ExoPlanet News
An Electronic Newsletter

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Contents

1 Editorial

Welcome to the sixth edition of ExoPlanet News, an electronic newsletter reporting the latest developments and research outputs in the field of exoplanets.

Past editions, submission templates and other information can be found at the ExoPlanet News website: http://exoplanet.open.ac.uk . As ever, we rely on you, the subscribers of the newsletter, to send us your abstracts of recent papers, conference announcements, thesis abstracts, job adverts etc for each edition. Please send anything relevant to exoplanet@open.ac.uk, and it will appear in the next edition which we plan to send out close to the beginning of each calendar month.

Best wishes
Andrew Norton & Glenn White

2 Abstracts of refereed papers

Modelling solar-like variability for the detection of Earth-like planetary transits. I. Performance of the three-spot modelling and harmonic function fitting

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Astronomy & Astrophysics, in press (arXiv:0802.2990v1)

We present a comparison of two methods of fitting solar-like variability to increase the efficiency of detection of Earth-like planetary transits across the disk of a Sun-like star. One of them is the harmonic fitting method that coupled with the BLS detection algorithm demonstrated the best performance during the first CoRoT blind test. We apply a Monte Carlo approach by simulating a large number of light curves of duration 150 days for different values of planetary radius, orbital period, epoch of the first transit, and standard deviation of the photon shot noise. Stellar variability is assumed in all the cases to be given by the Total Solar Irradiance variations as observed close to the maximum of solar cycle 23. After fitting solar variability, transits are searched for by means of the BLS algorithm. We find that a model based on three point-like active regions is better suited than a best fit with a linear combination of 200 harmonic functions to reduce the impact of stellar microvariability provided that the standard deviation of the noise is $2-4$ times larger than the central depth of the transits. On the other hand, the 200-harmonic fit is better when the standard deviation of the noise is comparable to the transit depth. Our results show the advantage of a model including a simple but physically motivated treatment of stellar microvariability for the detection of planetary transits when the standard deviation of the photon shot noise is greater than the transit depth and stellar variability is analogous to solar irradiance variations.

Download/Website: `http://arxiv.org/abs/0802.2990`

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Magnetic cycles of the planet-hosting star τ Bootis

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Monthly Notices of the Royal Astronomical Society, in press (2008MNRAS.tmp..231D ; arxiv/0802.1584)

We have obtained new spectropolarimetric observations of the planet-hosting star τ Bootis, using the ESPaDOnS and NARVAL spectropolarimeters at the Canada-France-Hawaii Telescope (CFHT) and Tlescope Bernard Lyot (TBL).

With this data set, we are able to confirm the presence of a magnetic field at the surface of τ Boo and map its large-scale structure over the whole star. The large-scale magnetic field is found to be fairly complex, with a strength of up to 10 G; it features a dominant poloidal field and a small toroidal component, the poloidal component being significantly more complex than a dipole. The overall polarity of the magnetic field has reversed with respect to our previous observation (obtained a year before), strongly suggesting that τ Boo is undergoing magnetic cycles similar to those of the Sun. This is the first time that a global magnetic polarity switch is observed in a star other than the Sun; given the infrequent occurrence of such events in the Sun, we speculate that the magnetic cycle period of τ Boo is much shorter than that of the Sun.

Our new data also allow us to confirm the presence of differential rotation, both from the shape of the line profiles and the latitudinal shearing that the magnetic structure is undergoing. The differential rotation surface shear that τ Boo experiences is found to be 6 to 10 times larger than that of the Sun, in good agreement with recent claims that differential rotation is strongest in stars with shallow convective zones. We propose that the short-magnetic cycle period is due to the strong level of differential rotation.

With a rotation period of 3.0 and 3.9 d at the equator and pole, respectively, τ Boo appears as the first planet-hosting star whose rotation (at intermediate latitudes) is synchronized with the orbital motion of its giant planet (period 3.3 d). Assuming that this synchronization is not coincidental, it suggests that the tidal effects induced by the giant planet can be strong enough to force the thin convective envelope (though not the whole star) into corotation.

