

ArAS News

NEWSLETTER

ARMENIAN ASTRONOMICAL SOCIETY (A r A S)



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Editor: Sona FARMANYAN

ArAS Newsletter online at: <http://www.aras.am/ArasNews/arasnews.html>

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Eurasian Astronomical Society (EAAS) XII General Meeting and Scientific Conference

Euro-Asian Astronomical Society (EAAS) XII General Meeting and conference “*Astronomy from our Cosmic Neighborhood to Deepest Cosmology*” were held on 25-30 May 2015 in Moscow, Russia, at P. K. Sternberg Astronomical Institute of M. V. Lomonosov Moscow State University (SAI MSU).



The Scientific Organizing Committee (SOC) was chaired by EAAS Co-President N.N. Samus and famous scientists were among the members, such as N.G. Bochkarev, A.M. Cherepashchuk, N.S. Kardashev, O.Yu. Malkov, V.N. Obridko, A.S. Rastorguev, M.I. Ryabov, O.K. Sil'chenko, D.Z. Wiebe, and A.V. Zasov. Some 120 scientists from Russia, Ukraine, Belarus, Latvia, Armenia, Kazakhstan, Uzbekistan, and Azerbaijan participated in these events. Various topics of astronomy and astrophysics were involved and corresponding parallel sessions were organized:

1. Stars, planetary systems and interstellar medium
2. Astrometry and celestial mechanics
3. The Sun
4. Extragalactic astronomy
5. Modern stellar astronomy
6. Astronomical catalogues, databases, surveys, virtual observatories
7. Teaching and popularization of astronomy

The sections had oral and poster presentations and in addition, Plenary Sessions with invited lectures by leading scientists were held. 17 Plenary Talks were presented:

V.M. Lipunov: *New results of work of the global system MASTER*

A.M. Cherepashchuk: *Caucasian mountain observatory of Moscow State University*

Y.Y. Kovalev: *Results of the first years of operation of “Radioastron” spacecraft*

I.F. Bikmaev, N.A. Sakhbullin, R.A. Burenin, R.A. Sunyaev, M.N. Pavlinsky, I.M. Khamitov: *Ground support of orbiting observatories by PTT-150 1.5-m telescope observations*

V.N. Rudenko: *Modern experimental gravitational wave research in Russia*

D.Z. Wiebe: *The evolutionary cycle of dust in star formation galaxies*

S.V. Pilipenko: *The structure of the Universe on large scales*

D.C. Sil'chenko: *The evolution of disk galaxies*

N.G. Bochkarev, N.N. Samus: *International public organization "Astronomical Society": history and current activities*

A.M. Mickaelian: *Astronomical surveys and big data*

B.V. Somov: *The physics of Solar flares*

V.V. Shevchenko: *The current stage of the study of the Solar System planets*

N.V. Emelyanov: *The service of natural satellites of the planets*

N.I. Shakur, K.A. Postnov, G.V. Lipunova: *Accretion disks in astrophysics*

E.A. Karitskaya: *The results of 40 years research of X-ray binary Cyg X-1 = V1357 Cyg*

A.V. Zasov: *Galaxies as open systems*

O.J. Malkov: *Russian Virtual Observatory*

Two sessions of the General Meeting and two sessions of EAAS Council were held as well. The General Meeting discussed the accomplished work, further plans, prospects of development of astronomy in the territory of the former Soviet Union, including expansion of scientific collaboration, further annual meetings and scientific conferences, schools for young astronomers, etc.

From Armenia, Leading Scientists from Byurakan Astrophysical Observatory (BAO), ArAS Co-President and EAAS Council member Areg Mickaelian and BAO Deputy Director Tigran Magakian participated in EAAS General Meeting and the Conference. They gave 5 talks at 2 Sections and the Plenary Session.

Section "Stars, planetary systems and interstellar medium"

T.A. Movsessian: *Inner structure of stellar jets*

A.M. Mickaelian et al.: *SDSS Revised Classification of X-ray Selected Star Candidates*

T.Yu. Magakian et al.: *HH-flows in a new far star formation region*

Section "Extragalactic astronomy"

A.M. Mickaelian et al.: *Large homogeneous sample of X-ray selected AGN and its study*

Publication of the Conference Proceedings will be organized in *Baltic Astronomy* and *Astronomical and Astrophysical Transactions*.

