ExoPlanet News
An Electronic Newsletter

No. 27, March 5th, 2010

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Contents

1 Editorial

Welcome to the twenty-seventh edition of ExoPlanet News, an electronic newsletter reporting the latest developments and research outputs in the field of exoplanets.
After last month's larger-than-usual edition, we're back to a slimmer newsletter this time. Nonetheless there are a few conference announcements and job adverts to complement the usual variety of excellent abstracts. We hope you enjoy catching up with recent developments in the field this month. Remember that past editions of this newsletter, submission templates and other information can be found at the ExoPlanet News website: http://exoplanet.open.ac.uk. Please send anything relevant to exoplanet@open.ac.uk, and it will appear in the next edition which we plan to send out at the beginning of April 2010. As for this issue, if you wish to include ONE .eps figure per abstract, please do so.

Best wishes
Andrew Norton & Glenn White
The Open University

2 Abstracts of refereed papers

Evidence of a massive planet candidate orbiting the young active K5V star BD+20 1790

M. Hernán-Obispo[1] *et al.*

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Astronomy & Astrophysics, in press (2009arXiv0912.2773H)

BD+20 1790 is a young active, metal-rich, late-type K5Ve star. We have undertaken a study of stellar activity and kinematics for this star over the past few years. Previous results show a high level of stellar activity, with the presence of prominence-like structures, spots on the surface, and strong flare events, despite the moderate rotational velocity of the star. In addition, radial velocity variations with a semi-amplitude of up to 1 km s^{-1} were detected. We investigate the nature of these radial velocity variations, in order to determine whether they are due to stellar activity or the reflex motion of the star induced by a companion.
Based upon the analysis of the bisector velocity span, as well as spectroscopic indices of chromospheric indicators, Ca II H & K, Hα, and taking the photometric analysis into account, we report that the best explanation for the RV variation is the presence of a substellar companion. The Keplerian fit of the RV data yields a solution for a close-in massive planet with an orbital period of 7.78 days. The presence of the close-in massive planet could also be an interpretation for the high level of stellar activity detected. Since the RV data are not part of a planet search programme, we can consider our results as a serendipitous evidence of a planetary companion.
To date, this is the youngest main sequence star for which a planetary candidate has been reported.

Download/Website: `http://fr.arxiv.org/abs/0912.2773`

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Clouds in the atmospheres of extrasolar planets. I. Climatic effects of multi-layered clouds for Earth-like planets and implications for habitable zones

D. Kitzmann[1], *A.B.C. Patzer*[1], *P. von Paris*[2], *M. Godolt*[1], *B. Stracke*[2], *S. Gebauer*[1], *J.L. Grenfell*[1], *H. Rauer*[1,2]

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Astronomy & Astrophysics, in press

The effects of multi-layered clouds in the atmospheres of Earth-like planets orbiting different types of stars are studied. The radiative effects of cloud particles are directly correlated with their wavelength-dependent optical properties. Therefore the incident stellar spectra may play an important role for the climatic effect of clouds. We discuss the influence of clouds with mean properties measured in the Earth's atmosphere on the surface temperatures and Bond albedos of Earth-like planets orbiting different types of main sequence dwarf stars. The influence of clouds on the position of the habitable zone around these central star types is discussed. A parametric cloud model has been developed based on observations in the Earth's atmosphere. The corresponding optical properties of the cloud particles are calculated with the Mie theory accounting for shape effects of ice particles by the equivalent sphere method. The parametric cloud model is linked with a one-dimensional radiative-convective climate model to study the effect of clouds on the surface temperature and the Bond albedo of Earth-like planets in dependence of the type of central star. The albedo effect of the low-level clouds depends only weakly on the incident stellar spectra because the optical properties remain almost constant in the wavelength range of the maximum of the incident stellar radiation. The greenhouse effect of the high-level clouds on the other hand depends on the temperature of the lower atmosphere, which is itself an indirect consequence of the different types of central stars. In general the planetary Bond albedo increases with the cloud cover of either cloud type. An anomaly was found for the K and M-type stars however, resulting in a decreasing Bond albedo with increasing cloud cover for certain atmospheric conditions. Depending on the cloud properties, the position of the habitable zone can be located either farther from or closer to the central star. As a rule, low-level water clouds lead to a decrease of distance because of their albedo effect, while the high-level ice clouds lead to an increase in distance. The maximum variations are about 15% decrease and 35% increase in distance compared to the clear sky case for the same mean Earth surface conditions in each case.

