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THE MASSIVE STAR NEWSLETTER

formerly known as the hot star newsletter

*

No. 144 2014 November-December

Editors: Philippe Eenens (University of Guanajuato) eenens@gmail.com

Raphael Hirschi (Keele University) http://www.astroscu.unam.mx/massive_stars

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News

Proposed IAU Commission on Stellar Magnetism

In the context of the IAU Commission renewal process, a new Commission on Stellar Magnetism has been proposed.

To quote from the Letter of Intent: "Considering the diverse and universal impact of stellar magnetism on the physics of stars, the clear scientific and societal importance of major unsolved problems in the field (e.g. the solar dynamo, space weather), and the large, broad international community engaged in this field, we propose the organization of a Commission on Stellar Magnetism with the aim of facilitating progress in understanding all aspects of stellar magnetism and activity, and in particular to coordinate international efforts in this regard. We welcome all individuals interested in pursuing the goals of the Commission."

Over 50 new Commissions have been proposed, including 8 in Division G ("Stars and Stellar Physics").

Members of the IAU should have recently received an email invitation to vote for up to 3 of the proposed commissions as part of an "Expression of Interest" activity.

We invite Massive Stars WG members to review the proposed Stellar Magnetism Commission LOI.

Weblink: http://www.iau.org/submissions/commissionproposal/list

Email: wade-g@rmc.ca

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voting for the new Commission on Massive Stars

dear Massive Stars Working Group members,
the IAU has started the voting procedure for the new Commissions.
As we announced a few weeks ago, the Organizing Committee of the
Massive Stars Working Group has submitted a Letter of Interest to turn our
Working Group into an IAU Commission, following previous WG decissions.

The OC encourages all WG members that are also IAU members to vote for the new Commission on Massive Stars following the instructions given in the email sent by the IAU General Secretary (to IAU members).

The OC also encourages all WG members to send comments and suggestions on the LoI for the final proposal. Please send them before December 31 to me (ahd@iac.es) or any OC member.

with best regards,
Artemio Herrero,
chair, on behalf of the Massive Stars Working Group Organizing Committee

Weblink:

Email: ahd@iac.es

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UV astronomy commission proposal

Dear colleagues and aficionados of ultraviolet astronomy:

Those of you who are members of the IAU will have received yesterday or today an Email from the General Secretary Thierry Montmerle announcing the start of the “indicative voting” for the new Commissions that were proposed earlier. This, because all existing Commissions will cease to exist at the coming General Assembly (GA) in August 2015 and the new ones will be established.

If you browsed through the list of commissions visible at http://www.iau.org/submissions/commissionproposal/list/, you probably noticed NC-19, which is our proposal to establish a Commission to deal with UV astronomy. The need for this Commission became evident at the last GA in Beijing, since the parent Division (XI) morphed into Division D that deals only with high energy astrophysics.

We believe that a dedicated Commission will play a major role in promoting the UV domain to a place of prominence among the different spectral domains, perhaps as much (or more) that the X-ray and IR, both in securing space missions and in educating a new generation of UV astronomers.

In order to secure these goals, we urge you to vote for NC-19 and to convince your colleagues to do the same. Please spread the word and make sure you finalize your vote before 31 December. If you are NOT a member of the IAU and have not received the GS Email, you can still help by convincing your colleagues who ARE members to vote for NC-19.

Thank you for your help, and hoping to revitalize UV astronomy,

Ana Ines Gomez de Castro, Jayant Murthy, Noah Brosch (proposers)

Weblink:

Email: Noah@wise.tau.ac.il

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Reminder: voting for a new IAU Commission

dear MSWG members,
(you may skip this message if you are not an IAU member or if you already voted for new Commissions)

as you know, we are in the process of applying to become a new IAU Commission, the Massive Stars Commission. In Beijing our group considered that this is an excellent opportunity for our research area. We think it will also contribute to the IAU long-term objectives.

Our group has been very active since its creation. This sustained activity is one of our strengths. Now we have to keep active and participate in the poll the IAU has created to explore the interest of the community in the new commissions.

