1 March 2012. For further enquiries, please contact Christiane Helling (Christiane.Helling@st-andrews.ac.uk).
Candidates should send a CV, publication list, and a brief statement of research interest (max. 1 A4 page) to Dr Helling by Tuesday, 1 November 2011, and arrange for two letters of reference to be sent by the referees by the same date. Interviews will be held in early December 2011

Download/Website: `www.leap-2010.eu`

Contact: `ch80@st-and.ac.uk`

PhD position in Astrochemistry and Protoplanetary Disk Research

Inga Kamp
Kapteyn Astronomical Institute, University of Groningen, The Netherlands

Kapteyn Astronomical Institute, 1.1.2012

The Kapteyn Astronomical Institute in Groningen is seeking an ambitious, highly motivated applicant for a 4-year PhD position in Star and Planet Formation to work with Dr. Inga Kamp. The research of the prospective PhD student will include the exploitation of protoplanetary disk observations and modeling, ranging from X-ray to millimetre wavelengths (XMM, HST, VLT, Spitzer, Herschel, JCMT, eMerlin, and ALMA), to study how stellar radiation and planet formation impact disk evolution.

The research is funded by FP7-SPACE-2011, exploitation of space exploration data, collaborative project #284405 ("DiscAnalysis"), and will be carried out simultaneously in five different European institutions in the Netherlands, France, Austria, and coordinated from St Andrews. Applicants will take part in outreach activities and in an exchange programme to visit the participating institutes for the duration of several weeks each.

The Kapteyn Astronomical Institute is part of the Netherlands Research School for Astronomy and belongs to the top research institutions in Astronomy worldwide. Research topics in Groningen currently include cosmology, galaxy evolution, star and planet formation and interstellar matter.

Interested applicants should have a very good academic track record and hold the equivalent of a Masters degree, including a substantial thesis, in Astronomy or Physics when starting the position. Previous numerical or

observational experience would be an asset and the ability to work in a team is an important factor for the choice of candidates. Interested candidates should send application material, including curriculum vitae, education history with transcripts of study record, and a brief statement of research experience. Please arrange for two letters of reference to be sent directly to the address below.

Selection of candidates will start September 15, 2011, and will continue until the position is filled. Please send your applications to

Dr. Inga Kamp
Kapteyn Astronomical Institute
Postbus 800
9700 AV Groningen
The Netherlands
Tel: +31 (0)50 363 4070, email: kamp@astro.rug.nl

For inquiries about the position or project, please contact Dr. Kamp. For further information on the Kapteyn Astronomical Institute, please visit the webpages at http://www.rug.nl/sterrenkunde/.

Download/Website: `http://www.rug.nl/sterrenkunde/`

Contact: `kamp@astro.rug.nl`

5 Announcements

Fizeau exchange visitors program in optical interferometry - call for applications

European Interferometry Initiative

www.european-interferometry.eu, application deadline: Sept. 15

The Fizeau exchange visitors program in optical interferometry funds (travel and accommodation) visits of researchers to an institute of his/her choice (within the European Community) to perform collaborative work and training on one of the active topics of the European Interferometry Initiative. The visits will typically last for one month, and strengthen the network of astronomers engaged in technical, scientific and training work on optical/infrared interferometry. The program is open for all levels of astronomers (Ph.D. students to tenured staff).

The deadline for applications is the 15th September for visits starting 1st of November.

Further informations and application forms can be found at: www.european-interferometry.eu
The program is funded by OPTICON/FP7.

Looking forward to your applications,
Josef Hron & Laszlo Mosoni
(for the European Interferometry Initiative)

Download/Website: `http://www.european-interferometry.eu`

Contact: `fizeau@european-interferometry.eu`

The Habitable Zone Gallery

Stephen R. Kane & Dawn M. Gelino
NASA Exoplanet Science Institute, Caltech, MS 100-22, 770 South Wilson Avenue, Pasadena, CA 91125, USA

The Habitable Zone Gallery (www.hzgallery.org) is a new service to the exoplanet community which provides Habitable Zone (HZ) information for each of the exoplanetary systems with known planetary orbital parameters. The service includes a sortable table with information on the percentage of orbital phase spent within the HZ, planetary effective temperatures, and other basic planetary properties. In addition to the table, we also plot the period and eccentricity of the planets with respect to their time spent in the HZ. Finally, we provide a gallery of known systems which plot the orbits and the location of the HZ with respect to those orbits. We welcome feedback and suggestions.

Download/Website: `http://www.hzgallery.org/`

Contact: `skane@ipac.caltech.edu,dawn@ipac.caltech.edu`

2012A NASA Keck Call for Proposals

Dawn M. Gelino, NASA Exoplanet Science Institute

Proposals Due: September 15, 2011, 4 pm PDT

NASA is soliciting proposals to use the Keck Telescopes for the 2012A observing semester (February - July 2012). The opportunity to propose as Principal Investigators for the NASA time on the Keck Telescopes is open to all U.S.-based astronomers ("U.S.-based astronomers" have their principal affiliation at a U.S. institution).

