Dear Colleagues,

It is my pleasure to present you the 134th issue of the Magellanic Clouds Newsletter. Enjoy!

Please see the beautiful poster of the Magellanic Clouds meeting in Baltimore later this Fall, at the back of this issue. If you would like similar attachments, or front-page pictures, just drop us an e-mail at astro.mcnews@keele.ac.uk.

If you’re looking for a Ph.D. place, consider Belgium; if you’re looking for a professorship, consider Monash.

The next issue is planned to be distributed on the 1st of June.

Editorially Yours,

Jacco van Loon
On the need of the Light Elements Primary Process (LEPP)

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Extant chemical evolution models underestimate the Galactic production of Sr, Y and Zr as well as the Solar System abundances of s-only isotopes with $90 < A < 130$. To solve this problem, an additional (unknown) process has been invoked, the so-called LEPP (Light Element Primary Process). In this paper we investigate possible alternative solutions. Basing on Full Network Stellar evolutionary calculations, we investigate the effects on the Solar System s-only distribution induced by the inclusion of some commonly ignored physical processes (e.g., rotation) or by the variation of the treatment of convective overshoot, mass-loss and the efficiency of nuclear processes. Our main findings are: 1) at the epoch of the formation of the Solar System, our reference model produces super-solar abundances for the whole s-only distribution, even in the range $90 < A < 130$; 2) within errors, the s-only distribution relative to $^{150}$Sm is flat; 3) the s-process contribution of the less massive AGB stars ($M < 1.5 M_\odot$) as well as of the more massive ones ($M > 4.0 M_\odot$) are negligible; 4) the inclusion of rotation implies a downward shift of the whole distribution with an higher efficiency for the heavy s-only isotopes, leading to a flatter s-only distribution; 5) different prescriptions on convection or mass-loss produce nearly rigid shifts of the whole distribution. In summary, a variation of the standard paradigm of AGB nucleosynthesis would allow to reconcile models predictions with Solar System s-only abundances. Nonetheless, the LEPP cannot be definitely ruled out, because of the uncertainties still affecting stellar and Galactic chemical evolution models.

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The progenitors and lifetimes of planetary nebulae

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Planetary Nebulæ (PNe) are amongst the most spectacular objects produced by stellar evolution, but the exact identity of their progenitors has never been established for a large and homogeneous observational sample. We investigate the relationship between PNe and their stellar progenitors in the Large Magellanic Cloud (LMC) through the statistical comparison between a highly complete spectroscopic catalog of PNe and the spatially resolved age distribution of the underlying stellar populations. We find that most PN progenitors in the LMC have main-sequence lifetimes in a narrow range between 5 and 8 Gyr, which corresponds to masses between 1.2 and 1.0 $M_\odot$, and produce PNe that last 26$^{+6}_{-7}$ kyr on average. We tentatively detect a second population of PN progenitors, with main-sequence lifetimes between 35 and 800 Myr, i.e. masses between 8.2 and 2.1 $M_\odot$, and average PN lifetimes of 11$^{+6}_{-5}$ kyr. These two distinct and disjoint populations of progenitors strongly suggest the existence of at least two physically distinct formation channels for PNe. Our determination of PN lifetimes and progenitor masses has implications for the understanding of PNe in the context of stellar evolution models, and for the role that rotation, magnetic fields, and binarity can play in the shaping of PN morphologies.

Submitted to ApJ Letters
Available from arXiv:1502.01015
And yet it moves: The dangers of artificially fixing the Milky Way center of mass in the presence of a massive Large Magellanic Cloud