The intermediate results are not bad for our proposal (4th out of 8 proposals in Division G), but it is important to get as many votes as possible.

If you are an IAU member and still didn't vote, the MSWG-OC encourages you to vote for the new Massive Stars Commission. The poll is open until December 31th.

with best regards,
Artemio Herrero
chair, on behalf of the Massive Stars Working Group Organizing Committee

Weblink:

Email: ahd@iac.es

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PAPERS

Abstracts of 7 accepted papers

The impact of mass-loss on the evolution and pre-supernova properties of red supergiants

G. Meynet (1), V. Chomienne (1), S. Ekstrom (1) , C. Georgy (2), A. Granada (1), J. Groh (1), A. Maeder (1), P. Eggenberger (1), E. Levesque (3) and P. Massey (4)

(1) Geneva Observatory, University of Geneva, Maillettes 51, CH-1290 Sauverny, Switzerland

(2) Astrophysics, Lennard-Jones Laboratories, EPSAM, Keele University, Staffordshire ST5 5BG, UK

(3) CASA, Department of Astrophysical and Planetary Sciences, University of Colorado 389-UCB, Boulder, CO 80309, USA

(4) Lowell Observatory, 1400 W Mars Hill Road, Flagstaff, AZ 86001, USA

The post main-sequence evolution of massive stars is very sensitive to many parameters of the stellar models. Key parameters are the mixing processes, the metallicity, the mass-loss rate and the effect of a close companion.
We study how the red supergiant lifetimes, the tracks in the Hertzsprung-Russel diagram (HRD), the positions in this diagram of the pre-supernova progenitor as well as the structure of the stars at that time change for various mass-loss rates during the red supergiant phase (RSG), and for two different initial rotation velocities. Stellar models are computed with the Geneva code for initial masses between 9 and 25 M$_odot$ at solar metallicity (Z=0.014) with 10 times and 25 times the standard mass-loss rates during the red supergiant phase, with and without rotation. The surface abundances of RSGs are much more sensitive to rotation than to the mass-loss rates during that phase.
A change of the RSG mass-loss rate has a strong impact on the RSG lifetimes and therefore on the luminosity function of RSGs. An observed RSG is associated to a larger initial mass model, when enhanced RSG mass-loss rate models are used to deduce that mass. At solar metallicity, the enhanced mass-loss rate models do produce significant changes on the populations of blue, yellow and red supergiants. When extended blue loops or blue ward excursions are produced by enhanced mass-loss, the models predict that a majority of blue (yellow) supergiants are post RSG objects. These post RSG stars are predicted to show much smaller surface rotational velocities than similar blue supergiants on their first crossing of the HR gap. Enhanced mass-loss rates during the red supergiant phase has little impact on the Wolf-Rayet (WR) populations. The position in the HRD of the end point of the evolution depends on the mass of the hydrogen envelope. More precisely, whenever, at the pre-supernova stage, the H-rich envelope contains more than about 5% of the initial mass, the star is a red supergiant, and whenever the H-rich envelope contains less than 1% of the total mass the star is a blue supergiant. For intermediate situations, intermediate colors/effective temperatures are obtained. Yellow progenitors for core collapse supernovae can be explained by the enhanced mass-loss rate models, while the red progenitors are better fitted by the standard mass-loss rate models.

Reference: in press for Astronomy and Astrophysics
Status: Manuscript has been accepted

Weblink: http://arxiv.org/abs/1410.8721

Comments:

Email: georges.meynet@unige.ch

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Luminous Blue Variables and superluminous supernovae from binary mergers

Stephen Justham (1), Philipp Podsiadlowski (2), Jorick S. Vink (3)

1 - National Astronomical Observatories, The Chinese Academy of Sciences, Beijing, China
2 - Astrophysics Sub-Department, University of Oxford, Oxford OX1 3RH, UK
3 - Armagh Observatory, College Hill, Armagh, BT619DG, UK

