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1 ABSTRACTS OF RECENTLY ACCEPTED PAPERS

Resumos de artigos aceites recentemente

The MHD coupling between coronal dynamics and photospheric motions

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Context. Whether it be the heating problem or the destabilization of coronal structures, use is often made of the so-called “line-tying” boundary conditions, which amounts to imposing the photospheric velocity at the photosphere as a boundary condition for coronal dynamics. Directly coupling the low beta coronal evolution to prescribed photospheric motions of the magnetic footpoints allows strong magnetic energy accumulation in the corona. But this amounts to ignoring possible feedback from the coronal loops on photospheric motions, a neglect that is commonly justified by the strong density contrast between the photosphere and the corona. On the other hand, the energy injected into the corona comes from the photosphere, so in principle the coronal loop might act as a conduit communicating photospheric dynamics from one region to another.

Aims. Our objective is to test the degree of validity of this line-tying approximation by considering the role of the dense photosphere explicitly.

Methods. We consider here a 1.5D MHD model of a magnetic loop including a strongly stratified solar-like atmosphere and consider free (instead of prescribed/line-tied) boundary conditions applied deep in the photosphere, so as to quantify the coupling between the photosphere and corona as determined by stratification. We give an initial kick to one of the footpoints in the form of an upwardly propagating Alfvénic perturbation rising from the lower boundary, and then allow waves to freely escape the numerical domain from the boundaries, seated deep in the photosphere.

Results. We find that the response of the loop differs in many aspects from what is predicted by the line-tied condition. a) The magnetic energy density available in the corona is limited to a value equal to the kinetic energy density in the photospheric motion. b) The initial velocity shear between the opposite loop footpoints vanishes after a time proportional to the loop length. The shear between the coronal boundaries on opposite sides of the loop is quasi-uniform and is relaxed slowly by Alfvén waves propagating downwards through the high- β photospheric layers. This process is insensitive to details of the thermal structure. c) Coronal loops are thus shown to exert a strong feedback on the photospheric dynamics, intermediate between friction and diffusion, instead of no reaction at all.

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TW Hydrae: evidence of stellar spots instead of a Hot Jupiter

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Context: TW Hya is a classical T Tauri star that shows significant radial-velocity variations in the optical regime.

These variations have been attributed to a $10 M_{Jup}$ planet orbiting the star at 0.04 AU. Aims: The aim of this letter is to confirm the presence of the giant planet around TW Hya by (i) testing whether the observed RV variations can be caused by stellar spots and (ii) analyzing new optical and infrared data to detect the signal of the planet companion. Methods: We fitted the RV variations of TW Hya using a cool spot model. In addition, we obtained new high-resolution optical & infrared spectra, together with optical photometry of TW Hya and compared them with previous data. Results: Our model shows that a cold spot covering 7% of the stellar surface and located at a latitude of 54° can reproduce the reported RV variations. The model also predicts a bisector semi-amplitude variation $<10 \text{ ms}^{-1}$, which is less than the errors of the RV measurements discussed in Setiawan et al. (2008, Nature, 451, 38). The analysis of our new optical RV data, with typical errors of 10 ms^{-1} , shows a larger RV amplitude that varies depending on the correlation mask used. A slight correlation between the RV variation and the bisector is also observed although not at a very significant level. The infrared H-band RV curve is almost flat, showing a small variation ($<35 \text{ ms}^{-1}$) that is not consistent with the published optical orbit. All these results support the spot scenario rather than the presence of a hot Jupiter. Finally, the photometric data shows a 20% (peak to peak) variability, which is much larger than the 4% variation expected for the modeled cool spot. The fact that the optical data are correlated with the surface of the cross-correlation function points towards hot spots as being responsible for the photometric variability. Conclusions: We conclude that the best explanation for the RV signal observed in TW Hya is the presence of a cool stellar spot and not an orbiting hot Jupiter.

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<http://de.arxiv.org/abs/0808.2386>

Near-infrared photometry and radio continuum study of the massive star-forming regions IRAS 21413+5442 and IRAS 21407+5441

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IRAS 21413+5442 and IRAS 21407+5441 are two massive star-forming regions of high luminosity, likely associated with each other. Near-infrared (NIR) photometry on these two IRAS sources was performed at United Kingdom Infrared Telescope (UKIRT) using the UFTI under excellent seeing conditions yielding an angular resolution of ~ 0.5 arcsec. Our results reveal details of stellar content to a completeness limit (90 per cent) of $J = 18.5, H = 18.0$ and $K = 17.5$ mag in the two regions. In IRAS 21413+5442, we identify a late O-type star, having large H - K colour, to be near the centre of the CO jets observed by earlier authors. The UKIRT images reveal in IRAS 21407+5441, a faint but clear compact HII region around a central high- and intermediate-mass star cluster. We have detected a number of sources with large H - K colour which are not detected in J band. We also present the GMRT radio continuum map at 1.28 GHz covering the entire region surrounding the two star-forming clouds. The radio continuum fluxes are used to estimate the properties of HII regions which seem to support our NIR photometric results. Based on our radio continuum map and the archival Midcourse Space Experiment (MSX) $8.2\text{-}\mu\text{m}$ image, we show that the two IRAS sources likely belong to the same parent molecular cloud and conjecture that a high-mass star of large IR colours, present in between the two sources, might have triggered star formation in this region. However, one cannot rule out the alternative possibility that Star A could be a nearby foreground star.