We also detect time-dependent activity fluctuations on τ Boo, but cannot unambiguously determine whether they are intrinsic to the star or induced by the planet; more observations of similar type are needed to determine the role of the close-in giant planet orbiting τ Boo on both the activity enhancements and the magnetic cycle of the host star.

Download/Website: `http://xxx.lanl.gov/abs/0802.1584`

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Consistent simulations of substellar atmospheres and non-equilibrium dust-cloud formation

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Astrophysical Journal Letters, in press (arXiv:0801.3733)

We aim to understand cloud formation in substellar objects. We combined the non-equilibrium, stationary cloud model of Helling, Woitke & Thi (2008; seed formation, growth, evaporation, gravitational settling, element conservation) with the general-purpose model atmosphere code PHOENIX (radiative transfer, hydrostatic equilibrium, mixing length theory, chemical equilibrium) in order to consistently calculate cloud formation and radiative transfer with their feedback on convection and gas phase depletion. We calculate the complete 1D model atmosphere structure and the chemical details of the cloud layers. The DRIFT-PHOENIX models enable the first stellar atmosphere simulation that is based on the actual cloud *formation* process. The resulting (T, p) profiles differ considerably from the previous limiting PHOENIX cases DUSTY and COND. A tentative comparison with observations demonstrates that the determination of effective temperatures based on simple cloud models has to be applied with care. Based on our new models, we suggest a mean $T_{\rm eff} = 1800$K for the L - dwarf twin-binary system DENIS J0205-1159 which is up to 500K hotter than suggested in the literature. We show transition spectra for gas-giant planets which form dust clouds in their atmospheres and evaluate photometric fluxes for a WASP-1 type system.

Download/Website: `http://arxiv.org/abs/0801.3733`

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Energetic neutral atoms as the explanation for the high velocity hydrogen around HD 209458b

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Nature, published (451, 970–972, 2008)

Absorption in the stellar Lyman-α (Ly-α) line observed during the transit of the extrasolar planet HD 209458b reveals high velocity atomic hydrogen at great distances from the planet. This has been interpreted as hydrogen atoms escaping from the exosphere of the planet, possibly undergoing hydrodynamic blow-off, being accelerated by stellar radiation pressure. However, around solar system planets the production of energetic neutral atoms from charge exchange between solar wind protons and neutral hydrogen from the exospheres has been observed, and should also occur at extrasolar planets. Here we show that the measured transit-associated Ly-α absorption can be explained by the interaction between the exosphere of HD 209458b and the stellar wind, and that radiation pressure alone cannot explain the observation. This is the first observation of energetic neutral atoms outside the solar system. Since the stellar wind protons are the source of the observed energetic neutral atoms, this provides a completely new method of probing stellar wind conditions, and our model suggests a slow and hot stellar wind near HD 209458b at the time of the observation.

Download/Website: `http://arxiv.org/abs/0802.2764`

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The Influence of Dust Formation Modelling on Na I and K I Line Profiles in Substellar Atmospheres

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Monthly Notices of the Royal Astronomical SocietyLetter, in press (arXiv:0801.3544)

We aim to understand the correlation between cloud formation and alkali line formation in substellar atmospheres.We perform line profile calculations for Na I and K I based on the coupling of our kinetic model for the formation and composition of dust grains with 1D radiative transfer calculations in atmosphere models for brown dwarfs and giant gas planets. The Na I and K I line profiles sensibly depend on the way clouds are treated in substellar atmosphere simulations. The kinetic dust formation model results in the highest pseudo-continuum compared to the limiting cases.