NASA intends the use of the Keck telescopes to be highly strategic in support of on-going space missions and/or high priority, long term science goals. NASA Keck time is open to a wide range of disciplines including exoplanets and solar system topics, galactic, and extragalactic topics, cosmology and high energy astrophysics.

This is the last semester that the Keck Interferometer will be available. This semester and continuing into future semesters, there is limited time available for observations of targets based on public Kepler data or data obtained through the Kepler Guest Observer programs. In addition, the call for CoRoT Key Science has been extended to semester 2012B. Proposals are also sought in the following discipline areas: (1) investigations in support of EXOPLANET EXPLORATION science goals and missions; (2) investigations of our own SOLAR SYSTEM; (3) investigations in support of COSMIC ORIGINS science goals and missions; (4) investigations in support of PHYSICS OF THE COSMOS science goals and missions; and (5) direct MISSION SUPPORT.

The proposal process is being handled by the NASA Exoplanet Science Institute (NExScI) at Caltech and **all proposals are due on 15 September 2011 at 4 pm PDT**. Please see the website http://nexsci.caltech.edu/missions/KeckSolicitation/index.shtml for further information and the proposal submission site.

Download/Website: `http://nexsci.caltech.edu/missions/KeckSolicitation/index.shtml`

Contact: `KeckCFP@ipac.caltech.edu`

6 As seen on astro-ph

The following list contains all the entries relating to exoplanets that we spotted on astro-ph during July and August 2011. If you see any that we missed, please let us know and we'll include them in the next issue.

Exoplanets

astro-ph/1107.1239: **The Great Escape: How Exoplanets and Smaller Bodies Desert Dying Stars** by *Dimitri Veras, Mark C. Wyatt, Alexander J. Mustill et al*

astro-ph/1107.2032: **Transiting exoplanets from the CoRoT space mission. XVIII. CoRoT-18b: a massive hot jupiter on a prograde, nearly aligned orbit** by *G. Hebrard, T.M. Evans, R. Alonso et al*

astro-ph/1107.2113: **A natural formation scenario for misaligned and short-period eccentric extrasolar planets** by *IngoThies, Pavel Kroupa, Simon P. Goodwin et al*

astro-ph/1107.2596: **The First Kepler Mission Planet Confirmed With The Hobby-Eberly Telescope: Kepler-15b, a HotJupiter Enriched In Heavy Elements** by *Michael Endl, Phillip J. MacQueen, William D. Cochran et al*

astro-ph/1107.2804: **Magnetic Fields in Earth-like Exoplanets and Implications for Habitability around M-dwarfs** by *Mercedes Lopez-Morales, Natalia Gomez-Perez, Thomas Ruedas*

astro-ph/1107.2920: **Starspots, spin-orbit misalignment, and active latitudes in the HAT-P-11 exoplanetary system** by *Roberto Sanchis-Ojeda, Joshua N. Winn*

astro-ph/1107.3180: **Radio Interferometric Planet Search II: Constraints on sub-Jupiter-Mass Companions to GJ 896A** by *Geoffrey C. Bower, Alberto Bolatto, Eric B. Ford et al*

astro-ph/1107.3700: **Venus transit 2004: Illustrating the capability of exoplanet transmission spectroscopy** by *P. Hedelt, R. Alonso, T. Brown et al*

astro-ph/1107. 4047: **A Bayesian Surrogate Model for Rapid Time Series Analysis and Application to Exoplanet Observations** by *Eric B. Ford, Althea V. Moorhead, Dimitri Veras*

astro-ph/1107.4488: **Tidal interactions in multi-planet systems** by *J.C.B. Papaloizou*

astro-ph/1107.4720: **How Close Are We To Detecting Earth-like Planets in the Habitable Zone Using the Radial Velocity Technique?** by *Ji Wang, Jian Ge*

astro-ph/1107.5325: **The HARPS search for southern extra-solar planets. XXXI. Magnetic activity cycles in solar-type stars: statistics and impact on precise radial velocities** by *C. Lovis, X. Dumusque, N.C. Santos et al*

astro-ph/1107.5750: **The hot-JupiterKepler-17b: discovery, obliquity from stroboscopic starspots, and atmospheric characterization** by *Jean-Michel Desert, David Charbonneau, Brice-Olivier Demory et al*

astro-ph/1107.5940: **Search for star-planet interaction** by *Tereza Krejcova, Jan Budaj, Julius Koza*