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Motivated by recent studies suggesting that the Large Magellanic Cloud (LMC) could be significantly more massive than previously thought, we explore whether the approximation of an inertial Galactocentric reference frame is still valid in the presence of such a massive LMC. We find that previous estimates of the LMC’s orbital period and apocentric distance derived assuming a fixed Milky Way are significantly shortened for models where the Milky Way is allowed to move freely in response to the gravitational pull of the LMC. Holding other parameters fixed, the fraction of models favoring first infall is reduced. Due to this interaction, the Milky Way center of mass within the inner 50 kpc can be significantly displaced in phase-space in a very short period of time that ranges from 0.3 to 0.5 Gyr by as much as 30 kpc and 75 km s\(^{-1}\). Furthermore, we show that the gravitational pull of the LMC and response of the Milky Way are likely to significantly affect the orbit and phase space distribution of tidal debris from the Sagittarius dwarf galaxy (Sgr). Such effects are larger than previous estimates based on the torque of the LMC alone. As a result, Sgr deposits debris in regions of the sky that are not aligned with the present-day Sgr orbital plane. In addition, we find that properly accounting for the movement of the Milky Way around its common center of mass with the LMC significantly modifies the angular distance between apocenters and tilts its orbital pole, alleviating tensions between previous models and observations. While these models are preliminary in nature, they highlight the central importance of accounting for the mutual gravitational interaction between the MW and LMC when modeling the kinematics of objects in the Milky Way and Local Group.

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The VMC Survey – XIV. First results on the look-back-time star-formation rate tomography of the Small Magellanic Cloud

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1Complete affiliations are provided in the paper

We analyse deep images from the VISTA survey of the Magellanic Clouds in the YJK\(_s\) filters, covering 14 sqrdeg (10 tiles), split into 120 subregions, and comprising the main body and Wing of the Small Magellanic Cloud (SMC). We apply a colour–magnitude diagram reconstruction method that returns their best-fitting star formation rate SFR(t), age–metallicity relation (AMR), distance and mean reddening, together with 68% confidence intervals. The distance data can be approximated by a plane tilted in the East–West direction with a mean inclination of 39°, although deviations of up to 3 kpc suggest a distorted and warped disk. After assigning to every observed star a probability of belonging to a given age–metallicity interval, we build high-resolution population maps. These dramatically reveal the flocculent nature of the young star-forming regions and the nearly smooth features traced by older stellar generations.
They document the formation of the SMC Wing at ages < 0.2 Gyr and the peak of star formation in the SMC Bar at 40 Myr. We clearly detect periods of enhanced star formation at 1.5 Gyr and 5 Gyr. The former is possibly related to a new feature found in the AMR, which suggests ingestion of metal-poor gas at ages slightly larger than 1 Gyr. The latter constitutes a major period of stellar mass formation. We confirm that the SFR(t) was moderately low at even older ages.

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**The ephemeris, orbital decay, and masses of 10 eclipsing HMXBs**

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We take advantage of more than 10 years of monitoring of the eclipsing HMXB systems LMC X-4, Cen X-3, 4U 1700−377, 4U 1538−522, SMC X-1, IGR J18027−2016, Vela X-1, IGR J17252−3616, XTE J1855−026, and OAO 1657−415 with the ASM on-board RXTE and ISGRI on-board INTEGRAL to update their ephemeris. These results are used to refine previous measurements of the orbital period decay of all sources (where available) and provide the first accurate values of the apsidal advance in Vela X-1 and 4U 1538−522. Updated values for the masses of the neutron stars hosted in the ten HMXBs are also provided, as well as the long-term lightcurves folded on the sources best determined orbital parameters. These lightcurves reveal complex eclipse ingress and egresses, that are understood mostly as being due to the presence of accretion wakes. The results reported in this paper constitute a database to be used for population and evolutionary studies of HMXBs, as well as theoretical modelling of long-term accretion in wind-fed X-ray binaries.

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**Mapping high-velocity H-α and Lyman-α emission from Supernova 1987A**

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We present new Hubble Space Telescope images of high-velocity H-α and Lyman-α emission in the outer debris of SN 1987A. The H-α images are dominated by emission from hydrogen atoms crossing the reverse shock. For the first time we observe emission from the reverse shock surface well above and below the equatorial ring, suggesting a bipolar or conical structure perpendicular to the ring plane. Using the H-α imaging, we measure the mass flux of hydrogen atoms crossing the reverse shock front, in the velocity intervals (−7,500 < v_{obs} < −2,800 km s⁻¹) and (1,000 < v_{obs} < 7,500 km s⁻¹), M_H = 1.2 × 10⁻³ M_☉ yr⁻¹. We also present the first Lyman-α imaging of the whole remnant and new Chandra X-ray observations. Comparing the spatial distribution of the Lyman-α and X-ray emission, we observe that the majority of the high-velocity Lyman-α emission originates interior to the equatorial ring. The observed Lyman-α/H-α photon ratio, ⟨R(La/Hα)⟩ ≈ 17, is significantly higher than the theoretically predicted ratio of ≈ 5 for neutral atoms crossing the reverse shock front. We attribute this excess to Lyman-α emission produced by X-ray heating of the outer debris. The spatial orientation of the Lyman-α and X-ray emission suggests that X-ray heating of the outer debris is the dominant Lyman-α production mechanism in SN 1987A at this phase in its evolution.