Download/Website: `http://arxiv.org/abs/0801.3544`

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Rayleigh scattering in the transit spectrum of HD 189733b

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Astronomy & Astrophysics Letters, in press (arXiv:0802.3228)

The transit spectrum of the exoplanet HD 189733b has recently been obtained between 0.55 and 1.05μm. Here we present an analysis of this spectrum. We develop first-order equations to interpret absorption spectra. In the case of HD 189733b, we show that the observed slope of the absorption as a function of wavelength is characteristic of extinction proportional to the inverse of the fourth power of the wavelength ($\propto \lambda^{-4}$). Assuming an extinction dominated by Rayleigh scattering, we derive an atmospheric temperature of 1340 ± 150 K. If molecular hydrogen is responsible for the Rayleigh scattering, the atmospheric pressure at the planetary characteristic radius of 0.1564 stellar radius must be 410 ± 30 mbar. However the preferred scenario is scattering by condensate particles. Using the Mie approximation, we find that the particles must have a low value for the imaginary part of the refraction index. We identify $MgSiO_3$ as a possible abundant condensate whose particle size must be between $\sim 10^{-2}$ and $\sim 10^{-1}$ μm. For this condensate, assuming solar abundance, the pressure at 0.1564 stellar radius is found to be between a few microbars and few millibars, and the temperature is found to be in the range 1340-1540 K, and both depend on the particle size.

Download/Website: `http://arxiv.org/abs/0802.3228`

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Planetesimal and gas dynamics in binaries

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Monthly Notices of the Royal Astronomical Society, in press (arXiv:0802.0927

Observations of extrasolar planets reveal that planets can be found in close binary systems, where the semi-major axis of the binary orbit is less than 20 AU. The existence of these planets challenges planet formation theory because the strong gravitational perturbations due to the companion increase encounter velocities between planetesimals and make it difficult for them to grow through accreting collisions. We study planetesimal encounter velocities in binary systems, where the planetesimals are embedded in a circumprimary gas disc that is allowed to evolve under influence of the gravitational perturbations of the companion star. We use the RODEO method to evolve the vertically integrated Navier-Stokes equations for the gas disc. Embedded within this disc is a population of planetesimals of various sizes, that evolve under influence of the gravitational forces of both stars and friction with the gas. The equations of motion for the planetesimals are integrated using a 4th order symplectic algorithm. We find that the encounter velocities between planetesimals of different size strongly depend on the gas disc eccentricity. Depending on the amount of wave damping, we find two possible states of the gas disc: a quiet state, where the disc eccentricity reaches a steady state that is determined by the forcing of the binary, for which the encounter velocities do not differ more than a factor of 2 from the case of a circular gas disc, and an excited state, for which the gas disc obtains a large free eccentricity, which drives up the encounter velocities more substantially. In both cases, inclusion of the full gas dynamics increases the encounter velocity compared to the case of a static, circular gas disc. Full numerical parameter exploration is still impossible, but we derive analytical formulae to estimate encounter velocities between bodies of different sizes given the gas disc eccentricity. The gas dynamical evolution of a protoplanetary disc in a binary system tends to make planetesimal accretion even more difficult than in a static, axisymmetric gas disc.

Download/Website: `http://arxiv.org/abs/0802.0927`

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X–ray induced mass loss effects on exoplanets orbiting dM stars

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Astronomy & Astrophysics, published (DOI:10.1051/0004-6361:20078873)

Aims: We study the influence of the X–ray luminosity distribution of dM stars on mass loss from planets on close–in orbits.

Methods: Using the X–ray luminosity of the Pleiades, the Hyades, and field dM stars, we construct a scaling law for the radiation environment of dM stars for ages between 0.1 and 10 Gyr. An energy–limited escape approach is used to calculate the influence of thermal mass loss on planetary distribution functions.

Results: We show that the X–ray luminosity distribution of nearby dM stars can be described by using a scaling law derived from observations of open clusters with a given age. It is shown that the X–ray flux from dM stars is significantly less than the flux from dG stars for a given orbital distance. Therefore, loss processes have less of an impact on the mass evolution of planets orbiting dM stars. We found that the mass loss is negligible for hydrogen–rich Jupiter–mass planets at orbits $>$0.02 AU, while Neptune–mass planets are influenced up to 0.05 AU. At orbits of 0.02 AU, Roche lobe effects are also having a strong impact on the mass–loss evolution. Because of the low mass of dM stars, Roche lobe effects are less effective for loss processes at planets orbiting these stars. Finally, if

we use only the X-ray luminosity of their host stars for the energy input to the atmosphere, we obtain a lower limit for the mass loss of GJ876d and GJ674b. This does not allow us to conclude whether they are remnants of eroded Jupiter-mass planets.