Download/Website: `http://arxiv.org/abs/1002.2927`

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The Runts of The Litter: Why Planets Formed Through Gravitational Instability Can Only Be Failed Binary Stars

K. M. Kratter[1], *R. A. Murray-Clay*[2], *A. N. Youdin*[3]

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[3] Canadian Institute for Theoretical Astrophysics, Canada

Astrophysical Journal, published (2010ApJ...710.1375K)

Recent direct imaging discoveries suggest a new class of massive, distant planets around A stars. These widely separated giants have been interpreted as signs of planet formation driven by gravitational instability, but the viability of this mechanism is not clear-cut. In this paper, we first discuss the local requirements for fragmentation and the initial fragment mass scales. We then consider whether the fragment's subsequent growth can be terminated within the planetary mass regime. Finally, we place disks in the larger context of star formation and disk evolution models. We find that in order for gravitational instability to produce planets, disks must be atypically cold in order to reduce the initial fragment mass. In addition, fragmentation must occur during a narrow window of disk evolution, after infall has mostly ceased, but while the disk is still sufficiently massive to undergo gravitational instability. Under more typical conditions, disk-born objects will likely grow well above the deuterium burning planetary mass limit.

We conclude that if planets are formed by gravitational instability, they must be the low-mass tail of the distribution of disk-born companions. To validate this theory, ongoing direct imaging surveys must find a greater abundance of brown dwarf and M-star companions to A stars. Their absence would suggest planet formation by a different mechanism such as core accretion, which is consistent with the debris disks detected in these systems.

Download/Website: `http://www.iop.org/EJ/abstract/0004-637X/710/2/1375/`

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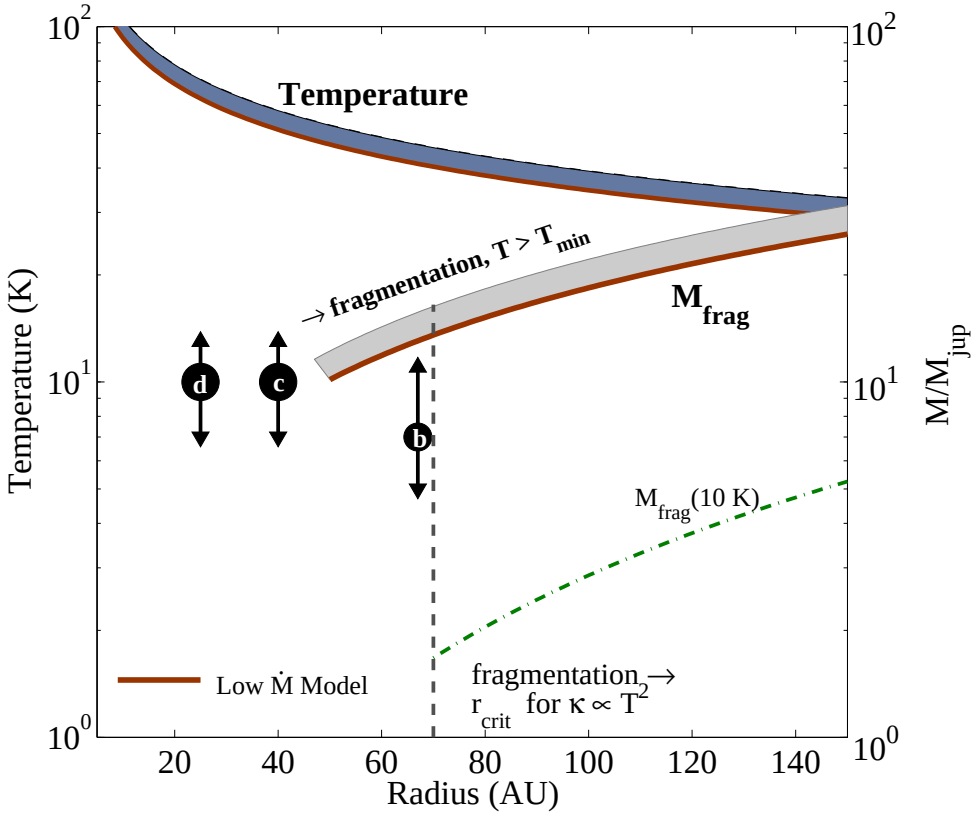

Figure 1: (Kratter) Depiction of the current configuration of HR 8799 and formation constraints for realistic disk temperatures. We show the lowest expected irradiated disk temperatures (blue) and corresponding fragment masses (grey), as a function of radius. The lower bound on both regimes (burgundy) is set by the irradiation model described in Section 4.3, with $\dot{M} = 10^{-7} M_\odot/\mathrm{yr}$. The upper boundary is set by the current luminosity of HR 8799, $\sim 5 L_\odot$. The green dashed-dotted line shows the mass with disk temperatures of 10 K, a lower limit provided by the cloud temperature. The vertical line shows the critical fragmentation radius for the ISM opacity law; fragmentation at smaller radii requires grain growth. Fragment masses are shown for radii at which the irradiation temperatures are high enough to satisfy the cooling time constraint. At smaller radii, fragmentation is possible at higher disk temperatures, but the resulting fragments have correspondingly higher masses, and planet formation is not possible.