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*Available from arXiv:1502.05403*
Planck 2015 results. XXVIII. The Planck catalogue of Galactic Cold Clumps

Planck Collaboration

We present the Planck catalogue of Galactic Cold Clumps (PGCC), an all-sky catalogue of Galactic cold clump candidates detected by Planck. This catalogue is the full version of the Early Cold Core (ECC) catalogue, which was made available in 2011 with the Early Release Compact Source Catalogue (ERCSC) and contained 915 high signal-to-noise sources. It is based on the Planck 48-months mission data that are currently being released to the astronomical community. The PGCC catalogue is an observational catalogue consisting exclusively of Galactic cold sources. The three highest Planck bands (857, 545, 353 GHz) have been combined with IRAS data at 3 THz to perform a multi-frequency detection of sources colder than their local environment. After rejection of possible extragalactic contaminants, the PGCC catalogue contains 13188 Galactic sources spread across the whole sky, i.e. from the Galactic plane to high latitudes, following the spatial distribution of the main molecular cloud complexes. The median temperature of PGCC sources lies between 13 and 14.5 K, depending on the quality of the flux density measurements, with a temperature ranging from 5.8 to 20 K after removing sources with the 1% largest temperature estimates. Using seven independent methods, reliable distance estimates have been obtained for 5574 sources, which allows us to derive their physical properties such as their mass, physical size, mean density and luminosity. The PGCC sources are located mainly in the solar neighbourhood, up to a distance of 10.5 kpc towards the Galactic centre, and range from low-mass cores to large molecular clouds. Because of this diversity and because the PGCC catalogue contains sources in very different environments, the catalogue is useful to investigate the evolution from molecular clouds to cores. Finally, the catalogue also includes 54 additional sources located in the Small and Large Magellanic Clouds.

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The VMC survey – XV. The Small Magellanic Cloud–Bridge connection history as traced by their star cluster populations

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We present results based on YJKs photometry of star clusters located in the outermost, eastern region of the Small Magellanic Cloud (SMC). We analysed a total of 51 catalogued clusters whose colour–magnitude diagrams (CMDs), having been cleaned from field-star contamination, were used to assess the clusters’ reality and estimate ages of the genuine systems. Based on CMD analysis, 15 catalogued clusters were found to be possible non-genuine aggregates. We investigated the properties of 80% of the catalogued clusters in this part of the SMC by enlarging our sample with previously obtained cluster ages, adopting a homogeneous scale for all. Their spatial distribution suggests that the oldest clusters, log(t yr^{-1}) \geq 9.6, are in general located at greater distances to the galaxy’s centre than their younger counterparts 7.0 \leq \log(t \text{ yr}^{-1}) \leq 9.4 – while two excesses of clusters are seen at \log(t \text{ yr}^{-1}) \sim 9.2 and \log(t \text{ yr}^{-1}) \sim 9.7. We found a trail of younger clusters which follow the Wing/Bridge components. This long spatial sequence does not only harbour very young clusters, \log(t \text{ yr}^{-1}) \sim 7.3, but it also hosts some of intermediate ages, \log(t \text{ yr}^{-1}) \sim 9.1. The derived cluster and field-star formation frequencies as a function of age are different. The most surprising feature is an observed excess of clusters with ages of \log(t \text{ yr}^{-1}) < 9.0, which could have been induced by interactions with the LMC.