Evidence suggests that the direct progenitor stars of some core-collapse supernovae (CCSNe) are luminous blue variables (LBVs), perhaps including some `superluminous supernovae' (SLSNe). We examine models in which massive stars gain mass soon after the end of core hydrogen burning. These are mainly intended to represent mergers following a brief contact phase during early Case B mass transfer, but may also represent stars which gain mass in the Hertzsprung Gap or extremely late during the main-sequence phase for other reasons. The post-accretion stars spend their core helium-burning phase as blue

supergiants (BSGs), and many examples are consistent with being LBVs at the time of core collapse. Other examples are yellow supergiants at explosion. We also investigate whether such post-accretion stars may explode successfully after core collapse. The final core properties of post-accretion models are broadly similar to those of single stars with the same initial mass as the pre-merger primary star. More surprisingly, when early Case B accretion does affect the final core properties, the effect appears likely to favour a successful SN explosion, i.e., to make the core properties more like those of a lower-mass single star. However, the detailed structures of these cores sometimes display qualitative differences to any single-star model we have calculated. The rate of appropriate binary mergers may match the rate of SNe with immediate LBV progenitors; for moderately optimistic assumptions we estimate that the progenitor birthrate is ~1% of the CCSN rate.

Reference: The Astrophysical Journal (in press); see also arXiv:1410.2426
Status: Manuscript has been accepted

Weblink: http://arxiv.org/abs/1410.2426

Comments:

Email: sjustham@nao.cas.cn

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Analytical Solutions for Radiation-Driven Winds in Massive Stars. I: The Fast Regime

Ignacio Araya(1), Michel Cure(1) and Lydia S. Cidale(2)

(1) Instituto de Fisica y Astronomia, Universidad de Valparaıso, Chile;
(2) Departamento de Espectroscopıa, Facultad de Ciencias Astronomicas y Geofısicas, Universidad Nacional de La Plata and Instituto de Astrofısica La Plata, CCT La Plata, CONICET-UNLP,
Accurate mass-loss rate estimates are crucial keys in the study of wind properties of massive stars and for testing different evolutionary scenarios. From a theoretical point of view, this implies solving a complex set of differential equations in which the radiation field and the hydrodynamics are strongly coupled. The use of an analytical expression to represent the radiation force and the solution of the equation of motion has many advantages over numerical integrations. Therefore, in this work, we present an analytical expression as a solution of the equation of motion for radiation-driven winds in terms of the force multiplier parameters. This analytical expression is obtained by employing the line acceleration expression given by Villata and the methodology proposed by Müller & Vink. On the other hand, we find useful relationships to determine the parameters for the line acceleration given by Müller & Vink in terms of the force multiplier parameters.

Reference: ApJ, 795 81 (2014)
Status: Other

Weblink: http://arxiv.org/abs/1411.0751

Comments:

Email: michel.cure@uv.cl

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Line-Driven Winds Revisited in the Context of Be Stars: Ω-slow Solutions with High k Values

Jessie Silaj(1), Michel Cure(2), Carol E. Jones(1)

(1) Department of Physics and Astronomy, The University of Western Ontario, Canada
(2) Instituto de Fisica y Astronomıa, Universidad de Valparaıso, Chile

The standard, or fast, solutions of m-CAK line-driven wind theory cannot account for slowly outflowing disks like the ones that surround Be stars. It has been previously shown that there exists another family of solutions --- the $Omega$-slow solutions --- that is characterized by much slower terminal velocities and higher mass-loss rates. We have solved the one-dimensional m-CAK hydrodynamical equation of rotating radiation-driven winds for this latter solution, starting from standard values of the line force parameters ($alpha$, k, and $delta$), and then systematically varying the values of $alpha$ and k. Terminal velocities and mass-loss rates that are in good agreement with those found in Be stars are obtained from the solutions with lower $alpha$ and higher k values. Furthermore, the equatorial densities of such solutions are comparable to those that are typically assumed in ad hoc models. For very high values of k, we find that the wind solutions exhibit a new kind of behavior.