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<http://de.arxiv.org/abs/0808.1812>

Dark matter from cosmic defects on galactic scales?

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We discuss the possible dynamical role of extended cosmic defects on galactic scales, specifically focusing on the possibility that they may provide the dark matter suggested by the classical problem of galactic rotation curves. We emphasize that the more standard defects (such as Goto-Nambu strings) are unsuitable for this task but show that more general models (such as transonic wiggly strings) could in principle have a better chance. In any case, we show that observational data severely restricts any such scenarios.

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<http://de.arxiv.org/abs/0807.4373>

2 ABSTRACTS OF RECENT PH.D. DISSERTATIONS

Resumos de doutoramentos recentes

FROM DUST TO LIGHT: a study of star formation in NGC 2264

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The goal of this dissertation is to characterize the star formation history of the young cluster NGC 2264 using the unique observational capabilities of the Spitzer Space Telescope. The motivation to conduct this study stems from the fact that most stars are formed within clusters, so the formation and evolution of the latter will effect the stellar mass distribution in the field. Detailed observational studies of young stellar clusters are therefore crucial to provide necessary constraints for theoretical models of cloud and cluster formation and evolution. This study also addresses the evolution of circumstellar disks in NGC 2264; empirical knowledge of protoplanetary disk evolution is required for the understanding of how planetary systems such as our own form. The first result obtained from this study was both completely new and unexpected. A dense region within NGC 2264 was found to be teeming with bright $24\ \mu\text{m}$ Class I protostars; these sources are embedded within dense submillimeter cores and are spatially distributed along dense filamentary fingers of gas and dust that radially converge on a B-type binary Class I source. This cluster of protostars was baptized the “Spokes cluster” and its analysis provided further insight into the role of thermal support during core formation, collapse and fragmentation. The nearest neighbor projected separation distribution of these Class I sources shows a characteristic spacing that is similar to the Jeans length for the region, indicating that the dusty filaments may have undergone thermal fragmentation. The submillimeter cores of the Spokes cluster were observed at 230 GHz using the SMA and the resulting high resolution ($\sim 1.3''$) continuum observations revealed a dense grouping of 7 Class 0 sources embedded within a particular core, D-MM1 ($\sim 20'' \times 20''$). The compact sources have masses

ranging between $0.4 M_{\odot}$ and $1.2 M_{\odot}$, and radii of ~ 600 AU. The mean separation of the Class 0 sources within D-MM1 is considerably smaller than the characteristic spacing between the Class I sources in the larger Spokes cluster and is consistent with hierarchical thermal fragmentation of the dense molecular gas in this region. The results obtained by the study of the Spokes cluster show that the spatial substructuring of a cluster or subcluster is correlated with age, i.e., groupings of very young protostars have clearly more concentrated and substructured spatial distributions. The Spokes cluster could thus be one of several building blocks of NGC 2264, and will likely expand and disperse its members through the surrounding region, adding to the rest of NGC 2264's stellar population. To further explore this scenario, I identified pre-main sequence disk-bearing sources in the whole region of NGC 2264, as surveyed by the Infrared Array Camera (IRAC), analyzing both their spatial distributions and ages. Of the 1404 sources detected in all four IRAC bands, 116 sources were found to have anemic IRAC disks and 217 sources were found to have thick IRAC disks; the disk fraction was calculated to be $37.5\% \pm 6.3\%$ and found to be a function of spectral type, increasing for later type sources. I identified 4 candidate sources with transition disks (disks with inner holes), as well as 6 sources with anemic inner disks and thick outer disks that could be the immediate precursors of transition disks. This is a relevant result for it suggests planet formation may be occurring in the inner disk at very early ages. I found that the spatial distribution of the disk-bearing sources was a function of both disk type and amount of reddening. This spatial analysis enabled the identification of three groups of sources, namely, (i) embedded ($A_V > 3$ magnitudes) sources with thick disks, (ii) unembedded sources with thick disks, and (iii) sources with anemic disks. The first group was found to have a median age of 1 Myr and its spatial distribution is highly concentrated and substructured. The second group, (ii), has a median age of 2 Myr and its spatial distribution is less concentrated and substructured than group (i), but more than the group of sources with anemic disks – the spatial distribution of this third group (age ≥ 2 Myr) is not substructured and is more distributed, showing no particular peak or concentration. The star formation history of NGC 2264 appears to be as follows: the northern region appears to have undergone the first epoch or episode of star formation, while the second epoch is currently occurring in the center (Spokes cluster) and south (near Allen's source).