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The influence of giant planets near a mean motion resonance on Earth-like planets in the habitable zone of Sun-like stars

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Astrophysical Journal, in press

The so far detected extra-solar planetary systems are very different from our solar-system. Nevertheless, we expect that there are planetary systems similar to ours, e.g. 47 Uma (after the first observations). We present a study of several 2-planet-systems based on the motions of Jupiter and Saturn, the two giant planets move in low-eccentric orbits close to a mean motion resonance. It is more likely to find 2 planets with similar characteristics in a system than a clone of the Jupiter-Saturn pair of our solar system. We vary the mutual distance between the two planets and their mass-ratio by changing Saturn's semi-major axis between 8 and 11 AU and increase its mass by factors of 2 to 40. After a first analysis of interacting perturbations due to resonances (of the giant planets) in the different configurations, we select several mass-ratios for the gas giants, for which we study their influence on test-bodies (with negligible mass) moving in the habitable zone (HZ) of a sun-like star. The stability maps – representing the HZ and all considered semi-major axes of Saturn – show the areas of the HZ perturbed by mean motion or secular resonances. In all cases the HZ is dominated by a significant curved band of higher eccentricity that corresponds to a secular resonance with Jupiter. This was found when applying the frequency analysis of Laskar (1990). Interesting results of this study are (i) an increase of Venus' eccentricity for the real Jupiter and Saturn masses and the actual semi-major axis of Saturn; (ii) an increase of the eccentricity of the test-planet at Earth's position when Saturn's mass was increased by a factor of 3 or more; and (iii) if the two giant planets are in 2:1 resonance we observe a strong influence on the outer region of the HZ.

Download/Website: http://www.univie.ac.at/adg/pilat-lohinger/publications.html

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The achromatic chessboard, a new concept of phase shifter for Nulling Interferometry - I. Theory

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Astronomy & Astrophysics, in press (arXiv:0802.3334)

Direct detection of a planet around a star in the mid-IR, requires a nulling interferometer featuring an achromatic phase shift of π on a broad range. A new concept for designing such an achromatic phase shifter is presented here. The major interest of this solution is that it allows a simple design, with essentially one device in bulk optics per beam. The heart of the system consists of two square cellular mirrors where each cell has a thickness introducing

for the central wavelength, a phase shift of $(2k+1)\pi$ or of $2k\pi$ on the fraction of the wave it reflects. Each mirror is put in one of the collimated beams of an interferometer. Because of the odd/even distribution of the phase shifts, when recombining the two beams a destructive interference is produced on axis for the central wavelength. If the distribution of cells thickness follows a rather simple law, based on the Pascal's triangle, then the nulling is also efficient for a wavelength significantly different from the central wavelength. For instance, with two mirrors of 64×64 cells, one reaches a nulling of 10^{-6} on more than one complete octave ; this could satisfy the typical specifications of a space mission as Darwin. We also show the way to distribute the cells in the plane of the pupil for the optimum isolation of the planet image from the residuals. We present the nulling performances of those various configurations.

Download/Website: `http://arxiv.org/abs/0802.3334`

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Exoplanet HD 209458b (Osiris*) : Evaporation strengthened

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Astrophysical Journal Letters, in press (arXiv:0802.0587)