A.M. Mickaelian also presented a Plenary Talk "Astronomical Surveys and Big Data" and took part in EAAS General Meeting sessions and Council meetings. Elections to EAAS Council were held and A.M. Mickaelian was re-elected as EAAS Council member. Moreover, he was elected as EAAS Vice-Chair. Some social events were held as well, such as concert and banquet.

EAAS was founded in 1990 as the astronomical society of the Soviet Union and after disintegration of the USSR it was renamed to Euro-Asian Astronomical Society and at present it has 800 members from 31 countries, including 12 astronomers from Armenia. ArAS is the official representative of EAAS in Armenia.

IAU SYMPOSIA 2016



IAU Executive Committee has approved 10 IAU Symposia to be held in 2016. This list is as follows:

IAU S321: *Formation and evolution of galaxy outskirts*

Mar 14-18, 2016, Toledo, Spain

Topics

- Galaxy Evolution
- Outskirts of galaxies
- Resolved stellar populations
- Galaxies: Nearby galaxies
- Galaxies: High redshift galaxies
- Techniques: Numerical simulations
- Techniques: Imaging
- Techniques: Spectroscopy



IAU S322: *The Multi-Messenger Astrophysics of the Galactic Centre*

July 18-22, 2016, Cairns, Australia

Topics

- Accretion inflow/outflow: approaching the Event Horizon
- Dense gas in the Galactic Centre and other nuclei and its star formation potential; young and massive stars in the Galactic Centre
- Nuclear clusters; cluster dynamics; stellar evolution and end products in the crowded Galactic Centre environment
- Magnetic fields; cosmic ray acceleration, propagation, dynamics and radiation in the Galactic Centre
- The Galactic Centre's relation to other galactic nuclei; giant outflows; feedback
- Dark Matter in the Galactic Centre: indirect signatures, expected distribution, backgrounds, extracting potential signals in a crowded environment



IAU S323: Planetary nebulae: Multi-wavelength probes of stellar and galactic evolution

Oct 10-14, 2016, Beijing, China Nanjing

Topics

- New challenges to surveys of planetary nebulae (PNe) in the Local Group
- PNe as a versatile laboratory of dust and molecular studies
- From the asymptotic giant branch to the white dwarf stellar phases
- The connection between binary evolution and the PN phenomena
- Planets around evolved stars and their impact on PN formation
- PNe in nearby galaxies: probing chemical evolution and galactic dynamics
- PNe outside of the local group: Challenges to observing and interpret distant PNe

**IAU S324: New Frontiers in Black Hole Astrophysics**

Sep 12-16, 2016, Ljubljana, Slovenia

Topics

(1) Similarity and Diversity of Black Hole Systems

- Theoretical frameworks
- Observational signatures

(2) The Physics of Gamma Ray Bursts

- Nature of the central engine and the relativistic outflow
- Particle acceleration, jet collimation and radiation mechanisms
- Observational and theoretical advances in understanding the role of magnetic fields
- Gamma Ray Bursts as probes of elementary particle physics

(3) Tidal Disruption Events

- Modeling and theoretical predictions for different phases of the disruption event (disruption, jet production, fall-back)
- Observational signatures in different wavelength regimes
- Stellar dynamics in galactic centres, relativistic simulations and rates of Tidal Disruption Events
- Observations of Tidal Disruption Events in the era of all-sky surveys

(4) Active Galactic Nuclei

- Theoretical and observational frameworks for:
 - radio loud/quiet dichotomy and duty cycles
 - jet physics in the most energetic sources including physics of flaring
 - role and properties of magnetic fields
- A look to the future with TeV observations and other techniques

(5) Tests of Fundamental Theories of Physics

- Black hole systems as multi-messenger sources:
- Modeling and theoretical predictions for production of neutrinos and gravitational waves



- Observational frontiers
 - Constraints on quantum gravity - observational and theoretical prospects
 - Signatures of exotic particles such as axions
- (6) Technology Drivers and Future Capabilities
- New observational facilities, instruments and techniques
 - New theoretical, numerical and computational innovation

IAU S325: *Astroinformatics (AstroInfo16)*

Sep 29 - Oct 4, 2016, Sorrento (Naples), Italy



Topics

- Database structure, management and distribution
- Multiprocessor (cluster, cloud, GPU) computing for astronomy
- Machine learning methods for classification and knowledge extraction
- Algorithms for N-point computations, time series analysis and image processing
- Advanced visualization for astronomical Big Data
- Cross-disciplinary perspectives and advanced training in informatics

IAU S326: *Research in Astronomy Education: Far Reaching Impacts and Future Directions*