O objectivo desta dissertação é o estudo da história da formação estelar do exame estelar jovem NGC 2264, bem como a caracterização da população estelar da pré-sequência principal que possui discos circum-estelares. Este trabalho foi realizado usando primariamente dados do telescópio espacial Spitzer, nomeadamente, imagens obtidas com os detectores "IRAC" (filtros centrados em $3.6 \mu\text{m}$, $4.5 \mu\text{m}$, $5.8 \mu\text{m}$, e $8 \mu\text{m}$) e "MIPS" (filtros centrados em $24 \mu\text{m}$, $70 \mu\text{m}$, e $160 \mu\text{m}$). A capacidade observacional do Spitzer é única, sendo o telescópio com a melhor combinação de sensibilidade e resolução espacial actualmente existente que observa na janela espectral definida pelos comprimentos de onda $3.6 \mu\text{m}$ e $160 \mu\text{m}$. A motivação deste estudo resulta do facto de que a maior parte das estrelas nasce em enxames estelares, pelo que a formação e evolução de enxames determina consequentemente a distribuição de massas estelares. Estudos observacionais detalhados de enxames jovens são cruciais para desenvolver modelos teóricos que descrevam a formação e evolução de nuvens moleculares e enxames de uma forma mais realista. O estudo de discos circum-estelares em NGC 2264 fornece dados empíricos da evolução de discos proto-planetários que são igualmente necessários para a compreensão de como sistemas planetários, tal como o nosso, formam. O primeiro resultado obtido neste trabalho doutoral, e um dos primeiros da era Spitzer, foi completamente novo e inesperado. Descobrimos numa região da nuvem molecular associada ao exame NGC 2264 caracterizada por matéria molecular densa ($n \approx 10^4 \text{ cm}^{-3}$), um aglomerado ou sub-enxame rico em proto-estrelas Class I. As proto-estrelas estão embebidas em núcleos ou glóbulos submilimétricos bastante densos ($n \approx 10^5 \text{ cm}^{-3}$), e encontram-se distribuídas espacialmente ao longo de dedos filamentosares de gás e poeira que convergem numa fonte binária de Class I de tipo espectral B (IRS 2). Este sub-enxame de proto-estrelas Class I foi baptizado de enxame "Spokes", e a sua análise permitiu compreender melhor o papel desempenhado pela pressão térmica durante a formação, colapso, e fragmentação de filamentos e glóbulos ou núcleos de gás e poeira. A distribuição da distância (projectada) entre as proto-estrelas Class I e as suas vizinhas mais próximas é caracterizada por um espaçamento ($20'' \pm 5''$) que é semelhante ao comprimento de Jeans para a região ($26''$), indicando que os filamentos de poeira possam ter fragmentado por um processo em que a pressão térmica era dominante (comparada com a pressão da turbulência ou pressão magnética) – fragmentação térmica. Os núcleos ou glóbulos submilimétricos do enxame Spokes foram observados a uma frequência de 230 GHz usando o radiotelescópio interferométrico "SMA"; as resultantes observações no contínuo são de alta resolução ($\sim 1.3''$) e revelaram um denso aglomerado de 7 fontes compactas embebidas num particular núcleo ou glóbulo designado de D-MM1 ($\sim 20'' \times 20''$, $n \approx 10^6 \text{ cm}^{-3}$). As fontes compactas têm massas entre $0.4 M_{\odot}$ e $1.2 M_{\odot}$, e diâmetros de ~ 1200 AU, e o seu estado evolucionário corresponde ao de proto-estrelas Class 0. A distância média (projectada) entre as proto-estrelas Class 0 em D-MM1 ($6.9''$) é consideravelmente menor do que o espaçamento característico entre as proto-estrelas Class I do enxame Spokes, mas semelhante ao comprimento de Jeans para D-MM1 ($5.9''$); este resultado é indicativo de que possa ter havido fragmentação