astro-ph/1107.6005: **The Radial Velocity Signature of Tides Raised in Stars Hosting Exoplanets** by *Phil Arras, Joshua Burkart, Eliot Quataert et al*

astro-ph/1108.0031: **Super-Earths: A New Class of Planetary Bodies** by *Nader Haghighipour*

astro-ph/1108.0360: **Treating dynamical stability as an observable: a 5:2 MMR configuration for the extrasolar system HD 181433** by *Giammarco Campanella*

astro-ph/1108.0550: **SOPHIE velocimetry of Kepler transit candidates IV. KOI-196b: a non-inflated hot-Jupiter with a high albedo** by *A. Santerne, A. S. Bonomo, G. Hebrard et al*

astro-ph/1108.1190: **"Retired" Planet Hosts: Not So Massive, Maybe Just Portly After Lunch** by *James P. Lloyd*

astro-ph/1108.1290: **Characterizing exoplanetary atmospheres through infrared polarimetry** by *R.J. de Kok, D.M. Stam, T. Karalidi*

astro-ph/1108.1565: **Rocky Extrasolar Planetary Compositions Derived from Externally-Polluted White Dwarfs** by *B. Klein, M. Jura, D. Koester et al*

astro-ph/1108.1803: **Detectability of Exoplanet Periastron Passage in the Infra-Red** by *Stephen R. Kane, Dawn M. Gelino*

astro-ph/1108.2057: **Analysis of Exoplanet HD 149026b Using BLISS Mapping** by *Kevin B. Stevenson, Joseph Harrington, Jonathan Fortney et al*
astro-ph/1108.2297: **Detection of visible light from the darkest world** by *David M. Kipping, David S. Spiegel*
astro-ph/1108.2308: **TERMS Photometry of Known Transiting Exoplanets** by *Diana Dragomir, Stephen R. Kane, Genady Pilyavsky et al*
astro-ph/1108.2641: **WASP-50b: a hot Jupiter transiting a moderately active solar-type star** by *M. Gillon, A. P. Doyle, M. Lendl et al*
astro-ph/1108.2719: **An All-Sky Catalog of Bright M Dwarfs** by *Sebastien Lepine, Eric Gaidos et al*
astro-ph/1108.3205: **Mass and orbit constraints of the gamma-ray binary LS 5039** by *T. Szalai, G. E. Sarty, L. L. Kiss et al*
astro-ph/1108.3324: **Debris disc candidates in systems with transiting planets** by *Alexander V. Krivov, Martin Reidemeister, Simone Fiedler et al*
astro-ph/1108.3572: **TrES-5: A Massive Jupiter-sized Planet Transiting A Cool G-dwarf** by *Georgi Mandushev, Samuel N.Quinn, Lars A. Buchhave et al*
astro-ph/1108.3592: **Magnetic Scaling Laws for the Atmospheres of Hot Giant Exoplanets** by *Kristen Menou*
astro-ph/1108.3730: **GMRT search for 150 MHz radio emission from the transiting extrasolar planets HD189733b and HD209458b** by *A. Lecavelier des Etangs, S. K. Sirothia, Gopal-Krishna et al*
astro-ph/1108.3822: **Tidal asteroseismology: Kepler's KOI-54** by *Joshua Burkart, Eliot Quataert, Phil Arras et al*
astro-ph/1108.3952: **Quantitative spectroscopy of close binary stars** by *K. Pavlovski, J. Southworth*
astro-ph/1108.3996: **High precision transit observations of the exoplanet WASP-13b with the RISE instrument** by *S. C. C. Barros, D. L. Pollacco, N. P. Gibson et al*
astro-ph/1108.4423: **Twenty-One New Light Curves of OGLE-TR-56b: New System Parameters and Limits on Timing Variations** by *E. R. Adams, M. Lopez-Morales, J. L. Elliot et al*
astro-ph/1108.4430: **Improved Modeling of the Rossiter-McLaughlin Effect for Transiting Exoplanets** by *Teruyuki Hirano, Yasushi Suto, Joshua N. Winn et al*
astro-ph/1108.4452: **Variability of Young Massive Stars in the Arches Cluster: Accurate Photometry with Adaptive Optics** by *K. Markakis, A.Z. Bonanos, G. Pietrzynski et al*
astro-ph/1108.4453: **Fundamental Parameters of four Massive Eclipsing Binaries in Westerlund 1** by *E. Koumpia, A.Z. Bonanos*
astro-ph/1108.4493: **Further Observation of the Tilted Planet XO-3: A New Determination of Spin-orbit Misalignment, a Possible Third Body, and Limits on Differential Rotation** by *Teruyuki Hirano, Norio Narita, Bun'ei Sato et al*
astro-ph/1108.4557: **Signals of exomoons in averaged light curves of exoplanets** by *A.E. Simon, Gy.M. Szabo, L.L. Kiss et al*
astro-ph/1108.4660: **Vaporization of the Earth: Application to Exoplanet Atmospheres** by *Laura Schaefer, Katharina Lodders, Bruce Fegley, Jr*
astro-ph/1108.5255: **New photometricobservations of the transiting extrasolar planet TrES-3b** by *M.Vanko, M.Jakubik, T.Krejcova et al*