Following re-analysis of Hubble Space Telescope observations of primary transits of the extrasolar planet HD209458b at Lyman-alpha, Ben-Jaffel (2007, BJ007) claims that no sign of evaporation is observed. Here we show that, in fact, this new analysis is consistent with the one of Vidal-Madjar et al. (2003, VM003) and supports the detection of evaporation. The apparent disagreement is mainly due to the disparate wavelength ranges that are used to derive the transit absorption depth. VM003 derives a (15+/-4)of the stellar Lyman-alpha line (from -130 km/s to +100 km/s), and this result agrees with the (8.9+/-2.1)from a slightly expanded dataset but over a larger wavelength range (+/-200 km/s). These measurements agree also with the (5+/-2)absorption reported by Vidal-Madjar et al. (2004) over the whole Lyman-alpha line from independent, lower-resolution data. We show that stellar Lyman-alpha variability is unlikely to significantly affect those detections. The HI atoms must necessarily have velocities above the escape velocities and/or be outside the Roche lobe, given the lobe shape and orientation. Absorption by HI in HD209458b's atmosphere has thus been detected with different datasets, and now with independent analyses. All these results strengthen the concept of evaporating hot-Jupiters, as well as the modelization of this phenomenon.

Download/Website: `http://arXiv.org/abs/0802.0587`

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The Jupiter Twin HD 154345*b*

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Astrophysical Journal Letters, accepted (arXiv:0802.1731)

We announce the discovery of a twin of Jupiter orbiting the slightly metal-poor ([Fe/H] = -0.1) nearby (d = 18 pc) G8 dwarf HD 154345. This planet has a minimum mass of 0.95 Jupiter masses and a 9.2 year, circular orbit with radius 4.2 AU. There is currently little or no evidence for other planets in the system, but smaller or exterior planets cannot yet be ruled out.

Download/Website: `http://xxx.lanl.gov/abs/0802.1731`

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3 Abstracts of theses

Study on Formation Process of Extrasolar Planets and Development of Infrared Interferometer

T. Matsuo
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PhD Thesis, in press (in Japan)

The planetary formation theory has been developed mainly for the solar system. This is because planets were not found outside the Solar system until 1995. However, since the first discovery of an extrasolar planet by Mayor & Queloz (1995), 276 extrasolar planets have so far been detected. These extrasolar planets have characteristics different from those in our solar planets. For example, whereas the Jupiter and the Saturn orbit around a G-type star on circle orbits with periods more than 10 years, the extrasolar planets orbit around stars of various spectral types from F to M on circular or eccentric orbits with periods from a few days to 10 years. Moreover, the mass of these extrasolar planets is from 5 times that of the Earth mass to 10 times that of the Jupiter. Thus, the characteristics of the extrasolar planets are rich in diversity. Planetary formation theory should explain the formation of not only the solar planets but also more than 200 extrasolar planets.
In this paper, I examine the formation process of the extrasolar planets from the perspective of the formation theory and the actual observations. In addition, I propose a new spectral imaging method for a Fizeau interferometer. In the new method, image reconstruction is possible in principle, with brief observations for each baseline without a delay line system, which is required for the conventional interferometer. In addition, because the field of view is limited by the telescope's optical system, it is simple to widen it. Therefore, this new type of interferometer will be crucial for mid- and far-infrared high-resolution imaging of protoplanetary disks in which planets are formed.
In Chapter 1, I introduce previous works on extrasolar planets. In Chapter2, I derive the conditions for stellar metallicity and planet mass in the core-accretion and the disk instability models. I compare these results with the observational results in order to examine whether or not all planets are thought to be formed by the core-accretion scenario, and whether gas giant formation by disk instability actually took place. In Chapter3, I formulate the new imaging method for an ideal interferometer, which has an infinite image plane and infinitesimal aperture. I apply this to an actual interferometer with a finite image plane, and discuss the limits on the field of view and the spectral resolution. I discuss laboratory experiments and the comparison of the new approach with conventional interferometric imaging.