térmica hierárquica do gas molecular denso no enxame Spokes. O estudo do enxame Spokes mostra portanto que a sub-estruturação espacial de um exame ou sub-enxame está correlacionado com a idade das suas fontes, i.e., aglomerados de proto-estrelas muito jovens têm claramente distribuições espaciais mais concentradas e sub-estruturadas. O enxame Spokes poderá ser desta forma um de vários blocos construtores de NGC 2264: irá expandir e dispersar os seus membros pela região circundante, adicionando membros à população estelar já existente. Para poder continuar a explorar este cenário, identifiquei a população de estrelas da pré-seqência principal que têm discos circum-estelares em toda a região de NGC 2264 observada pelo IRAC, e analisei a sua estrutura espacial e distribuição de idades. Os discos circum-estelares, ou proto-planetários, foram classificados em dois tipos de acordo com o declive, entre $3.6\ \mu\text{m}$ e $8\ \mu\text{m}$, da distribuição espectral de energia da respectiva fonte, α_{IRAC} : discos espessos têm $-1.8 \leq \alpha_{\text{IRAC}} < -0.5$ e discos anémicos têm $-2.56 < \alpha_{\text{IRAC}} < -1.8$ (fontes sem disco IRAC são caracterizadas por $\alpha_{\text{IRAC}} < -2.56$). Das 1404 fontes detectadas usando os quatro filtros do IRAC, 116 fontes têm discos anémicos e 217 fontes têm discos espessos; a fracção de discos em NGC 2264 calculada foi de $37.5\% \pm 6.3\%$ e é função do tipo espectral: a fracção de discos circum-estelares aumenta com a diminuição da massa estelar. A comparação da distribuição espectral de energia mediana das fontes com discos espessos de NGC 2264 com a de um outro enxame jovem IC 348, mostra que fontes de tipos espectrais A-F de NGC 2264 têm discos com maior estrutura vertical, o que significa que existe maior sedimentação dos grãos de poeira nos discos espessos das estrelas A-F de IC 348. Os discos espessos para fontes de menor massa de NGC 2264 aparentam ter a mesma distribuição vertical que os de IC 348. Ambas estas comparações indicam que a sedimentação é maior para os discos em torno de estrelas de menor massa em NGC 2264. Este estudo de discos circum-estelares também permitiu a identificação de discos transitórios (i.e., discos com buraco interior), assim designados pois são considerados estar num estado evolutivo entre discos proto-planetários e discos secundários ou de “debris”. Foram encontrados 4 fontes com possíveis discos transitórios (a ausência de excesso de emissão detectada por IRAC traduz-se numa ausência do disco interior), bem como 6 fontes com discos interiores anémicos e discos exteriores espessos (detectados por MIPS) que poderão ser os percussores imediatos de discos transitórios. Este é um resultado relevante pois sugere que a formação planetária poderá estar a ocorrer nos discos interiores de sistemas bastante jovens (< 2 milhões de anos). Para pesquisar a história de formação estelar em NGC 2264 utilizei vários métodos para analisar a distribuição espacial das fontes com discos usando dados fotométricos complementares no infravermelho próximo (J, H e K_s). Esta análise permitiu concluir que a distribuição espacial de fontes com discos é função do tipo de disco (i.e., se o disco é anémico ou espesso) e da quantidade de extinção sofrida (i.e., se a fonte está embebida ou não na nuvem molecular). A análise deste distribuição espacial permitiu a identificação de três grupos de fontes, nomeadamente, (i) fontes embebidas ($A_V > 3$ magnitudes) e que têm discos espessos, (ii) fontes não embebidas ($A_V \leq 3$ magnitudes) e que têm discos espessos, e (iii) fontes com discos anémicos. Encontrou-se que o primeiro grupo tem uma idade mediana de 1 milhão de anos e a sua distribuição espacial é altamente concentrada e sub-estruturada. O segundo grupo, (ii), tem uma idade mediana de 2 milhões de anos e a sua distribuição espacial é menos concentrada e apresenta menos sub-estruturação que o grupo (i), mas mais do que o grupo de fontes com discos anémicos – a distribuição espacial deste último grupo (idade ≥ 2 milhões de anos) não apresenta sub-estruturação e é mais dispersa, sem nenhum particular pico ou concentração. A história da formação estelar de NGC 2264 aparenta ter ocorrido da seguinte forma: o primeiro episódio ou época de formação estelar deu-se no norte da nuvem molecular associada com NGC 2264, enquanto que o segundo episódio ou época de formação estelar esteja a correr no centro (onde se encontra o enxame Spokes) e no sul (perto da fonte Allen) da nuvem.

3 NEW JOB AND SCHOLARSHIP OFFERS

Anúncios recentes de empregos e bolsas

POSTDOCTORAL POSITIONS IN ASTROPHYSICS AT S.I.S.S.A.

The Astrophysics Sector (<http://www.sissa.it/ap/>) of the International School for Advanced Studies of Trieste (Italy) expects to have an opening for at least two research associate (post-doc) positions starting in Fall 2009. The positions are for two years (formally 1+1 but with renewal based only on reasonable scientific performance) and can be possibly extended for a further third year.