Oct 4-7, 2016, Heidelberg, Germany



Topics

- State-of-the-art of astronomy education research in countries/continents on papers/dissertations/meetings
- Meta-analysis of astronomy education research on contents/school grade levels/focus on education cross studies
- Astronomy misconceptions across the globe
- Use of AER experiments and results by teachers and museum educators
- Innovations in research methodologies and instrumentation
- Measuring museum and planetarium learning
- Research into the value and influence of astronomy education in other disciplines
- Interplay of students' worldviews with the worldview of science in a globalizing world
- Impact research on leveraging new media and information systems for teaching and learning
- Overview of astronomy education research: what has been done, what should be done over the next decade?

IAU S327: *Fine Structure and Dynamics of the Solar Atmosphere*

Oct 9-13, 2016, Cartagena de Indias, Colombia

**Topics**

- The solar atmosphere as a system connected by magnetic fields
- Role of small-scale magnetic structures in the dynamics of the solar atmosphere
- Energy and mass transport between the convection zone and the outer solar atmosphere
- Interaction between radiation, convection and magnetic fields in the solar atmosphere
- Magnetic network, hidden magnetism and local dynamo
- Magnetic flux emergence in the solar atmosphere
- Fine structuring in sunspots
- Energy release and explosive events at the finest spatial and temporal scales
- New observational diagnostics: high-resolution imaging spectroscopy and spectropolarimetry
- Theoretical models and numerical simulations. New capabilities of large solar telescopes

IAU S328: *Living around Active Stars*

Oct 17-21, 2016, Maresias, Brazil

**Topics**

- Solar and Stellar Magnetism
- Irradiance and Luminosity Variations
- Solar and Stellar Winds
- Extreme Events (Flares and Energetic Particles), Heliosphere and Astrospheres
- Stellar Forcing of Planetary Atmospheres
- Coupled Star-Planet Evolution
- Space Climate Consequences
- Exoplanets
- Habitability

IAU S329: *The lives and death-throes of massive stars*

Nov 28 - Dec 2, 2016, Auckland, New Zealand

**Topics**

- New results from large-scale surveys at different wavelengths and techniques for massive stars and supernovae
- New observational techniques and instrumentation for massive stars and supernovae
- The link between massive stars and their deaths (core-collapse and other SNe)
- Short-lived phases of massive stars (LBVs, WRs and RSGs) and their characteristics as supernova progenitors
- Constraints on the nucleosynthesis production in supernovae and the production of dust
- Explosion mechanisms of supernovae and the parameters required for a successful explosion
- Well established facts and open problems in our knowledge of massive stars
- Challenges to present theoretical models: 2D and 3D models of interior and atmospheres
- Massive stars as astrophysical tools: tracing the Milky Way and other galaxies structure; limits to our interpretation of the high-z Universe

IAU S330: *Astrometry and Astrophysics in the Gaia sky*

Dec 5-9, 2016, Nice, France

**Topics**

- The Gaia mission: presentation of the status and performances after the first 2.5 years of scientific observations
- The first Gaia Data Release and the Hundred Thousand Proper Motions catalogue
- First scientific results of the Gaia mission expected on:
 - (i) Astrometry and Reference frames
 - (ii) Solar system objects & Gaia alerts
 - (iii) Galactic and stellar physics & the Hundred-Thousand-Proper-Motion project for the Hipparcos stars

To remind, 7 IAU Symposia are being organized in 2015, including 6 to be held in Honolulu, Hawaii, USA, during the IAU General Assembly XXIX.

ICSU WDS Associated Meetings 2015



International Council of Scientific Unions World Data System (ICSU WDS) Scientific Committee and International Programme Office are pleased to announce that the ICSU WDS will co-host the below two events in 2015.

SCOSTEP-WDS VarSITI Workshop



SCOSTEP–WDS Workshop on ‘Global Data Activities for the Study of Solar–Terrestrial Variability’ will be held on 28–30 September 2015 at the National Institute of Information and Communications Technology (NICT), Tokyo, Japan.