Strong starlight suppression sufficient to enable direct detection of exoplanets in the habitable zone

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Astronomy & Astrophysics, published (DOI: 10.1051/0004-6361/201014139)

Direct detection of photons from exoplanets in the habitable zone around nearby stars is challenging because of the much higher photon flux and close angular proximity of the star. At mid-infrared wavelengths, around 10 μm, the flux contrast ratio between a sun-like star and an earth-size planet is several million to one, favorable compared to the visible range, while the angular separation of the bodies is less than 1 μradian. The wavelength range between 7 and 20 μm is worthy of study because it can yield information on the planetary atmospheric composition, particularly as it contains absorption lines for CO_2, ozone and water, which together can be considered a biomarker under some conditions. To achieve observations of the spectrum, strong and stable suppression of the excess starlight is required along with suppression of the local and exo-Zodiacal light, which also have much higher fluxes than the exoplanet signal.

Here we show in the laboratory with nulling interferometry, the suppression of artificial starlight by almost eight orders of magnitude, which is sufficient to detect a planet some three million times fainter than the star. The results show that a combination of starlight suppression techniques enables the detection of medium-sized planets in the habitable zone around nearby stars. Large space telescopes planned for future exoplanet studies will employ these techniques and one additional method, which brings earth-size planets within reach, to obtain compelling data on the atmospheres of nearby exoplanets.

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

Contact: `stefan.r.martin@jpl.nasa.gov`

Chromospheric activity and rotation of FGK stars in the solar vicinity. An estimation of the radial velocity jitter.

R. Martínez-Arnáiz [1], *J. Maldonado* [2], *D. Montes* [1], *C. Eiroa* [2], *B. Montesinos* [3]

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Astronomy & Astrophysics, in press (arXiv:1002.4391)

Context: Chromospheric activity produces both photometric and spectroscopic variations that can be mistaken as planets. Large spots crossing the stellar disc can produce planet-like periodic variations in the light curve of a star. These spots clearly affect the spectral line profiles and their perturbations alter the line centroids creating a radial velocity jitter that might "contaminate" the variations induced by a planet. Precise chromospheric activity measurements are needed to estimate the activity-induced noise that should be expected for a given star.

Aims: We obtain precise chromospheric activity measurements and projected rotational velocities for nearby (d $\leq$ 25 pc) cool (spectral types F to K) stars, to estimate their expected activity-related jitter. As a complementary objective, we attempt to obtain relationships between fluxes in different activity indicator lines, that permit a transformation of traditional activity indicators, $i.e$, Ca II H & K lines, to others that hold noteworthy advantages.

Methods: We used high resolution ($\sim$ 50000) $echelle$ optical spectra. Standard data reduction was performed using the IRAF ECHELLE package. To determine the chromospheric emission of the stars in the sample, we used the spectral subtraction technique. We measured the equivalent widths of the chromospheric emission lines in the subtracted spectrum and transformed them into fluxes by applying empirical equivalent width and flux relationships. Rotational velocities were determined using the cross-correlation technique. To infer activity-related radial velocity

(RV) jitter, we used empirical relationships between this jitter and the $R'_{\rm HK}$ index.
Results: We measured chromospheric activity, as given by different indicators throughout the optical spectra, and projected rotational velocities for 371 nearby cool stars. We have built empirical relationships among the most important chromospheric emission lines. Finally, we used the measured chromospheric activity to estimate the expected RV jitter for the active stars in the sample.

Download/Website: `http://cdsads.u-strasbg.fr/abs/2010arXiv1002.4391M`

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High Resolution Observations of Dust Continuum Emission at 340 GHz from the Low-mass T Tauri Star FN Tauri

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Astrophysical Journal, in press (arXive: 1002.2462)

FN Tau is a rare example of very low-mass T Tauri stars that exhibits a spatially resolved nebulosity in near-infrared scattering light. To directly derive the parameters of a circumstellar disk around FN Tau, observations of dust continuum emission at 340 GHz are carried out with the Submillimeter Array (SMA). A point-like dust continuum emission was detected with a synthesized beam of $\sim 0.7''$ in FWHM. From the analysis of the visibility plot, the radius of the emission is estimated to be $\leq 0.29''$, corresponding to 41 AU. This is much smaller than the radius of the nebulosity, $1.85''$ for its brighter part at 1.6 μm. The 340 GHz continuum emission observed with the SMA and the photometric data at $\lambda \leq 70$ μm are explained by a power-law disk model whose outer radius and mass are 41 AU and $(0.24 - 5.9) \times 10^{-3}$ $M_\odot$, respectively, if the exponent of dust mass opacity (β) is assumed to be $0 - 2$. The disk model cannot fully reproduce the flux density at 230 GHz obtained with the IRAM 30-meter telescope, suggesting that there is another extended "halo" component that is missed in the SMA observations. By requiring the halo not to be detected with the SMA, the lower limit to the size of the halo is evaluated to be between 174 AU and 574 AU, depending on the assumed β value. This size is comparable to the near-infrared nebulosity, implying that the halo unseen with the SMA corresponds to the origin of the near-infrared nebulosity. The halo can contain mass comparable to or at most 8 times greater than that of the inner power-law disk, but its surface density should be lower than that at the outer edge of the power-law disk by more than one order of magnitude. The physical nature of the halo is unclear, but it may be the periphery of a flared circumstellar disk that is not described well in terms of a power-law disk model, or a remnant of a protostellar envelope having flattened structure.