The SISSA Astrophysics Sector consists of a faculty of eight permanent members and two contract researchers. Also there are currently 7 postdocs and 22 graduate students (including 13 foreigners). Several additional professors and

postdocs are often visiting and collaborating with the members of the Sector. The research areas covered by the Sector include: early universe physics, cosmic microwave background, large scale structure, galaxies, dark matter, galactic and extragalactic black-holes, high energy astrophysics, relativistic astrophysics and gravitation theory. There will be no a priori selection based on the candidate's research topics.

SISSA is an International and multidisciplinary PhD school, unique in Italy, pursuing research in the fields of Physics, Mathematics and Biophysical Sciences (<http://www.sissa.it/>). It is at present located at the Miramare Science Campus to the north of Trieste, which it shares with the Abdus Salam International Centre for Theoretical Physics (ICTP). SISSA will soon be moving to a new campus on a hillside overlooking the city and Gulf of Trieste. This new campus will give more space and enhanced facilities while still being located at a convenient distance from the main scientific institutions of the area (ICTP, Trieste University, Trieste Observatory...).

Trieste is 130 km east of Venice and near to Slovenia, Austria and Croatia. The selected candidates are expected to take part in the scientific activity of the Sector and to carry out their own independent research. There are no (compulsory) teaching duties. The salary is more than adequate for the local cost of living and we offer funding for traveling and invitations of collaborators. SISSA also offers good computer facilities and access to supercomputing resources. All of the scientific activity (and most of the administration) is carried out in English and we provide facilities for members (housing office, Italian classes, soon a kindergarden for children of SISSA members, etc.). Applicants should submit via web (<http://www.sissa.it/ap/postdoc/>) a curriculum vitae, list of publications, brief descriptions of past research and future plans, and provide the names and email addresses of at least two referees who we will automatically contact. For further information or problems with the electronic submission, you can contact Dr. Lorena Bencina via email: bencina@sissa.it Completed applications should be received no later than Nov. 15, 2008.

Postdoctoral Position in Galaxy Formation and Evolution (Theory) at the Astronomical Observatory of Trieste (INAF - OAT)

The INAF-Astronomical Observatory of Trieste (INAF-OAT) invites applications for a postdoctoral research position in the field of galaxy formation and evolution.

The successful applicant will join a newly formed research group which focuses on theoretical and observational aspects of galaxy formation and evolution, and their dependence on the environment. The research is funded by a "Starting Independent Research Grant" of the "European Research Council" (FP7-IDEAS), and will be carried out also in collaboration with the Computational Group at INAF-OAT. Previous experience with N-body/hydrodynamic simulations will be an advantage.

A copy of the announcement (in Italian) is available at:

<http://www.ts.astro.it/concorsi/index.html>

(click on "Post Doc INAF-OATS ERC-StGDeLucia 2008")

A copy of the announcement (DD59BorsaERC1.pdf - in Italian), and of the application forms (DD59_forms.doc - in Italian and English) can be found at:

<http://www.mpa-garching.mpg.de/~lucia/PostDoc.htm>

For additional information and enquiries, please contact Gabriella De Lucia (gdelucia@mpa-garching.mpg.de).

Postdoctoral Position in Galaxy Formation and Evolution (Theory) at the Astronomical Observatory of Trieste (INAF - OAT)

To whom it may concern

Please note the vacancy notices of

- Executive Administrative Officer
- Hubble Astronomer
- Head of the Instrumentation Projects Department
- Commissioning Scientists

- Staff Astronomer

to be filled with the European Organisation for Astronomical Research in the Southern Hemisphere (ESO).

We would very much appreciate if you could bring these vacancy notices to the attention of possible candidates and/or give them wide publicity through your internal publication procedure.

ESO's other vacancies can be found at <https://jobs.eso.org/>.

Thank you in advance for your assistance.

Best regards, – Isabell Heckel

Dan David Prize: CALL FOR NOMINATIONS & SCHOLARSHIPS 2009

Three prizes of US\$1,000,000 each are awarded annually in the fields chosen within the three time dimensions - Past, Present and Future. Twenty scholarships of US\$ 15,000 each are awarded to outstanding doctoral and postdoctoral students from universities around the world doing research in the chosen fields.

The selected fields for the Dan David Prize and scholarships for 2009 are:

Past Time Dimension: Astrophysics – History of the Universe

Present Time Dimension: Leadership

Future Time Dimension: Global Public Health

For details regarding the Dan David Prize and its scholarships please consult our website: www.dandavidprize.org.