Reference: ApJ 795, 78 (2014)
Status: Other

Weblink: http://arxiv.org/abs/1411.1465

Comments:

Email: michel.cure@uv.cl

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The MiMeS Survey of Magnetism in Massive Stars: CNO surface abundances of Galactic O stars

F. Martins ^{1}, A. Hervé ^{1}, J.-C. Bouret ^{2}, W. Marcolino ^{3}, G.A. Wade ^{4}, C. Neiner ^{5}, E. Alecian ^{6}, J. Grunhut ^{7}, V. Petit ^{8}, the MiMeS collaboration

1- LUPM, CNRS & Montpellier University; 2- LAM Marseille; 3- Observatorio do Valongo; 4- Royal Military College of Canada; 5- Observatoire de Paris - LESIA; 6- IPAG Grenoble; 7- ESO; 8- University of Delaware

The evolution of massive stars is still partly unconstrained. Mass, metallicity, mass loss and rotation are the main drivers of stellar evolution. Binarity and magnetic field may also significantly affect the fate of massive stars. Our goal is to investigate the evolution of single O stars in the Galaxy. For that, we use a sample of 74 objects comprising all luminosity classes and spectral types from O4 to O9.7. We rely on optical spectroscopy obtained in the context of the MiMeS survey of massive stars. We perform spectral modelling with the code CMFGEN. We determine the surface properties of the sample stars, with special emphasis on abundances of carbon, nitrogen and oxygen. Most of our sample stars have initial masses in the range 20 to 50 Msun. We show that nitrogen is more enriched and carbon/oxygen more depleted in

supergiants than in dwarfs, with giants showing intermediate degrees of mixing. CNO abundances are observed in the range of values predicted by nucleosynthesis through the CNO cycle. More massive stars, within a given luminosity class, appear to be more chemically enriched than lower mass stars. We compare our results with predictions of three types of evolutionary models and show that, for two sets of models, 80% of our sample can be explained by stellar evolution including rotation. The effect of magnetism on surface abundances is unconstrained. Our study indicates that, in the 20-50 Msun mass range, the surface chemical abundances of most single O stars in the Galaxy are fairly well accounted for by stellar evolution of rotating stars.

Reference: Accepted in A&A
Status: Manuscript has been accepted

Weblink: http://arxiv.org/abs/1411.4420

Comments:

Email: fabrice.martins@univ-montp2.fr

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New multiwavelength observations of the Of?p star CPD -28 2561

S. Hubrig (1), M. Schoeller (2), A. Kholtygin (3), H. Tsumura (4), A. Hoshino (4), S. Kitamoto (4), L. Oskinova (5), R. Ignace (6), H. Todt (5), I. Ilyin (1)

(1) AIP, (2) ESO, (3) St. Petersburg State University, (4) Rikkyo University, (5) Universitaet Potsdam, (6) East Tennessee State University

A rather strong mean longitudinal magnetic field of the order of a few hundred Gauss was detected a few years ago in the Of?p star CPD -28 2561 using FORS2 low-resolution spectropolarimetric observations. In this work we present additional low-resolution spectropolarimetric observations obtained during several weeks in 2013 December using FORS2 (FOcal Reducer low dispersion Spectrograph) mounted at the 8-m Antu telescope of the VLT. These observations cover a little less than half of the stellar rotation period of 73.41d mentioned in the literature. The behaviour of the mean longitudinal magnetic field is consistent with the assumption of a single-wave variation during the stellar rotation cycle, indicating a dominant dipolar contribution to the magnetic field topology. The estimated polar strength of the surface dipole B_d is larger than 1.15kG. Further, we compared the behaviour of the line profiles of various elements at different rotation phases associated with different magnetic field strengths. The strongest contribution of the emission component is observed at the phases when the magnetic field shows a negative or positive extremum. The comparison of the spectral behaviour of CPD -28 2561 with that of another Of?p star, HD148937 of similar spectral type, reveals remarkable differences in the degree of variability between both stars. Finally, we present new X-ray observations obtained with the Suzaku X-ray Observatory. We report that the star is X-ray bright with log L_X/L_bol ~= -5.7. The low resolution X-ray spectra reveal the presence of a plasma heated up to 24MK. We associate the 24MK plasma in CPD -28 2561 with the presence of a kG strong magnetic field capable to confine stellar wind.