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Different dynamical ages for the two young and coeval LMC star clusters NGC 1805 and NGC 1818 imprinted on their binary populations

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The two Large Magellanic Cloud star clusters NGC 1805 and NGC 1818 are approximately the same chronological age ($\sim 30$ Myr), but show different radial trends in binary frequency. The F-type stars ($1.3$–$2.2$ $M_\odot$) in NGC 1818 have a binary frequency that decreases towards the core, while the binary frequency for stars of similar mass in NGC 1805 is flat with radius, or perhaps bimodal (with a peak in the core). We show here, through detailed $N$-body modeling, that both clusters could have formed with the same primordial binary frequency and with binary orbital elements and masses drawn from the same distributions (defined from observations of open clusters and the field of our Galaxy). The observed radial trends in binary frequency for both clusters are best matched with models that have initial substructure. Furthermore, both clusters may be evolving along a very similar dynamical sequence, with the key difference that NGC 1805 is dynamically older than NGC 1818. The F-type binaries in NGC 1818 still show evidence of an initial period of rapid dynamical disruptions (which occur preferentially in the core), while NGC 1805 has already begun to recover a higher core binary frequency, owing to mass segregation (which will eventually produce a distribution in binary frequency that rises only towards the core, as is observed in old Milky Way star clusters). This recovery rate increases for higher-mass binaries, and therefore even at one age in one cluster, we predict a similar dynamical sequence in the radial distribution of the binary frequency as a function of binary primary mass.

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Ca$\textsc{ii}$ Triplet spectroscopy of Small Magellanic Cloud red giants. III. Abundances and velocities for a sample of 14 clusters

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We obtained spectra of red giants in 15 Small Magellanic Cloud (SMC) clusters in the region of the Ca$\textsc{ii}$ lines with FORS2 on the Very Large Telescope (VLT). We determined the mean metallicity and radial velocity with mean errors of 0.05 dex and 2.6 km s$^{-1}$, respectively, from a mean of 6.5 members per cluster. One cluster (B 113) was too young for a reliable metallicity determination and was excluded from the sample. We combined the sample studied here with 15 clusters previously studied by us using the same technique, and with 7 clusters whose metallicities determined by other authors are on a scale similar to ours. This compilation of 36 clusters is the largest SMC cluster sample currently available with accurate and homogeneously determined metallicities. We found a high probability that the metallicity distribution is bimodal, with potential peaks at $-1.1$ and $-0.8$ dex. Our data show no strong evidence of a metallicity gradient in the SMC clusters, somewhat at odds with recent evidence from Ca$\textsc{T}$ spectra of a large sample of field stars (Dobbie et al. 2014). This may be revealing possible differences in the chemical history of clusters and field stars. Our clusters show a significant dispersion of metallicities, whatever age is considered, which could be reflecting the lack of a unique AMR in this galaxy. None of the chemical evolution models currently available in the literature satisfactorily represents the global chemical enrichment processes of SMC clusters.

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Available from arXiv:1503.02909
A new look at microlensing limits on dark matter in the Galactic Halo

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The motivation for this paper is to review the limits set on the MACHO content of the Galactic Halo by microlensing experiments in the direction of the Large Magellanic Cloud. This has been prompted by recent measurements of the Galactic rotation curve, which suggest that the limits have been biased by the assumption of an over-massive Halo. The paper first discusses the security of the detection efficiency calculations which are central to deriving the MACHO content of the Galactic Halo. It then sets out to compare the rotation curves from various halo models with recent observations, with a view to establishing what limits can be put on an all-MACHO Halo. The main thrust of the paper is to investigate whether lighter halo models which are consistent with microlensing by an all-MACHO Halo are also consistent with recent measures of the Galactic rotation curve. In this case the population of bodies discovered by the MACHO collaboration would make up the entire dark matter content of the Galactic Halo. The main result of this paper is that it is easy to find low mass Halo models consistent with the observed Galactic rotation curve, which also imply an optical depth to microlensing similar to that found by the MACHO collaboration. This means that all-MACHO Halos cannot be ruled out on the basis of their observations. In conclusion, limits placed on the MACHO content of the Galactic Halo from microlensing surveys in the Magellanic Clouds are inconsistent and model dependent, and do not provide a secure basis for rejecting an all-MACHO Halo.