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4 Conference announcements

Exoplanet Forum 2008

Wes Traub & Steve Unwin
Jet Propulsion Laboratory

Exoplanet Forum 2008, Pasadena, CA, 29-30 May 2008,

1st Announcement: You are invited to participate in the 3rd annual Forum on exoplanet science and missions.
The Forum builds on the progress made at two previous Forums (held in Washington DC in 2006, and in Mountain View CA in 2007). Its purpose is to give the extrasolar planet science community an opportunity to reflect on the report of the Exoplanet Task Force (ExoPTF) as well as the selections from the Astrophysics Strategic Mission Concept Studies (ASMCS) competition, and to discuss potential paths forward for exploring and characterizing exoplanets. We anticipate that the details and wide-ranging recommendations of the ExoPTF Report will generate a lot of discussion by this community.
All members of the exoplanet science and technical communities are invited to participate. Areas to be addressed include theory, observations, instruments, missions, and potential strategies for future progress. The results of the Forum will be published in book form, as a record of the presentations and discussion, in a format that will be accessible to a broad range of scientists and helpful to science policy makers. The publication target date is the end of summer 2008.
For questions about topics for presentations, contact Wes Traub (wtraub@jpl.nasa.gov) or Steve Unwin (stephen.unwin@jpl.nasa.gov). We will set up a website for the Forum, with information on hotels, transportation and other local details. This message is a heads-up to help you plan your travel schedule.
This event is sponsored by the NASAs Exoplanet Exploration Program (http://planetquest.jpl.nasa.gov/Navigator), and the Center for Exoplanet Science at JPL (http://exoplanets.jpl.nasa.gov). The Exoplanet Exploration Program is part of the new organization of the Astrophysics Division, and it includes the missions and activities of the former Navigator Program.

Download/Website: `http://exoplanets.jpl.nasa.gov, click on "Exoplanet Forum 2008"`

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5 Jobs and positions

Postdoctoral Research Appointment in debris disks and extrasolar planets

Mark Wyatt
Institute of Astronomy, University of Cambridge

Postdoctoral Research Appointment,

The Institute of Astronomy has a vacancy for a postdoctoral researcher to collaborate with Mark Wyatt on research of debris disks and extrasolar planets. The successful applicant would also be encouraged to pursue their own research. Applications are welcomed from researchers with interests in either theory or observations.
There is a concentration of extrasolar planet and disk researchers in Cambridge at the Institute of Astronomy, the Department of Applied Mathematics and Theoretical Physics and the Cavendish Astrophysics Group. The Isaac Newton Institute will also be hosting a four month research programme from August to December 2009 on the dynamics of disks and planets, so Cambridge will be a particular focus for research in this field during this appointment.

The 3 year position is available from 1 October 2008. The salary scale will be £25,888 to £33,780 pa, depending on experience, plus superannuation benefits. Applicants should have a Ph.D. in Astronomy or related field. Electronic applications including a CV, publication list, research statement and coversheet PD18 should be sent for the attention of Dr Mark Wyatt pdrec@ast.cam.ac.uk. Any attachments must be in PDF format. Other formats will not be accepted. Alternatively postal applications should be sent to Mark Wyatt, Postdoc. Recruitment, Institute of Astronomy, Madingley Road, Cambridge, CB3 0HA, UK. The deadline for applications is 2nd May 2008.
Applicants should also ask three referees to send letters of recommendation to this postal address or to pdrec@ast.cam.ac.uk by the same date. Enquiries may be sent to pdrec@ast.cam.ac.uk
Further information about the Institute of Astronomy can be found at http://www.ast.cam.ac.uk and form PD18 from http://www.admin.cam.ac.uk/offices/personnel/forms/pd18

Download/Website: `http://www.ast.cam.ac.uk`

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CoRoT postdoctoral fellow in exoplanet search

Pierre Barge
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Postdoctoral Fellow,

The CoRoT space telescope is orbiting the Earth and regularly provides 12,000 light curves with a very high photometric accuracy. The instrument is performing the first space survey devoted to exoplanet search and gathers a new harvest of transiting planets that are keys to understand better how planets form.
We are searching for a fellow who would participate actively in the detailed analysis of the reduced CoRoT data to detect transit candidates and to help in the characterization of the planets.
The successful candidate will have also to participate to the detection chain implemented early in the processing of the data (the operational loop called 'alarm' mode). S/he will work within the exoplanet team of the LAM and in coordination with all the other CoRoT exoplanet partners. The fellow will have to use IDL in a Linux environment. Skills that will be appreciated are: experience in signal processing, PCA and statistics.
Applicants should have a PhD in physics, astronomy, mathematics or computer science. Applicants should send a cover letter, CV, list of publications, and a description of relevant experiences to the address below. They should arrange for three letters of recommendation to be sent to the same address. Applications are welcome by April 15th with a April 30th deadline.
The appointment is for two years, with possible renewal up to three years, and is expected to start by the end of May or at the latest mid-June 2008. Funding is at least EUR 2316/month, possibly higher following the personal experience of the candidate.