Reference: MNRAS
Status: Manuscript has been accepted

Weblink: http://arxiv.org/abs/1412.1658

Comments:

Email: mschoell@eso.org

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SXP 5.05 = IGR J00569-7226 : using X-rays to explore the structure of a Be stars circumstellar disk

M. J. Coe(1), E. S. Bartlett(2), A.J. Bird(1), F. Haberl(3), J. A. Kennea(4), V.A. McBride(2;5) L.J. Townsend(2) & A. Udalski(6)

1 Physics and Astronomy, University of Southampton, SO17 1BJ, UK.
2 Astronomy, Gravity and Cosmology Centre, Department of Astronomy, University of Cape Town, Rondebosch, 7701, South Africa.
3 Max-Planck-Institut f ¨ur extraterrestrische Physik, Giessenbachstraße, 85748 Garching, Germany
4 Department of Astronomy and Astrophysics, The Pennsylvania State University, University Park, PA 16802, USA.
5 South African Astronomical Observatory, PO Box 9, Observatory, 7935, South Africa.
6 Warsaw University Observatory, Aleje Ujazdowskie 4, 00-478 Warsaw, Poland

On MJD 56590-1 (2013 Oct 25-26) observations of the Magellanic Clouds by the INTErnational Gamma-Ray Astrophysics Laboratory (INTEGRAL) observatory discovered a previously-unreported bright, flaring X-ray source. This source was initially given the identification IGR J00569-7226. Subsequent multi-wavelength observations identified the system as new Be/X-ray binary system in the Small Magellanic Cloud. Follow-up X-ray observations by Swift and XMM-Newton revealed an X-ray pulse period of 5.05s and that the system underwent regular occulation/eclipse behaviour every 17d. This is the first reported eclipsing Be/X-ray binary system in the SMC, and only the second such system known to date. Furthermore, the nature of the occultation makes it possible to use the neutron star to “X-ray” the circumstellar disk, thereby, for the first time, revealing direct observational evidence for its size and clumpy structure. Swift timing measurements allowed for the binary solution to be calculated from the Doppler shifted X-ray pulsations. This solution suggests this is a low eccentricity binary relative to others measured in the SMC. Finally it is interesting to note that the mass determined from this dynamical method for the Be star (13 solar masses) is significantly different from that inferred from the spectroscopic classification of B0.2Ve (16 solar masses) - an effect that has been noted for some other high mass X-ray binary (HMXB) systems.

Reference: MNRAS (in press)
Status: Manuscript has been accepted

Weblink: http://arxiv.org/abs/1412.3270

Comments:

Email: mjcoe@soton.ac.uk

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Abstracts of 1 other publications

Spectroscopic Instrumentation – Fundamentals and Guidelines for Astronomers

Thomas Eversberg & Klaus Vollmann

Schnörringen Telescope Science Institute

The university textbook has 653 pages and contains

- all spectrograph fundamentals and mathematical basics (standard and echelle) necessary for instrumental designers, student and scientist,

- fundamental considerations on refractive and reflective optics

- practical examples (some well-known achievements from the amateur domain are included),

- periphery instrumentation (e.g., CCD, fibers, image slicers),

- theoretical and practical aspects of data reduction and consideration of errors,

- example massive star physics and

- prospects in spectropolarimetry.

The book delivers all necessary tools for a complete and detailed spectrograph design. In other words, all relevant calculations are performed in detail – you will not find the frustrating but common phrase “as one can easily see”.