Postdoc and PhD positions at the ALMA Regional Center in Bonn

Applications are invited for two postdoctoral positions and at least one PhD position at the Argelander Institute for Astronomy (AIfA). Here the successful candidates will join the local ALMA Regional Center (ARC) node's growing submillimeter-interferometry research group, which has scientific interests ranging from galaxy evolution to star formation and evolved stars. One postdoctoral position and one PhD position will be in the framework of the Astronet ARTIST (Adaptable Radiative Transfer Innovations for Submillimeter Telescopes) project.

For more information and the full text of the job announcements please check:

<http://www.astro.uni-bonn.de/ARC/> (Bonn-Cologne-Bochum ARC Node)

[http://www.astro.uni-bonn.de/ARC/artist/\(ARTISThomepage\)](http://www.astro.uni-bonn.de/ARC/artist/(ARTISThomepage))

OPEN CALL FOR APPLICATIONS POSTDOCTORAL POSITION SOLAR MAGNETISM PROJECT IAC

Open call for applications for one postdoctoral position within the framework of the IAC's SOLAR MAGNETISM & SPECTROPOLARIMETRY project: http://www.iac.es/folleto/research/postdocs200/magnetismo_bis_eng_2008.html

Deadline for the submission of applications: **17th November 2008**

Instrument Scientist, UK ATC

SCIENCE AND TECHNOLOGY FACILITIES COUNCIL

UK ASTRONOMY TECHNOLOGY CENTRE

Instrument Scientist/Astronomer 26k pa - 29k pa (exceptionally) 33k pa - 37k pa*

The UK ATC is the national centre for the design and production of world leading astronomical telescopes, instruments and systems. We are playing a major role in the design and construction of instrumentation for 8m telescopes and in

preparation for the next generation of Extremely Large Telescopes (ELTs). Our current major projects include the delivery of systems to the European Southern Observatory Very Large Telescope (in Chile), the James Clerk Maxwell Telescope (Hawaii), the Herschel Space Observatory (HSO), Mid InfraRed Imager (MIRI) for the James Webb Space Telescope (JWST), the Atacama Large Millimetre/submillimetre Array (ALMA) being constructed in Chile by a World Wide Consortium and the design and build of VISTA - a 4m wide-field telescope in Chile.

We require an enthusiastic, highly motivated astronomer, to help drive science-based instrument development and construction and make major contributions to our research programme.

Initially leading the performance modelling, testing and verification aspects of the KMOS instrument, you will play a key role in the commissioning of the instrument in Chile. KMOS is a state-of-the-art infrared multi-object spectrometer currently at an advanced design stage, being built for the ESO VLT with UK and other European collaborators.

Joining our active astronomy research group, up to 30% involve personal research. We have strong research links with the Institute for Astronomy at the University of Edinburgh and there may be an opportunity to jointly supervise PhD students. Working with other scientists and engineers, you will also have opportunities to contribute to R&D work for ELT instrumentation and astronomical technology development. A minimum qualification of PhD plus post doctoral experience in a physics related discipline, with experience with astronomy/astronomical instrumentation, are required.

Starting salary is dependent on your qualifications and experience.

*It would be possible to consider appointment of an exceptional candidate to the higher salary range as shown above. Our benefits include a generous leave allowance, a healthcare package and choice of pension benefits. Where appropriate assistance with relocation expenses may be available.

For further information and application form please call our Recruitment line on 0131 668 8100, email us at atrecruitment@roe.ac.uk quoting reference 05/08 or visit our website at <http://www.roe.ac.uk/ukatc/jobs>

Closing date for applications is Monday 1 December 2008.

Applications from agencies will not be accepted.

www.roe.ac.uk/ukatc/jobs

Research Associate in Extragalactic Astronomy and Cosmology, University of Arizona

The University of Arizona Department of Astronomy and Steward Observatory invites applications for a postdoctoral Research Associate position to work with Dr. Xiaohui Fan and collaborators on areas of Extragalactic Astronomy and Cosmology.

The appointment will be initially for two years, with a possible third-year extension based on performance.

The successful applicant will be provided a research budget and is encouraged to carry out independent, original research. He/she will have full access to the observational facilities of the University of Arizona, including the 2x8.4m Large Binocular Telescope, the 6.5m MMT telescope, the two 6.5m Magellan Telescopes, the 2.3m Bok Telescope and the 10m Sub-millimeter Telescope, as well as advanced computing facilities. Steward astronomers also have full access to the SDSS-III survey data.

We are especially interested in candidates with interests in high-redshift galaxies, quasars/AGNs, cosmic reionization and large area cosmological surveys, but strong candidates from any subfield of astronomy will be considered.