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Available from arXiv:1503.01935

Conference Papers

The physics of the cold neutral medium: Low-frequency carbon radio recombination lines with the Square Kilometre Array

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The Square Kilometre Array (SKA) will transform our understanding of the role of the cold, atomic gas in galaxy evolution. The interstellar medium (ISM) is the repository of stellar ejecta and the birthsite of new stars and, hence, a key factor in the evolution of galaxies over cosmic time. Cold, diffuse, atomic clouds are a key component of the ISM, but so far this phase has been difficult to study, because its main tracer, the H\textsubscript{i} 21 cm line, does not constrain the basic physical information of the gas (e.g., temperature, density) well. The SKA opens up the opportunity to study this component of the ISM through a complementary tracer in the form of low-frequency (< 350 MHz) carbon radio recombination lines (CRRL). These CRRLs provide a sensitive probe of the physical conditions in cold, diffuse clouds. The superb sensitivity, large field of view, frequency resolution and coverage of the SKA allows for efficient surveys of the sky, that will revolutionize the field of low-frequency recombination line studies. By observing these lines with the SKA we will be able determine the thermal balance, chemical enrichment, and ionization rate of the cold, atomic medium from degree-scales down to scales corresponding to individual clouds and filaments in our Galaxy, the Magellanic Clouds and beyond. Furthermore, being sensitive only to the cold, atomic gas, observations of low-frequency CRRLs with the SKA will aid in disentangling the warm and cold constituents of the H\textsubscript{i} 21 cm emission.

Oral contribution, published in "Advancing Astrophysics with the Square Kilometre Array", Proceedings of Science, PoS(AASKA14)139
Available from arXiv:1501.01179
OH masers in the Milky Way and Local Group galaxies in the SKA era

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The intense line emission of OH masers is a perfect tracer of regions where new stars are born as well as of evolved stars, shedding large amounts of processed matter into the interstellar medium. From SKA deep surveys at 18 cm, where the maser lines from the ground-state of the OH molecule arise, we predict the discovery of more than 20000 sources of stellar and interstellar origin throughout the Galaxy. The study of this maser emission has many applications, including the determination of magnetic field strengths from polarisation measurements, studies of stellar kinematics using the precisely determined radial velocities, and distance determinations from VLBI astrometry. A new opportunity to study shocked gas in different galactic environments is expected to arise with the detection of lower luminosity masers. For the first time, larger numbers of OH masers will be detected in Local Group galaxies. New insights are expected in structure formation in galaxies by comparing maser populations in galaxies of different metallicity, as both their properties as well as their numbers depend on it. With the full capabilities of SKA, further maser transitions such as from excited OH and from methanol will be accessible, providing new tools to study the evolution of star-forming regions in particular.

Oral contribution, published in "Advancing Astrophysics with the Square Kilometre Array" for the SKA science book, Giardini-Naxos, Sicily, June 2014, Proceedings of Science
Available from arXiv:1501.06153

The VMC survey

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The VISTA survey of the Magellanic Clouds system (VMC) is a public survey project of the European Southern Observatory. It is collecting multi-band near-infrared data across large areas of the Large and Small Magellanic Clouds, the Magellanic Bridge and a few fields in the Magellanic Stream. The combination of great sensitivity to stars below the old main sequence turn off, and the multiplicity at K\textsubscript{s} band (at least 12 epochs) make VMC highly suitable for the determination of the spatially resolved star formation history and three-dimensional geometry, using variable stars such as Cepheids and RR\,Lyrae stars. The VMC observations are progressing well and will be completed in 2018. The VMC survey has a high legacy value and many science results have already been published, e.g., the most detailed star formation history map of the Small Magellanic Cloud, and others are in preparation, e.g., a comprehensive investigation of classical Cepheids and a study of the proper motion in the foreground 47\,Tuc cluster.

Available from arXiv:1503.06972
Recent studies suggest the existence of very massive stars (VMS) up to 300 $M_\odot$ in the local Universe. As this finding may represent a paradigm shift for the canonical stellar upper-mass limit of 150 $M_\odot$, it is timely to evaluate the physics specific to VMS, which is currently missing. For this reason, we decided to construct a book entailing both a discussion of the accuracy of VMS masses (Martins), as well as the physics of VMS formation (Krumholz), mass loss (Vink), instabilities (Owocki), evolution (Hirschi), and fate (theory – Woosley & Heger; observations – Smith).