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6 As seen on astro-ph

The following list contains all the entries relating to exoplanets that we spotted on astro-ph during February 2008. If you spot any that we missed, please let us know and we'll include them in the next issue.

Exoplanets

arXiv:0802.0037: **H_2O and OH gas in the terrestrial planet-forming zones of protoplanetary disks** by *Salyk, C. et al*

arXiv:0802.0062: **Migration and Final Location of Hot Super Earths in the Presence of Gas Giants** by *Zhou, Ji-Lin & Lin, Douglas N. C.*

arXiv:0802.0254: **Stability constraints in modeling of multi-planet extrasolar systems** by *Gozdziewski, K., Migaszewski, C. & Musielinski, A.*

arXiv:0802.0327: **Atmospheric Circulation of Hot Jupiters: Three-dimensional circulation models of HD 209458b and HD 189733b with Simplified Forcing** by *Showman, Adam P. et al*

arXiv:0802.0434: **Parent Stars of Extrasolar Planets. IX. Lithium Abundances** by *Gonzalez, Guillermo*

arXiv:0802.0541: **Dynamical Shakeup of Planetary Systems II. N-body simulations of Solar System terrestrial planet formation induced by secular resonance sweeping** by *Thommes, E. W., Nagasawa, M. & Lin, D. N. C.*

arXiv:0802.0587: **Exoplanet HD 209458b : Evaporation strengthened** by *Vidal-Madjar, A. et al*

arXiv:0802.0718: **MOST Spacebased Photometry of the Transiting Exoplanet System HD 209458: Transit Timing to Search for Additional Planets** by *Miller-Ricci, E., et al*

arXiv:0802.0845: **The Broadband Infrared Emission Spectrum of the Exoplanet HD 189733b** by *Charbonneau, David,. et al*

arXiv:0802.0927: **Methane present in an extrasolar planet atmosphere** by *Paardekooper, S. -J., Thebault, P. & Mellema, G.*

arXiv:0802.1030: **Methane present in an extrasolar planet atmosphere** by *Swain, M., Vasisht, G. & Tinetti, G.*

arXiv:0802.1141: **Toward a Deterministic Model of Planetary Formation V. Accumulation Near the Ice Line and Emergence of Short-Period Earth** by *Ida, Shigeru, Lin, D. N. C.*

arXiv:0802.1543: **Tidal Evolution of Close-in Extra-Solar Planets** by *Jackson, Brian, Greenberg, Richard, Barnes, Rory*

arXiv:0802.1584: **Magnetic cycles of the planet-hosting star tauBootis** by *Donati, J.F. et al.*

arXiv:0802.1781: **New Solutions for the Planetary Dynamics in HD160691 using a Newtonian Model and Latest Data** by *Short, D., Windmiller, G. & Orosz, J. A.*

arXiv:0802.1802: **The Jupiter Twin HD 154345b** by *Wright, J.T. et al*

arXiv:0802.1810: **Structure and evolution of super-Earth to super-Jupiter exoplanets: I. heavy element enrichment in the interior** by *Baraffe, I., Chabrier, G. & Barman, T.*

arXiv:0802.1920: **Discovery of a Jupiter/Saturn Analog with Gravitational Microlensing** by *Gaudi, B. S. et al..*

arXiv:0802.2590: **Planetary Companions around Three Intermediate-Mass G and K Giants: 18 Del, xi Aql, and HD 81688** by *Sato, B. et al.*

arXiv:0802.2722: **MOST Spacebased Photometry of the Transiting Exoplanet System HD 189733: Precise Timing Measurements for Transits Across an Active Star** by *Miller-Ricci, E. et al.*