Download/Website: `http://arxiv.org/abs/1002.2462`

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Direct Imaging of Bridged Twin Protoplanetary Disks in a Young Multiple Star

S. Mayama[1,2], *M. Tamura*[1,2], *T. Hanawa*[4], *T. Matsumoto*[5], *M. Ishii*[3], *T. S. Pyo*[3], *H. Suto*[2], *T. Naoi*[2], *T. Kudo*[2], *J. Hashimoto*[1,2], *S. Nishiyama*[6], *M. Kuzuhara*[7], *and M. Hayashi*[1,3]

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[7] Department of Earth and Planetary Science, University of Tokyo, Hongo, Tokyo 113-0033, Japan

Science, published (2010Sci...327..306M)

Studies of the structure and evolution of protoplanetary disks are important for understanding star and planet formation. Here, we present the direct image of an interacting binary protoplanetary system. Both circumprimary and circumsecondary disks are resolved in the near-infrared. There is a bridge of infrared emission connecting the two disks and a long spiral arm extending from the circumprimary disk. Numerical simulations show that the bridge corresponds to gas flow and a shock wave caused by the collision of gas rotating around the primary and secondary stars. Fresh material streams along the spiral arm, consistent with the theoretical scenarios where gas is replenished from a circummultiple reservoir.

Download/Website: `http://www.sciencemag.org/cgi/content/abstract/327/5963/306`

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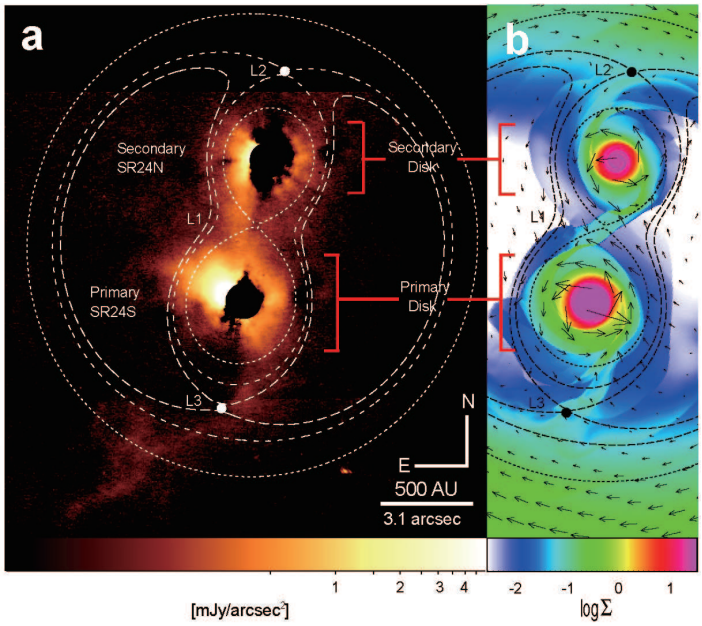

Figure 2: (Mayama et al.) Observed and simulated images of the young multiple star, SR24. (a) H-band (1.6 μm) coronagraphic image of SR24 after PSF subtraction of SR24S and SR24N. The total integration time was 1008 s. The length of the bar indicates 500 AU or 3.1 arcsecond. The unit of the color bar is mJy/arcsec^2. North is up, east is toward the left. The edges of the image (east 2.7 arcsecond region, west 5.1 arcsecond region, north 3.6 arcsecond region, and south 2.3 arcsecond region) were trimmed away because no emission was seen on these regions. The PSFs of the final images have sizes of 0.1 arcsecond (FWHM) for the H-band. The inner and outer Roche Lobes are overlaid on the Subaru image as dotted and dashed lines, respectively. L1, L2, and L3 represent the inner Lagrangian point, outer Lagrangian point on the secondary side, and outer Lagrangian point on the primary side, respectively. (b) Snapshot of accretion onto the binary system SR24 based on 2D numerical simulations. Th e color and arrows denote the surface density distribution and velocity distribution, respectively. In the simulations, we treated SR24 as a binary system composed of SR24S and SR24N instead of a triple system composed of SR24S, SR24Nb and SR24Nc. In the simulation, the SR24 system rotated counter clockwise as suggested by the morphology of the spiral arm.