The principal objective of this joint SCOSTEP-WDS workshop is to stimulate interaction among data providers (data centres, data networks, etc.), data scientists, and data-oriented researchers. SCOSTEP’s current program VarSITI (Variability of the Sun and Its Terrestrial Impact, <http://www.varsiti.org/>) will strive for international collaboration in data analysis, modelling, and theory to understand how the solar variability affects the Earth’s environment in a vast range of time scales, from seconds to billions of years. Long-term preservation and provision of quality-assessed data and information are common objectives for SCOSTEP and WDS. Development of advanced data systems to enable scientists to perform multidisciplinary data-analysis is another common target. This workshop will be a remarkable opportunity to initiate close collaboration between SCOSTEP and WDS to promote our data-oriented activities by introducing state-of-the-art information technology. Principal topics of the workshop are:

- Application of information technology to mutual data activities
- Data systems for VarSITI (data centres, data networks, data analysis systems, etc.)
- Data analysis (VarSITI Campaign Intervals and others)
- Data-oriented collaborations between SCOSTEP and WDS

Registration

Please use the registration form posted on the Workshop website, and submit it to the ‘contact point’ as an attached file. The registration deadline is 15 September 2015. Although onsite registration will be accepted, we ask that all participants submit the form in advance to eliminate additional paperwork at the registration desk. No registration fee is required.

Abstract Submission

The abstract format is a ‘one-pager’ that may include figures or tables, in addition to the main text of less than 600 words (a WORD template can be found on the Abstract Submission webpage). All figures will be reproduced monochromatically in the workshop booklet to be distributed to the participants. Please submit the abstract as an e-mail attachment to the ‘contact point’ of the Workshop by 1 August 2015. All submitted abstracts will be peer reviewed.

Website: <http://isds.nict.go.jp/scostep-wds.2015.org/>

Polar Data Forum II

International Collaboration for Advancing Polar Data Access and Preservation meeting will be held on 27-29 October 2015 at the Federation Hall, University of Waterloo, Waterloo, Ontario, Canada.

Governments, scientists, and society are more and more recognizing the importance of data and proper data management. The polar science community has been a leader in international, interdisciplinary data management with a history beginning with the International Polar Year (IPY) programs starting in 1881-1884. Advances in open, networked, and ubiquitous digital technologies come at the same time as unprecedented changes in the polar regions. Together, these shifts present an urgent opportunity for the polar science community, Arctic residents, and other stakeholders to establish a clear global vision, strategy, and action plan to ensure effective stewardship of and access to valuable Arctic and Antarctic data resources.

The Second Polar Data Forum (PDF II) will be held October 27 - 29, 2015 in Waterloo, Canada to build on successes of the first Polar Data Forum (PDF I) in Tokyo, Japan, October 2013. PDF I and a series of other international and national meetings have identified priority themes and key challenges in the domain of polar data management¹. PDF II will further refine these themes and priorities and will accelerate progress by establishing clear actions to address the target issues, including meeting the needs of society and science through promotion of open data and effective data stewardship, establishing sharing and interoperability of data at a variety of levels, developing trusted data management systems, and ensuring long-term data preservation. The Forum will be held in conjunction with the scheduled annual meetings of the Arctic Data Committee (ADC) of the International Arctic Science Committee and Sustaining Arctic Observing Networks (IASC/SAON) and the Standing Committee on Antarctic Data Management (SC-ADM) of the Scientific Committee on Antarctic Research (SCAR). This unprecedented co-location presents unique opportunities for coordination and is envisioned as the first international Polar Data Week.

PDF II will provide a critically important venue for showcasing polar data initiatives, to learn from global partners and work collaboratively to continue developing an international vision and action plan. By the end of PDF II, we will have updated status and made progress on polar data management activities and outstanding issues, including international coordination of ongoing and future planned efforts across the Arctic and Antarctic data and scientific research communities.

Important Dates

Registration and Abstract Systems Open:	15 May 2015
Abstracts Due:	1 July 2015
Notification of abstract acceptance:	31 July 2015
Hotel block reservation deadline:	24 August 2015
Early bird registration deadline:	31 August 2015
Travel support application deadline:	31 August 2015
Online registration deadline:	30 September 2015
Website:	http://polar-data-forum.org

IAU NameExoPlanets Contest



The IAU fully supports the involvement of the general public in the naming of astronomical objects, whether directly or through an independent organised vote, in the naming of planetary satellites, newly discovered exoplanets, and their host stars. This follows a well-established tradition for naming Solar System objects.

The IAU does not consider itself as having a monopoly on the naming of celestial objects — anyone can in theory adopt names the way they choose. However, given the publicity and emotional investment associated with these discoveries, worldwide recognition is important and the IAU offers its unique experience for the benefit of a successful public naming process (which must remain distinct, as in the past, from the scientific designation issues)

The process for naming exoplanets is organised by the IAU Executive Committee Working Group Public Naming of Planets and Planetary Satellites.