arXiv:0802.2732: **MOST detects variability on tau Bootis possibly induced by its planetary companion** by *Walker, G. et al.*

arXiv:0802.2990: **Modelling solar-like variability for the detection of Earth-like planetary transits. I. Performance of the three-spot modelling and harmonic function fitting** by *Bonomo, A. S. & Lanza, A. F.*

arXiv:0802.3033: **The formation and evolution of planetary systems: Grain growth and chemical processing of dust in T Tauri systems** by *Bouwman, J. et al.*

arXiv:0802.3228: **Rayleigh scattering in the transit spectrum of HD 189733b** by *Lecavelier des Etangs, A. et al.*

arXiv:0802.3764: **Homogeneous studies of transiting extrasolar planets. I. Light curve analyses** by *Southworth, J.*
arXiv:0802.3864: **HST/STIS Optical Transit Transmission Spectra of the hot-Jupiter HD209458b** by *Sing, D.K. et al.*
arXiv:0802.4088: **Planetary Systems in Binaries. I. Dynamical Classification** by *Takeda, Genya, Kita, Ryosuke & Rasio, Frederic A.*
arXiv:0802.4099: **Planet Formation by Concurrent Collapse** by *Wilkinson, Michael & Mehlig, Bernhard*
arXiv:0802.4146: **SPH simulations of star/planet formation triggered by cloud-cloud collisions** by *Kitsionas, Spyridon, Whitworth, Anthony P. & Klessen, Ralf S.*

Debris and Transition Disks

arXiv:0802.0906: **Observational Possibility of the "Snow Line" on the Surface of Circumstellar Disks with the Scattered Light** by *Inoue, A.K. et al*
arXiv:0802.0998: **LkHα 330: Evidence for dust clearing through resolved submillimeter imaging** by *Brown, J.M. et al*
arXiv:0802.1832: **Numerical determination of the material properties of porous dust cakes** by *Paszun, D. & Dominik, C.*
arXiv:0802.2014: **Influence of an inner disc on the orbital evolution of massive planets migrating in resonance** by *Crida, A., Sndor, Zs. & Kley, W.*
arXiv:0802.2033: **Constraints on resonant-trapping for two planets embedded in a protoplanetary disc** by *Pierens, Arnaud & Nelson, Richard P.*
arXiv:0802.2359: **Extent of pollution in planet-bearing stars** by *Li, S. -L., Lin, D. N. C. & Liu, X. -W.*
arXiv:0802.2405: **Detecting Temperate Jupiters: The Prospects of Searching for Transiting Gas Giants in Habitability Zones** by *Fleming, S.W. et al.*
arXiv:0802.2501: **Numerical simulations of type III planetary migration: III. Outward migration of massive planets** by *Peplinski, A., Artymowicz, P. & Mellema, G.*
arXiv:0802.4099: **Planet Formation by Concurrent Collapse** by *Michael Wilkinson & Bernhard Mehlig*
arXiv:0802.4146: **SPH simulations of star/planet formation triggered by cloud-cloud collisions** by *Spyridon Kitsionas, Anthony P. Whitworth & Ralf S. Klessen*

Instrumentation and Techniques

arXiv:0801.4828: **Microlensing Search for Planets with Two Simultaneously Rising Suns** by *Han, Cheongho*
arXiv:0802.0498: **Experimental design and model selection: The example of exoplanet detection** by *Balasubramanian, Vijay, Larjo, Klaus & Sheth, Ravi*
arXiv:0802.0515: **Double-blind test program for astrometric planet detection with Gaia** by *Casertano, S. et al*
arXiv:0802.0821: **The Centurion 18 telescope of the Wise Observatory** by *Brosch, Noah, et al*
arXiv:0802.3199: **Automated Probabilistic Classification of Transients and Variables** by *Mahabal, A. A. et al.*
arXiv:0802.3334: **The achromatic chessboard, a new concept of phase shifter for Nulling Interferometry - I. theory** by *Daniel Rouan & Didier Pelat*