3 Conference announcements

Exploring the diversity of planetary atmospheres

F. Pont[1], *S. Aigrain*[2], *I. Baraffe*[1]

[1] Astrophysics Group, Department of Physics, University of Exeter, UK
[2] Astrophysics Sub-Department, Department of Physics, University of Oxford, UK

Streatham Campus, University of Exeter, 7–10 September 2010

Second Announcement

We would like to call your attention to the meeting *Exploring the Diversity of Planetary Atmospheres* to be held in Exeter, UK, from $7^{\rm th}$ to $10^{\rm th}$ September, 2010. You are now invited to submit an abstract for a proposed talk or poster on your own research. Please see the web page below for more information. The deadline for abstract submission is May $28^{\rm th}$.

The review talks will cover topics related to the atmosphere of the Earth, Solar System planets, and extra-solar planets, with a broad view of planetary atmospheres in general. The meeting is designed to bring together experts in astrophysics, planetary science and climatology. The conference will take place on the Streatham campus of the University of Exeter, a green campus in a medieval town of the British Southwest. We would be grateful if you can circulate this annoucement in your team or institute, and we hope to see you here,

the organisers: Frédéric Pont, Suzanne Aigrain & Isabelle Baraffe

Scientific Organisation Committee:

Jonathan Lunine; Peter Cox; Adam Showman; Christophe Sotin; Frédéric Pont; Suzanne Aigrain; Isabelle Baraffe; Roger Yelle; Fred Taylor; François Forget

Sessions and confirmed review talks:

- *Extra-Solar planets: – atmosphere and circulation models of hot gas giants; the atmosphere-interior connection:* Heather Knutson (Berkeley), Jonathan Fortney (UC Santa Cruz), Adam Showman (Arizona), Kristen Menou (Columbia)
- *Solar System planets - comparative planetology; Mars, Venus, Earth, Titan:* Fred Taylor (Oxford), David Grinspoon (Denver NH Museum), Peter Read (Oxford), Sushil Atreya (Michigan)
- *Bridging the Gap - applying GCM to exoplanets; toy models; ocean planets, super-Earths and lava worlds; formation of atmospheres:* Francois Forget (Paris), Ralph Lorenz (Arizona), Linda Elkins-Tanton (MIT), Frank Selsis (Bordeaux)
- *Living atmospheres - habitability, atmosphere-life co-evolution, Earth as a system, climate change:* Tim Lenton (East Anglia), Peter Cox (Exeter), James Kasting (Michigan)

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

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

Sagan Exoplanet Summer Workshop: "Stars as Homes for Habitable Planetary Systems"

Ellen O'Leary
Science Affairs, NASA Exoplanet Science Institute, 770 South Wilson Avenue, MS 100-22, Pasadena, CA 91125, USA

Caltech, Pasadena, USA, July 26-30, 2010

The 2010 Sagan Exoplanet Summer Workshop: "Stars as Homes for Habitable Planetary Systems", will take place on the Caltech campus July 26 - 30. With results from missions such as CoRoT and Kepler, we are learning more about planetary host stars. This timely workshop will consist of a series of tutorial and scientific lectures covering theory and observations of stars and their potentially habitable planetary systems.
Participants will have the opportunity to gain hands-on experience characterizing variable stars, finding planets, etc., through working with Kepler and CoRoT data. In addition, attendees will have the opportunity to present brief summaries of their research. Financial assistance for travel and accommodations will be available for successful applicants.
More information, including a draft agenda and instructions on applying for financial assistance to attend the workshop (applications due March 5), can be found on the workshop website: http://nexsci.caltech.edu/workshop/2010/
All attendees must register for the workshop at the above URL. Register before June 5 to take advantage of the early registration fee!
Registration Fee includes:

- Conference attendance, materials, and internet access
- Transportation between Pasadena Hilton and Workshop on Workshop Dates
- Opening Reception on Sunday evening July 25
- Light breakfast each day of the workshop
- Box lunches on Monday, Wednesday and Friday
- Snacks and drinks during morning and afternoon breaks each day of the workshop
- 1 ticket to attend tour of Griffith Observatory on Wednesday afternoon (extra tickets will be available for purchase)
- 1 ticket to attend workshop dinner on Thursday (extra tickets will be available for purchase)

Download/Website: `http://nexsci.caltech.edu/workshop/2010/`
Contact: `sagan_workshop@ipac.caltech.edu`

IAU Symposium 276 - The Astrophysics of Planetary Systems: Formation, Structure, and Dynamical Evolution