Reference: Springer Praxis Books - Astronomy and Planetary Sciences
Status: Other

Weblink: http://www.springer.com/astronomy/astronomy%2C+observations+and+techniques/book/978-3-662-44534-1

Comments:

Email: thomas.eversberg@dlr.de

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JOBS

Closed Job Offers (original deadline passed)

Research Fellow - Nuclear Astrophysics

Alexander Heger

Monash Centre for Astrophysics
School of Mathematical Sciences
Building 28, M401
Monash University, VIC 3800
Australia

Applications are invited for a full time research fellow (Level A/B) in the wider field of stellar evolution and nuclear astrophysics with Prof. Alexander Heger at the Monash Centre for Astrophysics (MoCA) at Monash University, Melbourne, Australia.

The successful candidate must hold, or be about to obtain, a Ph.D. degree in a relevant discipline and should have experience in theoretical or numerical modelling in nuclear astrophysics in one or several of the following fields: formation and evolution of massive or very massive stars, supernovae, binary stars, stellar rotation and magnetic fields, gamma-ray burst and other transients and outbursts, galactic chemical evolution, formation and evolution first stars, and Type I X-ray burst and superbursts.

MoCA has very active research groups in Stellar Interiors and Nucleosynthesis (SINs - Lattanzio, Heger, Campbell, Mueller), High-energy Astrophysics (Galloway, Levin, Donea, Heger, Price, Mueller, Lazendic-Galloway, Thrane), Astrophysical Fluid Dynamics and MHD (Monaghan; Price - star formation), Galaxy Evolution (Bown), Numerical General Relativity, and solar physics, amongst others. The initial appointment is for two years, at level A or B depending on experience. Extension for a third year contingent upon funding, satisfactory performance, and managment approval. Commencement date should be on or before Oct. 1, 2015.

To apply for this post, follow the link provided to the job listing at Monash. Please arrange for three letters of reference to be sent to alexander.heger@monash.edu by the closing date.

Attention/Comments: For full application, please visit Monash web site at
http://jobs.monash.edu.au/jobDetails.asp?sJobIDs=528279
The application needs to be submitted through the online web form.

Weblink: http://jobregister.aas.org/job_view?JobID=49604

Email: alexander.heger@monash.edu

Deadline: Monday, 1 December 2014, 11:55pm Australian Eastern Daylight Saving Time (early morning hours in US).

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1 Postdoc and 2 PhD Positions at the University of Tübingen

Rolf Kuiper

Computational Physics
Institute of Astronomy and Astrophysics Tübingen
University of Tübingen
Auf der Morgenstelle 10
D-72076 Tübingen
Germany

The Institute of Astronomy and Astrophysics at the University of Tübingen (IAAT) has an opening for a

Postdoc and two PhD positions within the Emmy Noether Research Group „Accretion flows and feedback in realistic models of massive star formation“.
The successful applicants will carry out original research in the field of Massive Star Formation working in the Emmy Noether group of Dr. Rolf Kuiper. Emphasis lies on the (radiation-/magneto-)hydrodynamical and chemical evolution of jets, outflows, and accretion disk around massive protostars. Applicants with previous experience in numerical modeling will be favored.
The research activities of the IAAT (http://www.tat.physik.uni-tuebingen.de) include Astronomy, Instrumental Design/ High Energy Physics, Computational Astrophysics and Relativistic Astrophysics. The focus of research of the Emmy Noether group lies in the field of massive star formation and the physics/ chemistry of jets, outflows, and accretion disks.

The appointments are funded by the German Research Foundation (DFG) and paid according to German public service scale. Starting dates are negotiable. Applicants should check for details of the application procedure at links below.
The University of Tübingen seeks to increase the fraction of female scientists in research and teaching and particularly encourages applications from women. Disabled candidates are given preference if equally qualified.
For further enquires about the positions, please contact Rolf Kuiper (rolf.kuiper@uni-tuebingen.de).