Disks

astro-ph/1107. 2774: **Corotation torques experienced by planets embedded in weakly magnetized turbulent discs** by *C. Baruteau, S. Fromang, R. P. Nelson et al*
astro-ph/1107. 3844: **Range of outward migration and influence of the disc's mass on the migration of giant planetcores** by *Bertram Bitsch, Willy Kley*
astro-ph/1107. 4069: **Protoplanetary Disk Resonances and Type I Migration** by *David Tsang*
astro-ph/1107.4885: **Occurrence of the 2:1 commensurability in a gas giant-Super-Earth system** by *E. Podlewska-Gaca, E. Szuszkiewicz*

astro-ph/1107.5198: **The outcome of protoplanetary dust growth: pebbles, boulders, or planetesimals? III. Sedimentation driven coagulation inside the snow-line** by *A. Zsom, C.W. Ormel,C.P. Dullemond et al*
astro-ph/1108.0805: **Breaking the Ice: Planetesimal Formation at the Snowline** by *Guillem Aumatell, Gerhard Wurm*
astro-ph/1108.1396: **The Transit Light Curve of an Exozodiacal Dust Cloud** by *Christopher C. Stark*
astro-ph/1108.4736: **Residence Times of Particles in Diffusive Protoplanetary Disk Environments II. Radial Motions and Applications to Dust Annealing** by *Fred J. Ciesla*
astro-ph/1108.4892: **Modeling Magnetorotational Turbulence in Protoplanetary Disks with Dead Zones** by *Satoshi Okuzumi, Shigenobu Hirose*
astro-ph/1108.5382: **Hydrodynamic outcomes of planet scattering in transitional discs** by *Nickolas Moeckel, Philip J. Armitage*

Instrumentation and Techniques

astro-ph/1107.0967: **M-band Imaging of the HR 8799 Planetary System Using an Innovative LOCI-based Background Subtraction Technique** by *Raphael Galicher, Christian Marois, Bruce Macintosh et al*
astro-ph/1107.1666: **Potential Biases in the Detection of Planetary Systems with Large Transit Timing Variations** by *Enrique Garcia-Melendo, Mercedes Lopez-Morales*
astro-ph/1107.1933: **The NStED Periodogram Service and Interface for Public CoRoT Data** by *K. von Braun, M. Abajian, A. Beekley et al*
astro-ph/1107.4626: **Imaging power of multi-fibered nulling telescopes for extra-solar planet characterization** by *Francois Henault*
astro-ph/1107.5207: **Kepler Mission Stellar and Instrument Noise Properties** by *Ronald L. Gilliland, William J. Chaplin, Edward W. Dunham et al*
astro-ph/1107.5805: **Rotating Stars and Revolving Planets: Bayesian Exploration of the Pulsating Sky** by *Thomas J. Loredo*
astro-ph/1108.0020: **Bayesian Methods for Analysis and Adaptive Scheduling of Exoplanet Observations** by *Thomas J. Loredo, James O. Berger, David F. Chernoff et al*
astro-ph/1108.0509: **Photometry of Variable Stars from Dome A, Antarctica** by *Lingzhi Wang, Lucas M. Macri, Kevin Krisciunas et al*
astro-ph/1108.2199: **STRESS - STEREOTRansiting Exoplanet and Stellar Survey - I : Introduction and Data Pipeline** by *Vinothini Sangaralingam, Ian R Stevens*
astro-ph/1108.2975: **Synthetic Spectra and Light Curves of Interacting Binaries and Exoplanets with Circumstellar Material: SHELLSPEC** by *Jan Budaj*
astro-ph/1108.2976: **Homogeneous studies of transiting planets: an online catalogue** by *John Southworth*
astro-ph/1108.3134: **Status of the UC-Berkeley SETI Efforts** by *Eric J. Korpela, David P. Anderson, Robert Bankay et al*
astro-ph/1108.3157: **The SPICA coronagraphic instrument (SCI) for the study of exoplanets** by *K. Enya, T. Kotani, K. Haze et al*
astro-ph/1108.4196: **PIRATE: A Remotely-Operable Telescope Facility for Research and Education** by *S. Holmes, U. Kolb, C. A. Haswell et al*
astro-ph/1108. 5841: **Testing a FastDynamical Indicator: The MEGNO** by *Nicolas Maffione, Claudia Giordano, Pablo Cincotta*