The closing date for receipt of application: 01/03/2009. Please submit resume and research statement and arrange three letters of reference to be sent to: fan@as.arizona.edu (preferred), or by mail: Xiaohui Fan

933 N. Cherry Ave
The University of Arizona
Tucson, AZ 85721-0065

Post-doctoral and Tenure-Track Staff Positions in the Galaxies & Cosmology Department, MPI for Astronomy

The Galaxies & Cosmology Department of the Max Planck Institute for Astronomy, Heidelberg, Germany, invites applications for two tenure-track staff positions and post-doctoral researcher positions. The job ads can be found here (www.mpia.de/Public/menu.q2e.php?MPIA/jobs/index.html):

Theoretical Staff Position in Extragalactic Astronomy and Cosmology
<http://www.mpia.de/Public/menu.q2e.php?MPIA/jobs/08-11en.html>
(Deadline: 15 Dec 2008)

Observational Research Staff Position(tenure-track): Galaxies, Galaxy Evolution and Cosmology
<http://www.mpia.de/Public/menu.q2e.php?MPIA/jobs/08-10en.html>
(Deadline: 01 Dec 2008)

Postdoctoral Research Fellows and Associates in the “Galaxies and Cosmology” Department
(Deadline: 01 Dec 2008)

Tenure Track Staff Position in Observational Astronomy and Instrumentation Development
<http://www.mpia.de/Public/menu.q2e.php?MPIA/jobs/08-08en.html>
(Deadline: 15 Dec 2008)

4 MEETINGS AND CONFERENCES

Reuniões e encontros

SECOND ANNOUNCEMENT FOR A JOINT DISCUSSION AT THE XXVII IAU GENERAL ASSEMBLY, RIO DE JANEIRO, BRAZIL, 3-5 AUGUST 2009

Joint Discussion: NEUTRON STARS: TIMING IN EXTREME ENVIRONMENTS Duration: 1.5 days

Coordinating IAU Divisions: XI Participating IAU Divisions: V, X Participating IAU Commissions: 40, 44

This is the second announcement of the JD on NEUTRON STARS: TIMING IN EXTREME ENVIRONMENTS. As the JD will take place during the IAU General Assembly in Rio de Janeiro, the process of registration will be dealt with by the GA and the deadlines are coordinated with the organization of the main event. There is no need to register for this specific JD. Abstract submission will also be dealt with centrally at the GA site.

You can find info on the JD at <http://www.brera.inaf.it/IAU2009extreme/index.html>

. For registration, logistics and abstract submission, please visit the GA web site <http://www.astronomy2009.com.br/>. Pre-registration has been open for quite a while, while registration opened on 2008 November 1st.

IMPORTANT DEADLINES

Opening of registration, abstract submission: 2008 November 1st Opening of applications for travel grants: 2008 November 1st Deadline for abstract submission and application for travel grants: 2009 March 1st

STRUCTURE OF THE JD

The Joint Discussion will take place on a total of 1.5 days. In addition to the ten invited speakers listed below, solicited speakers will be selected. We have room for 14 contributed talks, plus a poster session.

Scientific rationale:

Astronomical systems harboring a neutron star, from isolated and binary radio pulsars to magnetars and accreting X-ray binaries, constitute a unique tool for the study of matter under extreme conditions. Testing General Relativity in the strong-field regime and the determination of the equation of state of neutron matter are major goals which appear more and more within reach. The availability of high-energy missions such as XMM-Newton, Chandra and Suzaku for energy spectra and RossiXTE for fast time variability, as well as the discovery of a new binary radio pulsar, have spurred these lines of research. The results from high-energy Cherenkov experiments like MAGIC and HESS

are opening a new window to study the extreme environment close to compact objects. Agile and GLAST will be fully operational, providing an unprecedented view of this type of systems. The proposed Joint Discussion aims at getting together experts in these fields for an analysis of the current situation and a view toward future prospects. 2009 will be the fourteenth year of operation of RossiXTE and it will mark the 10-year anniversary of the launch of XMM-Newton and Chandra. The Indian satellite for X-ray astronomy ASTROSAT will be in orbit, providing crucial fast-timing information. In addition, ESA, NASA and JAXA are currently analyzing the possibility of joining forces by merging the two major X-ray programs (Constellation-X and XEUS) into one large mission and we expect that the conclusions reached in this JD will help shape up the science program for it. All these constitute an ideal milestone for such a meeting. The proposed program includes nine major topics for which two solicited talks are envisioned, together with a small number of selected contributed talks. An additional session, distributed through the two days, will address future instrumentation for timing analysis. A poster session is also envisioned. A IAU JD provides an ideal setting for such a meeting and will allow discussions focused to these topics. Although the emphasis is on time variability, all aspects will be addressed, from radio observations to high-resolution spectra and high-energy emission.