Attention/Comments:

Weblink: http://www.mpia-hd.mpg.de/~kuiper

Email: rolf.kuiper@uni-tuebingen.de

Deadline: December, 15th for PhDs and January, 19th for Postdoc

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Postdoctoral and PhD positions in the framework of the ESA project "Hubble Catalogue of Variables"

Alceste Bonanos

IAASARS, National Observatory of Athens
I. Metaxa & Vas. Pavlou St.
GR-15236, Penteli
Greece

The Institute for Astronomy, Astrophysics, Sace Applications and Remote Sensing (IAASARS) of the National Observatory of Athens announces several openings in the framework of the ESA program "Hubble Catalog of Variables" and invites applications for the following positions: (i) two postdoctoral research positions on identifying and characterizing variable stars in the Hubble Source Catalog; (ii) one postdoctoral research position with expertise in programming or a software engineer; (iii) several PhD positions, on projects related to identifying and characterizing variable stars in the Hubble Source Catalog (HSC). Applicants with previous experience in stellar variability (detection algorithms, light curve analysis, characterization of variables), photometry, HST data or a related field are particularly encouraged to apply. For more information visit the link below.

Attention/Comments:

Weblink: http://www.astro.noa.gr/en/jobopenings/

Email: bonanos@noa.gr

Deadline: December 15, 2014

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Open JOB offers

Three-year postdoctoral research position on the formation of massive stars

Tim Harries

Department of Physics and Astronomy
University of Exeter
Stocker Road
Exeter EX4 4QL
United Kingdom

The Astrophysics Group at the University of Exeter invites applications for a postdoctoral position (Associate Research Fellow / Research Fellow) to work with Tim Harries on radiation hydrodynamical simulations of massive star formation. This position is funded by an STFC Consolidated Grant, and is available for 3 years (subject to a 12-month probationary period).

The main aim of this project is to investigate the role of radiation pressure and ionisation feedback on the formation of massive stars. This will be done using 3-D radiation hydrodynamical models, and by comparing the simulations with a broad range of multi-wavelength observational data. We are therefore particularly interested in applicants with a strong background in radiation transfer and/or hydrodynamics; prior work on star formation simulations would also be an asset, but all applicants with a good numerical astrophysics background will be seriously considered.

Applicants must possess a PhD in astrophysics or a related discipline, or expect to have earned one before taking up the position. This position is available from 1st April 2015, although a later start date may be possible. The starting salary will range from £25,513 on Grade E to £33,242 per annum on Grade F, depending on qualifications and experience. Extensive supercomputing resources and substantial funding for computing equipment and travel will be available.

For further information contact Tim Harries (th@astro.ex.ac.uk). Please apply via the University of Exeter online application system https://jobs.exeter.ac.uk. The job may be found by searching under 'Key words' using post reference P48022. The closing date for applications is the 31st January 2015.

Attention/Comments:

Weblink: http://emps.exeter.ac.uk/physics-astronomy/research/astrophysics/

Email: th@astro.ex.ac.uk

Deadline: 31st January 2015

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Lecturer/Senior Lecturer position in astronomy or astrophysics at Monash

Alexander Heger

Monash Centre for Astrophysics
School of Physics and Astronomy
Monash University, VIC 3800
Australia

Lecturer/Senior Lecturer position in astronomy or astrophysics at Monash
http://jobs.monash.edu.au/jobDetails.asp?sJobIDs=528830

Applications are invited for a full time Lecturer/Senior Lecturer (level B/C) in astronomy or astrophysics, in the new School of Physics and Astronomy at Monash University. This is an opportunity to join a dynamic, successful and growing School, which encompasses one of the most diverse astrophysics research groups in Australia. The role demands a commitment to excellence, innovation and creativity in research. Applicants will be considered in any of the School's current research areas in astronomy and astrophysics. However, exceptional applicants in other areas of astronomy and astrophysics are also encouraged to apply.

The successful candidate will also be expected to contribute to innovative teaching and learning in the School's undergraduate astronomy and astrophysics programmes, including participating in our new "studio teaching" model through the Physics and Astronomy Collaborative-learning Environment (PACE). For more information about the School, visit http://www.physics.monash.edu.au.

To apply for this position, and for additional information (including complete position description and selection criteria) visit the job listing at Monash:

http://jobs.monash.edu.au/jobDetails.asp?sJobIDs=528830

Pre-application enquiries should be directed to Mrs Jean Pettigrew, Jean.Pettigrew@monash.edu, tel. +61-3 9905 3651.