ArAS and Junior Astronomer Club (JAC) have proposed Armenian names for the system 55 Cnc, both for the star and its 5 planets (e, b, c, f, d). 55 Cancri, also catalogued ρ^1 Cancri or abbreviated 55 Cnc, is a binary star approximately 41 light-years away from Earth in the constellation of Cancer. The system consists of a G-type star and a smaller red dwarf, separated by over 1,000 AU (one thousand times the distance from the Earth to the Sun). As of 2011, five extrasolar planets have been confirmed to be orbiting the primary, 55 Cnc A (the yellow dwarf). The 55 Cnc system was the first known to have four, and later five planets, and may possibly have more. The innermost planet, *e*, transits 55 Cnc A as viewed from Earth. The next planet, *b*, is non-transiting but there is tentative evidence that it is surrounded by an extended atmosphere that does transit the star.

The **55 Cnc** system is located fairly close to our Solar System: the Hipparcos astrometry satellite measured the parallax of 55 Cnc A as 81.03 mas, corresponding to a distance of 12.3 pc (40.3 l.y.). 55 Cnc A has an apparent magnitude of 5.95^m, making it visible through binoculars. It is just visible to the naked eye under very dark skies. The red dwarf 55 Cnc B has magnitude 13^m and is only visible through a telescope.

55 Cnc is the only star with 5 planets in the proposed by IAU list to be named and it is very suitable to name this system as our Sun and its 5 visible to naked eye planets, as they were named by ancient Armenians:

Aregak (Sun) for 55 Cnc A (the star)

Paylatzu (Mercury) for 55 Cnc e

Arusyak (Venus) for 55 Cnc b

Hrat (Mars) for 55 Cnc c

Lusntag (Jupiter) for 55 Cnc f

Yerevak (Saturn) for 55 Cnc d

It is interesting, that ancient Greek names of this planets before the mythological ones had the same meanings as Armenian names:

Στίλβων (Stilbon) meaning Sparkling

Εσπερος & Φωσφόρος (Hesperos & Phosphoros) meaning Evening Star & Phosphorus

Πυροεις (Pirois) meaning Fiery

Φαέθων (Phaethon) meaning Radiant

Φαίνων (Phainon) meaning Apparent

These Greek names have meanings exactly the same as in Armenian. Haik Harutyunian has given some more details in his article to be published in the Proceedings of the Meeting “*Relation of Astronomy to Other Sciences, Culture and Society*”.

Armenian names of the planets often are in use until now. Moreover, Ancient Armenian astronomy was so developed that the word “*planet*” had its own term, “*molorak*”, which means a wandering body, a stray (almost the same as “*planet*” or “*aster planetes*” in Greek, a wandering star), as it was noticed that the planets moved compared to “*immovable*” stars (though most of the Nations use the same term “*planet*” or its versions without translation).

To support our proposal, you can vote at the IAU NameExoplanets contest website at:

<http://nameexoworlds.org/>

Areg Mickaelian, Sona Farmanyan

Report on Radio Astronomy in Europe



As part of its process of reviewing and road mapping European astronomy, the ASTRONET board has tasked the European Radio Telescope Review Committee (ERTRC) to review radio astronomy in Europe, in concert with RadioNet, and make recommendations on its future. As you may recall, we issued preliminary recommendations for community comments in 2013 and requested feedback via our online forum and via interaction at a number of astronomical conferences, in particular the 2013 EWASS in Turku. Based on all input and our own further consultations, we now present to you a draft of our full report, with refined recommendations.

A few important points to note:

1. ASTRONET acts on behalf of the entire astronomical community in the countries of its members, and so the ETRTC members were deliberately independent and not all from radio astronomy. Thus the report is on behalf of, and of interest to, all astronomers.
2. Feedback is thus appreciated from all members of the European astronomy community.
3. The preferred mode of communicating your comments to us is via the web forum linked below, where you may also find the draft report, so that the input given is transparent to the community. If, however, you wish to keep your comments private, you may use the special email address listed on the forum website. Such comments will be confidential to the committee.

STARMUS FESTIVAL ATTRACTS THE GREATEST MINDS IN SCIENCE AND SPACE

Royal Astronomical Society announced that Tenerife will host the Starmus Festival for the third time. In June 27th – July 2nd 2016, Tenerife will bring together the world's leading space travellers, stargazers and astrophysicists for an interactive extravaganza, inviting the general public to discover the wonders of the Cosmos through science, art and music.