Invited speakers:

F. Aharonian (Germany), N. Andersson (UK), D. Barret (France), D. Bhattacharya (India), A. Cumming (Canada), C. Kouveliotou (USA), J. Lattimer (USA), M. McLaughlin (USA), M. Mendez (Netherlands), R. Wijnands (Netherlands)

Scientific organizing committee:

Tomaso Belloni (co-chair, Italy), Mariano Mendez (co-chair, Netherlands), Chengmin Zhang (co-chair, China), Ali Alpar (Turkey), Didier Barret (France), Deepto Chakrabarty (USA), Marat Gilfanov (Germany/Russia), Jorge Horvath (Brazil), Vicky Kaspi (Canada), Duncan Lorimer (USA), Michiel van der Klis (Netherlands), Donald Melrose (Australia), Dany Page (Mexico), Andreas Reisenegger (Chile) Gustavo Romero (Argentina)

Information on the XXVII IAU GA can be found at <http://www.astronomy2009.com.br/>.

Information on this JD will soon be available at <http://www.brera.inaf.it/IAU2009extreme/index.html>.

Conference email: IAU2009extreme@brera.inaf.it

Best Regards

Chair:

Tomaso M. Belloni INAF - Osservatorio Astronomico di Brera Via E. Bianchi 46, I23807 Merate, ITALY E-mail: tomaso.belloni@brera.inaf.it

Mariano Mendez Kapteyn Astronomical Institute, University of Groningen P.O. Box 800, 9700 AV Groningen, The Netherlands E-Mail: mariano@astro.rug.nl

Chengmin Zhang National Astronomical Observatories, Chinese Academy of Sciences, Beijing 100012, China E-mail: zhangcm@bao.ac.cn

Astroparticles: Moriond 2009

Dear colleague,

The next Rencontres de Moriond meeting devoted to Very High Energy Phenomena in the Universe will be organized in La Thuile (Valle d'Aosta, Italy), February 1-8, 2009.

The topics covered will include:

- Ultra High Energy Cosmic Rays
- Origin and Propagation of Cosmic Rays
- Gamma Ray Astronomy
- Gamma Ray Bursts
- High Energy Neutrino Astronomy
- Dark Matter
- Extra Dimensions

Please note that quite a few grants from the European Union are available, specially for young physicists. Do not

hesitate to apply for them or encourage young colleagues to do so.

Registration is open on <http://moriond.in2p3.fr/J09/> where more details can be found

Hoping to meet you in La Thuile,
the organizing committee

Gravitational Waves Detection with Atom Interferometry

Organizers: Guglielmo Tino (Firenze), Flavio Vettrano (Urbino)

Period: from 23-02-2009 to 24-02-2009

Deadline: 15-01-2009

Note: The number of participants is limited to 50. The participation fee is 150 Euros including registration, coffee-breaks, lunches and the social dinner.

<http://ggi-www.fi.infn.it/index.php?p=events.inc&id=35>

5 OTHER ANNOUNCEMENTS

Outros anúncios

New ALMA web site on-line!

Dear all,

After months of efforts, I'm more than happy to inform you that the brand-new ALMA website is finally on-line at the following link: www.almaobservatory.org (the "classical" domains still work and are linked to this new one). This task was performed by the JAO EPO Department, in collaboration with the Executives' EPO Departments and with the support of ALMA scientists (thanks to all of them!).

As you will notice, ALMA's new web site is available both in english and spanish. It contains a complete development on contents covering all kind of information about the observatory, such as details related to science and technology, infrastructure, the geographical location, as well as general data regarding ALMA's universe.

In addition, the web site contains free downloadable publications on the project such as this beautifully illustrated book on biology in the ALMA area, and easy-to-build paper models of the antennas and the transporter. In the Newsroom section, you can find all the ALMA- related press releases (even the very first ones concerning ALMA, released in 1999!) and information on scientific events in which ALMA will participate. Don't hesitate in subscribing to the RSS feed in order to be aware of any news about the observatory.

Last but not least, the Multimedia section houses lots of pictures, animations and videos easily downloadable, which give a good overview of what and who we are.

This web site aims to be dynamic and constantly updated with new tools, articles, resources, pictures, videos etc... I'm sure you'll get familiar very quickly with the new website and hope you will enjoy it.

The JAO EPO Department

Public release of SDSS DR7

Thanks to the hard work of many people, DR7 has just been made public, on time.

It is available via <http://www.sdss.org> (a newly designed front page), or more directly at <http://www.sdss.org/dr7/>

Of special interest is "What's new in DR7"

<http://www.sdss.org/dr7/start/aboutdr7.html#dr7new>

as well as a completely re-worked DAS interface.

The CAS can be accessed either at <http://cas.sdss.org/astrodr7> or at <http://cas.sdss.org/dr7>. These sites have identical scientific content, but the front-end of the former is designed for scientists, and the latter for outreach.