A. Sozzetti et al.
INAF – Osservatorio Astronomico di Torino, Italy

Conference Center Torino Incontra, via Nino Costa 8, Torino, October 11-15, 2010

FIRST ANNOUNCEMENT

SOC: Y. Alibert (Observatoire de Besanon, France), A. Boss (Carnegie Institution of Washington, USA), D. Charbonneau (Harvard-Smithsonian Center for Astrophysics, USA), D. Fischer (San Francisco State University, USA), K. Gozdziewski (Torun Centre for Astronomy, Poland), H. Rauer (Institute of Planetary Research, Germany), R. Gratton (INAF - Osservatorio Astronomico di Padova, Italy), T. Guillot (Observatoire de la Cte d'Azur, France), J. Laskar (Observatoire de Paris, France), D. Latham (Harvard-Smithsonian Center for Astrophysics, USA), T. Mazeh (Tel Aviv University, Israel), T. Michtchenko (Universidade de So Paulo, Brasil), R. Nelson (Queen Mary University of London, UK), D. Queloz (Observatoire de Geneve, Switzerland), I. Ribas (Institut de Cincies de l'Espai, Spain), N. Santos (Centro de Astrofisica de Universidade do Porto, Portugal), A. Sozzetti (Chair, INAF - Osservatorio Astronomico di Torino, Italy), G. Tinetti (University College London, UK), W. Traub (Jet Propulsion Laboratory, USA), J.-L. Zhou (Nanjing University, China)

LOC: U. Abbas, T. Carriero, M. Lattanzi (Chair), R. Morbidelli, M. Sarasso, R. Silvotti, R. Smart, A. Spagna

PURPOSE and SCOPE
More than 400 planets are now known to orbit main-sequence stars in the neighborhood of our Sun, discovered using a variety of detection and characterization techniques. Fifteen years after the first announcement, the formation and evolution of planetary systems is now emerging as a new, quickly expanding interdisciplinary research field.
The Symposium will bring together leading experts from the many different research disciplines involved with two broad aims:
1. To present the state-of-the-art of the field of extrasolar planets, through an organic discussion of the observational evidence in connection with the most recent theoretical progress,
2. To identify objectives and strategies necessary in the coming years to advance our comprehension of the many complex processes which connect the formation, structure, and evolution of planetary systems.

MEETING FORMAT
The meeting will comprise four main sessions, covering the following list of topics:
1) PLANET FORMATION:
Statistical properties of giant exoplanets. Emerging properties of low-mass planets. The role of environment (host/disk properties, single- vs. multiple-planet systems). New insights on the relative role of competing models of giant planet formation. Brown dwarfs vs. giant planets. New perspectives on terrestrial and Super-Earths formation models.
2) STRUCTURES AND ATMOSPHERES:
Structural properties of transiting systems in the CoRoT and Kepler era. The chemistry and circulation of hot giant planets atmospheres. nternal structure and evolution of giant planets. Internal structure and evolution of Super-Earths and terrestrial planets. Giant planets atmospheres: composition and dynamics. Solid exoplanets atmospheres: composition and dynamics.
3) INTERACTIONS:
Properties (orbital architecture, internal structure) of planetary systems as fossil evidence of migration and dynamical evolution processes. Interactions as a function of time (orbital migration models, long-term dynamical evolution) and environment (the role of gas/planetesimal disks, single- vs. multiple-planet systems, the central star properties, and binary companions)

4) THE NEXT DECADE OF EXOPLANETS DISCOVERIES:
Strategies and development plans (both from the ground and in space) for the next decade. The views of community and agencies. Planetary systems studies and the search for life beyond the solar system. Habitability, biosignatures, and the emergence and maintenance of life.

IMPORTANT DEADLINES
February 15th: First Announcement, February 15th - April 30th: early bird registration (320 euro), February 15th - July 15st: abstract submission (oral), February 15th - August 31th: abstract submission (poster), May 1st onwards: standard registration (350 euro), May 1st: deadline for IAU grant requests, October 11-15: Symposium

CONTACTS:
For further information regarding the format and scientific objectives of the meeting, contact the SOC Chair: sozzetti@oato.inaf.it. For further information regarding conference logistics, announcements, and accommodations, contact the LOC Chair: iaus276@oato.inaf.it. For further information regarding abstract submission and registration, contact: sarasso@oato.inaf.it.

Download/Website: `http://iaus276.oato.inaf.it/IAUS_276/index.htm`

Contact: `iaus276@oato.inaf.it`

4 Jobs and positions

Opportunity for Assistant Professor Fellowship

Göran Olofsson & Garrelt Mellema
Dept. of Astronomy, Stockholm University, Stockholm, Sweden

Stockholm, Starting in 2011

To strengthen the star & planet formation research at the department of Astronomy, Stockholm University, we are looking for talented researchers interested in applying together with us for a personal, 4 year fellowship from the Swedish Research Council (VR), with a possible extension to 5 years. To be eligible for this fellowship your PhD should be more recent than April 2005 (with some exceptions, e.g. due to parental leave), and you are normally expected to have at least two years of postdoc experience. With the fellowship you will be employed as assistant professor with about 20% teaching/departemental duties (25% if the department agrees to pay the 5th year). It also comes with a personal research budget. The fellowship is prestigious and competative, with only some 30 granted each year for all of the natural sciences in Sweden, and at most one in astronomy. The decision on the fellowship will be taken by the Swedish National Research Council late 2010, and the position could start any time during 2011.
The star & planet formation research at Stockholm University is mostly observational, using facilities such as ESO/VLT, APEX, and active involvement in Herschel and ALMA. Theoretical/computational work mainly deals with disc-planet interaction and the structure of HII regions. We are also part of the Stockholm University graduate school in Astrobiology, a truly crossdisciplinary collaboration with the departments of physics, geology and molecular biology. We are interested in researchers working observationally and/or theoretically on star formation, planet formation/exo-planets, and/or astrobiology.
Since the actual application to the research council has to be done jointly with the institute (with a deadline in April), we invite those interested in applying to contact one of us before March 15. Please include a CV. You can also contact us for more information.