Attention/Comments:

Weblink: http://jobregister.aas.org/job_view?JobID=49917

Email: alexander.heger@monash.edu

Deadline: Sunday, 31 January 2015, 11:55pm Australian Eastern Daylight Time

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PhD Studentships (STFC/Keele funding) in Astronomy/Astrophysics

Raphael Hirschi

Keele University
Astrophysics Group
School of Physical and Geographical Sciences
Lennard-Jones Laboratories
Keele
ST5 5BG, UK

The Astrophysics Group at Keele University has several funded studentships (STFC/Keele funding) in astronomy/astrophysics to start in September 2015.

Possible projects include (title, main supervisor):
- Nuclear astrophysics: impact and sensitivity studies, Dr Raphael Hirschi
- Nucleosynthesis in rotating stars, Dr Raphael Hirschi
- Transiting extra-solar planets with WASP-South, Prof Coel Hellier
- High-precision studies of eclipsing binary stars observed using space telescopes (Southworth)
- Laboratory astrophysics at the Diamond Light Source, Prof Nye Evans
- Star formation and stellar ages from the Gaia-ESO Spectroscopic Survey (Prof. R. D. Jeffries)
- Outer solar system chemistry (Dr Jacco van Loon, Prof. A. Evans)
- Star formation in the Magellanic Clouds (Dr. Joana Oliveira)
- Atmospheric properties of A, F and G stars (Dr Barry Smalley)

Notes: applications open to EU students (non-EU students can apply for a self-funded PhD position). More information on the projects, the Keele astrophysics group and how to apply can be found here: http://www.keele.ac.uk/researchsubjects/astrophysics/

If you have questions, please do not hesitate to contact
Dr Raphael Hirschi
(PhD students coordinator)

Attention/Comments:

Weblink: http://www.keele.ac.uk/researchsubjects/astrophysics/

Email: r.hirschi@keele.ac.uk

Deadline: Closing Date 28th February 2015 (applications received by the deadline will receive first consideration)

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MEETINGS

Stellar Physics in Galaxies throughout the Universe

12 - 14 August 2015

Venue: Honolulu, Hawaii

A 3-day Focus Meeting entitled "Stellar Physics in Galaxies throughout the Universe" will be held during the IAU XXIX General Assembly. The meeting will bring together astronomers from the stellar physics, extragalactic astrophysics and cosmology communities to discuss how current and future results can foster progress in these disjoint science areas. Areas covered include stellar evolution of single and binary stars from the zero-age main-sequence to the terminal stage, the feedback of stars to the interstellar medium via radiation, dust production and chemical enrichment, and the properties of the most massive stars and of cosmologically significant stellar phases such as AGB and Wolf-Rayet stars. We will evaluate the limitations of our understanding of the physics of local stars and their effects on, e.g., ages, chemical composition and the initial mass function of galaxies at low to high redshift. The meeting is timely because of new results from recently commissioned telescopes and because of the prospects from future 30-m class telescopes.

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Massive Stars and the Gaia-ESO Survey

5-7 May 2015

Venue: Royal Observatory of Belgium, Brussels, Belgium

Thanks to projects such as the ongoing Gaia-ESO Survey (GES) and the VLT-Flames Tarantula Survey (VFTS) progress in the number of massive stars with accurate parameters is rapidly growing.

In order to bring together the European expertise in massive-star spectral analysis and evolution it is timely to organise a Workshop on massive stars in the context of the Gaia-ESO Survey.

By the time of the meeting about two-thirds of the GES data will have been collected. The data reduction and analysis techniques will have been refined to handle these data and produce significant science output.

One aim of the workshop is to present the GES results to a wider community of massive-star experts. The interaction between the various European massive-star groups will allow us to extract the best science from the GES data. A second purpose is to interact with the other GES Co-Is to provide them with the information they need related to e.g. cluster studies. Finally, it is a timely moment to measure the progress we have made in achieving the science cases listed in the GES proposal and to address future directions.

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