Available from arXiv:1406.4836
and from http://www.springer.com/astronomy/astrophysics+and+astroparticles/book/978-3-319-09595-0

Mass-loss rates of very massive stars

Jorick S. Vink

We discuss the basic physics of hot-star winds and we provide mass-loss rates for (very) massive stars. Whilst the emphasis is on theoretical concepts and line-force modelling, we also discuss the current state of observations and empirical modelling, and we address the issue of wind clumping.

Available from arXiv:1406.5357
and from http://adsabs.harvard.edu/abs/2015ASSL..412...77V

Institut d’Astronomie at the Université libre de Bruxelles, Royal Observatory of Belgium, Instituut voor Sterrenkunde (Katholieke Universiteit Leuven)

Three (co-supervised) Ph.D. positions

Three Ph.D. positions are open in the framework of the STARLAB project (http://www.astro.ulb.ac.be/pmwiki/Brain/HomePage) involving the three above institutes. The goal of the STARLAB project is to improve our understanding of key physical and chemical processes at work in single and binary low- and intermediate-mass stars. A first Ph.D. project is focused on abundance determinations in late-type stars as tracers for nucleosynthesis and mixing processes, another on binary-star interaction physics, and the third one on the study of the circumstellar environment of late-type mass-losing stars as tracers for the mass loss processes. The first Ph.D. project will involve abundance analyses of stars in the MC.

See also http://www.astro.ulb.ac.be/pmwiki/pub/PhD_STARLAB.pdf
Monash Centre for Astrophysics, Monash University, Australia  
Full Professor in Astrophysics

The School of Physics and Astronomy is a new School located within the Faculty of Science. It was formed as a result of merging the School of Physics with astrophysicists from the School of Mathematical Sciences. The School aims to position itself as one of the top physics and astronomy research and teaching departments in Australia. In the past four years the School has gone through an exciting period of renewal – investing significantly in people and facilities. The School of Physics and Astronomy is committed to teaching and research of the highest quality in astronomy, astrophysics, experimental physics, and theoretical physics; it aims to produce graduates with a solid foundation in physics and astrophysics. We are recognised internationally for research in several fields of physics and astrophysics; however, we are focused on significantly strengthening our research base to achieve the status of a top ranked international department.

Currently the School has 26 academic staff, 28 research-only staff and 17 adjunct staff, supported by 10 professional staff. In 2014 the School’s total recurrent income was approximately $15M, with research income in the past four years totaling over $22M.

The School conducts research in areas ranging from astrophysics, atomic physics and particle physics to biophotonics, condensed matter physics, and synchrotron science. It is actively involved in four research centres:

- The Monash Centre for Astrophysics (MoCA – http://moca.monash.edu);
- The ARC Centre of Excellence for Particle Physics at the Terascale (CoEPP) http://www.coepp.org.au/);
- The Monash Centre for Electron Microscopy (MCEM – http://mcem.monash.edu.au);
- The Monash Centre for Atomically Thin Materials (http://fuhrerlab.physics.monash.edu/).

In addition, the School has over a dozen Australian Research Council funded programmes and is an active user of the Australian Synchrotron and the Melbourne Centre for Nanofabrication, which are located adjacent to the Clayton Campus of Monash University. Modern laboratory facilities are a high priority in the School’s Strategic Plan. In 2013 the School’s research laboratories relocated to a new building – the $175M New Horizons Centre (NHC).

Astronomy and Astrophysics

The School hosts the Monash Centre for Astrophysics, which is one of the most diverse astrophysics research groups in Australia. Major areas of research include: active galaxies, astrophysical fluid dynamics and magnetohydrodynamics, galaxy evolution, first stars, the formation of stars, stellar evolution, stellar nucleosynthesis, nuclear astrophysics, chemical evolution, galactic archaeology, supernovae, supernova remnants, neutron stars, stellar transients, supermassive black holes, high energy astrophysics, gravitational wave astronomy, stellar and planetary dynamics, and exoplanets. The Australian astrophysics community is heavily involved in major observational and computational facilities, including the Australian Square Kilometre Array Pathfinder (ASKAP), the Giant Magellan Telescope, the Australian Astronomical Observatory, Skymapper, HERMES, NCI, and the Green II and gSTAR supercomputers. In addition the School conducts research into particle physics and cosmology through the ARC Centre of Excellence for Particle Physics at the Terascale (CoEPP). It is also member of the Joint Institute for Nuclear Astrophysics and has close collaborations with the Center for Nuclear Astrophysics at Shanghai Jiao Tong University.