Download/Website: `http://www.astro.su.se, http://astrobiology.physto.se`

Contact: `olofsson@astro.su.se, garrelt@astro.su.se`

Postdoctoral Research position

Jennifer Patience
School of Physics, University of Exeter, UK

Exeter, Available from April 2010

The School wishes to recruit a Postdoctoral Researcher to work with Dr Jennifer Patience. This STFC funded post is available from April 2010, or as soon as the position is filled. The successful applicant will conduct observations and analysis to search for and characterize substellar companions to nearby young stars, using high contrast techniques. The work must be completed within three years, by which time the project data acquisition and analysis will be finalized.
The successful applicant will be able to present information on research progress and outcomes, communicate complex information, orally, in writing and electronically and prepare proposals and applications to external bodies. Applicants will possess a relevant PhD and be able to demonstrate sufficient knowledge in the discipline and of research methods and techniques to work within established research programmes. Applicants will be experienced in the data reduction and analysis of high contrast adaptive optics imaging and, ideally, also have experience in spectroscopy of low-mass objects and sub-millimetre astronomical observations.
Salary will be circa 24,273 pa on the Associate Research Fellow scale, depending on knowledge, skills and experience. For further information please contact Dr Jennifer Patience e-mail patience@astro.ex.ac.uk or telephone 01392 264125. To apply, applicants should submit an application form, CV and publications list with the contact details of three referees, to Dr Jennifer Patience, quoting the job reference # N2656.
The closing date for full consideration of applications is April 30, 2010.

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

5 Announcements

New Exoplanet Content Available in NStED

David R. Ciardi on behalf of the NStED team
NASA Exoplanet Science Institute/Caltech

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The NASA Exoplanet Science Institute (NExScI) is pleased to announce a significant update to the NASA Star and Exoplanet Database (NStED). NStED now includes Spitzer IRS spectra, Keck-HIRES spectra donated from the planet-hunting program M2K, and photometric light curves of known transiting planets donated by amateur astronomers from around the world. NStED also has a new easy-to-use portal to stellar and planetary data of known exoplanet systems including planetary masses, orbits, and transit probabilities and predictions. A new service dedicated to the transit prediction for all known exoplanets is now available. In addition, NStED provides access to public Kepler light curve data. The Kepler public data portal allows users to search for Kepler targets based on the stellar (e.g., color, temperature) and light curve (e.g., duration, dispersion) properties. The NStED service includes all the stars in the Kepler Input Catalog that fall within the Kepler CCD detector in at least one observing season (4,451,462 stars). NStED enables searches by coordinates or by named sources, and complex queries across the catalog contents, including the ability to upload multiple targets around which to search. Query constraints can be placed on 70 separate fields, including planet properties, kinematics, photometry, colors, and stellar properties. For stars hosting planets, planetary parameters, hundreds of radial velocity data, and photometric light curves are available.

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

Contact: `http://nsted.ipac.caltech.edu/applications/Helpdesk`

6 As seen on astro-ph

The following list contains all the entries relating to exoplanets that we spotted on astro-ph during February 2010. If you spot any that we missed, please let us know and we'll include them in the next issue. And of course, the best way to ensure we include your paper is to send us the abstract.

Exoplanets

astro-ph/0912.0404: **Checking Stability Of Planet Orbits In Multiple-planet Systems** by *F. Malbet, J. Catanzarite, M. Shao et al*

astro-ph/1002.0332: **Exoplanetary Microlensing** by *B. Scott Gaudi*

astro-ph/1002.0637: **Transiting Extrasolar Planet with a Companion: Effects of Orbital Eccentricity** by *Masanao Sato, Hideki Asada*

astro-ph/1002.1052: **An ingress and a complete transit of HD 80606 b** by *M. G. Hidas, Y. Tsapras, R. A. Street et al*

astro-ph/1002.1074: **Discovery and Characterization of a Faint Stellar Companion to the A3V Star Zeta Virginis** by *Sasha Hinkley, Ben R. Oppenheimer, Douglas Brenner et al*

astro-ph/1002.1638: **Tau Boo b: Hunting for reflected starlight** by *F. Rodler, M. Kuerster, T. Henn*