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.

See also http://jobs.monash.edu.au/jobDetails.asp?sJobIDs=531173&lWorkTypeID=&lLocationID=&lCategoryID=641%2C+640%2C+636&lBrandID=&stp=AW&sLanguage=en
Second announcement of Summer School:
New Era of the Cosmic Distance Scale

We are pleased to announce that registration is now open for Summer School on the Cosmic Distance Scale which will be held in the University of Tokyo, Japan, from Mon 29 June to Fri 3 July 2015. This school will cover a wide range of distance measurement techniques from trigonometric parallaxes to cosmological distance measurements and related scientific topics. Distinguished lecturers in various fields will give dedicated lectures on the basics and cutting edge of the field of distance measurement as well as on expected future developments. Please find more details and the registration form on our web site:

http://stella.astron.s.u-tokyo.ac.jp/CDSchool/

Invited Lecturers
Nabila Aghanim Cosmic Microwave Background (CMB)
Giuseppe Bono Theoretical breakthroughs for radial variables
Richard de Grijs Introduction/Summary and outlook to the future
Gerard Gilmore Gaia: applications to the distance scale
Shrinivas Kulkarni Supernovae
Barry Madore Population II distance indicators
Francois Mignard Gaia: principles and techniques
Takeo Minezaki Active Galactic Nuclei (AGNs)
Grzegorz Pietrzynski Eclipsing binaries
Mark Reid VLBI parallaxes
Sherry Suyu Gravitational lensing
Masahiro Takada Baryon Acoustic Oscillations (BAOs)
Patricia Whitelock Asymptotic Giant Branch variables
Daisuke Yonetoku Gamma-Ray Bursts (GRBs)

SOC:
Giuseppe Bono, Richard de Grijs, Mamoru Doi (Co-chair), Naoteru Gouda, Mareki Honma, Noriyuki Matsunaga (Co-chair), Takeo Minezaki, Ken’ichi Nomoto, Hiromoto Shibahashi, Naotaka Suzuki, Tomonori Totani, Yuzuru Yoshii

LOC:
Laura Inno, Noriyuki Matsunaga (Chair), Takeo Minezaki, Tomoki Morokuma, Nobuyuki Sakai, Takuji Tsujimoto

Contact:
cdschool_loc@astron.s.u-tokyo.ac.jp

See also http://stella.astron.s.u-tokyo.ac.jp/CDSchool/
Feedback in the Magellanic Clouds
A Space Telescope Science Institute Workshop

October 5-7, 2015
Space Telescope Science Institute
3700 San Martin Dr.
Baltimore, MD 21218

The goal of this workshop is to bring together the communities studying feedback in the Magellanic Clouds on both stellar and galactic scales. As the nearest gas-rich dwarf galaxies, the Magellanic Clouds offer a superb opportunity for studying the radiative, chemical, and mechanical feedback from star formation at high spatial resolution. We will discuss recent multi-wavelength observations that trace the impact of star formation in the Magellanic Clouds on the surrounding interstellar medium, and on the larger-scale evolution of the two galaxies.

Confirmed Invited Speakers
Gurtina Besla
Martha Boyer
Paul Crowther
Jim Dale
Jay Gallagher
Eva Gregel
Stephen Justham
Nicolas Lehnert
Jacco van Loon
Eve Ostriker
Snezana Stanimirovic
Tea Temim
Leisa Townsley

Abstract Deadline: April 30, 2015
www.stsci.edu/institute/conference/fimc/

NASA/ESA/Herschel/Spitzer
NASA/ESA/CXC
NASA/Spitzer
NASA/ESA/CXC