astro-ph/1002.1947: **H-band thermal emission from the 0.79-day period planet WASP-19b** by *D. R. Anderson, M. Gillon, P. F. L. Maxted et al*

astro-ph/1002.1996: **Ground-based detection of thermal emission from the exoplanet WASP-19b** by *N. P. Gibson, S. Aigrain, D. L. Pollacco et al*

astro-ph/1002.2109: **Giant planet formation in the framework of the core instability model** by *Andrea Fortier*

astro-ph/1002.2201: **On the orbital evolution of giant planet pair embedded in a gaseous disk. I: Jupiter-Saturn configuration** by *Hui Zhang, Ji-Lin Zhou*

astro-ph/1002.2434: **Probing the terminator region atmosphere of the Hot-Jupiter XO-1b with transmission spectroscopy** by *G. Tinetti, P. Deroo, M. R. Swain et al*

astro-ph/1002.2453: **A ground-based near-infrared emission spectrum of the exoplanet HD 189733b** by *Mark R. Swain, Pieter Deroo, Caitlin A. Gr et al*

astro-ph/1002.2627: **Red giants from the Pennsylvania - Torun Planet Search** by *P. Zielinski, A. Niedzielski, M. Adamow et al*

astro-ph/1002.2927: **Clouds in the atmospheres of extrasolar planets. I. Climatic effects of multi-layered clouds for Earth-like planets and implications for habitable zones** by *D. Kitzmann, A.B.C. Patzer, P. von Paris et al*

astro-ph/1002.3002: **Gas Accretion onto a Protoplanet and Formation of a Gas Giant Planet** by *Masahiro N. Machida, Eiichiro Kokubo, Shu-ichiro Inutsuka et al*

astro-ph/1002.3009: **Transits and Lensing by Compact Objects in the Kepler Field: Disrupted Stars Orbiting Blue Stragglers** by *Rosanne Di Stefano*

astro-ph/1002.3168: **Transit Probabilities for Stars With Stellar Inclination Constraints** by *Thomas G. Beatty, Sara Seager*

astro-ph/1002.3650: **Inflating Hot Jupiters With Ohmic Dissipation** by *Konstantin Batygin, David J. Stevenson*

astro-ph/1002.3673: **Formation and Dynamical Evolution of the Neptune Trojans - the Influence of the Initial Solar System Architecture** by *P. S. Lykawka, J. Horner, B. W. Jones et al*

astro-ph/1002.4113: **Planetary eclipse mapping of CoRoT-2a. Evolution, differential rotation, and spot migration** by *K. F. Huber, S. Czesla, U. Wolter*

astro-ph/1002.4447: **Interior structure models of GJ 436b** by *N. Nettelmann, U. Kramm, R. Redmer et al*

astro-ph/1002.4608: **WASP-12b as a prolate, inflated and disrupting planet from tidal dissipation** by *Shu-lin Li , Neil Miller, Douglas N. C. Lin et al*

astro-ph/1002.4702: **Educated search for transiting habitable planets. Targetting M dwarfs with known tran-**

siting planets by *M. Gillon, X. Bonfils, B.-O. Demory et al*

astro-ph/1002.4707: **The Spitzer search for the transits of HARPS low-mass planets - I. No transit for the super-Earth HD 40307b** by *M. Gillon, D. Deming, B.-O. Demory et al*

astro-ph/1002.4875: **Habitable Climates: The Influence of Eccentricity** by *Courtney D. Dressing, David S. Spiegel, Caleb A. Scharf et al*

Disks

astro-ph/1002.0307: **Type I planet migration in nearly laminar disks - long term behavior** by *Cong Yu, Hui Li, Shengtai Li et al*

astro-ph/1002.0335: **Gas- and dust evolution in protoplanetary disks** by *T. Birnstiel, C.P. Dullemond, F. Brauer*

astro-ph/1002.1715: **The Morphologies and Lifetimes of Transitional Protoplanetary Disks** by *Thayne Currie*

astro-ph/1002.3742: **Type III migration in a low viscosity disc** by *Min-Kai Lin, John C.B. Papaloizou*

astro-ph/1002.4693: **Forming Low Mass Stars and Brown Dwarfs in Protoplanetary Disks of Very Massive Stars** by *Amit Kashi, Noam Soker*

Instrumentation and Techniques

astro-ph/1002.0765: **Astrometric signal profile fitting for Gaia** by *Mario Gai, Rossella Cancelliere, Deborah Busonero et al*

astro-ph/1002.2861: **Exoplanetary Systems with SAFARI: A Far Infrared Imaging Spectrometer for SPICA** by *J.R. Goicoechea, B. Swinyard*

astro-ph/1002.2898: **Photometric quality of Dome C for the winter 2008 from ASTEP South** by *Nicolas Crouzet, Tristan Guillot, Karim Agabi et al*

astro-ph/1002.5005: **Pathway Toward an Infrared Interferometer** by *Jean Schneider*