Under the theme 'Beyond the Horizon – Tribute to Stephen Hawking' the 2016 event will take inspiration from the legendary man himself and the notion that nothing is impossible. A comprehensive programme of events will include lectures from key note speakers, round table discussions, exclusive music performances, creative arts exhibitions and visits to local observatories.



“Astro-fans” will be delighted to learn that next year's line-up of key note speakers will include theoretical physicist Prof. Stephen Hawking, Starmus Festival Founder and leading astrophysicist Dr. Garik Israelian and musician and astronomer Dr. Brian May. These big names will be joined by a line-up of the world's leading scientists, astronauts and Nobel Prize winners, including:

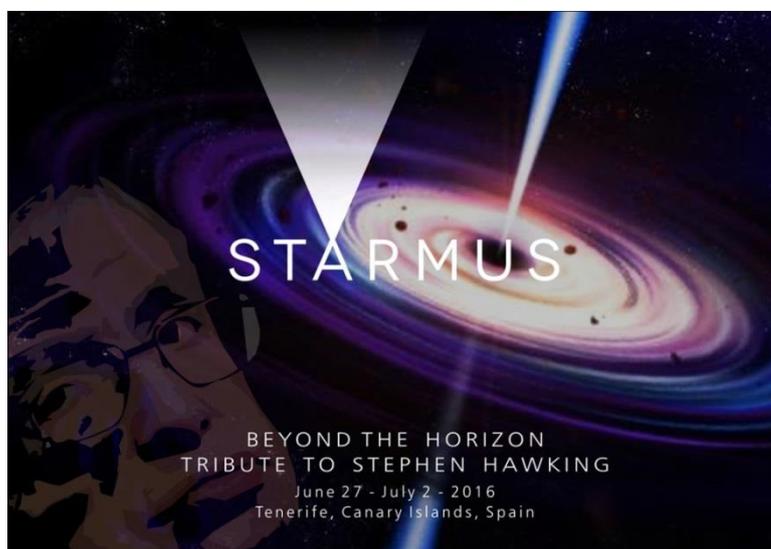
- **Neil deGrasse Tyson** – Astrophysicist and commissioned by President Bush to serve on a number of aerospace missions
- **Eric Betzig**– Physicist and Nobel Prize winner in Chemistry 2014 for “the development of super-resolved fluorescence microscopy”
- **Colonel Chris Hadfield** – Astronaut and First Canadian Commander of the International Space Station (2015)
- **Harry Kroto** – English Chemist and Nobel Prize winner in Chemistry 1996
- **Lord Martin Rees** – Professor of Cosmology and Astrophysics at The University of Cambridge and author or co-author of more than 500 research papers
- **Adam Riess** – Astronomer, Physicist and Nobel Prize winner in Physics in 2011, who led a study for the High-z Team which provided the first published evidence that the expansion of the Universe was accelerating and filled with Dark Energy

- **Russell Schweickart** – Astronaut and Scientist – ex-NASA Apollo Series astronaut and logged over 4,000 hours of flight time for the US Air Force
- **Neil Turok** – Scientist and Professor of Physics and co-author of the popular science book *Endless Universe: Beyond the Big Bang*
- **Kip Thorne** – Astrophysicist who has forged a career in writing and movies – his latest project was *Interstellar* (2014), directed by Christopher Nolan

Discussions will focus on pushing the boundaries of science and touch on subjects such as the blurring relationship between science and science fiction and how technology will affect the future of humanity.

The Starmus Festival is supported by the Tenerife Island Government and is the brainchild of Garik Israelian, an astrophysicist researcher at the IAC. He sits on a scientific advisory board which includes Prof. Stephen Hawking, Dr. Brian May, legendary Russian cosmonaut Alexei Leonov, who became the first human to make a ‘spacewalk’ back in 1965 and British ethnologist and scientist Prof. Richard Dawkins. Israelian says, “Our aim is to make Starmus Festival a global brand that is recognised not just within academic circles but that inspires and captures the imagination of the wider general public who have an interest in space, stargazing, science, art, music and sci-fi. Following the success of Starmus II, which was the most ambitious all-star festival in science, we are excited to be taking Starmus III to the next level. We are delighted that Tenerife will once again be hosting the festival as there really is no better setting to appreciate first hand the wonders of the skies and learn about what is beyond the horizon.”

One of the main social highlights planned is the “Teide Starmus Party”, a magical evening of stargazing in the company of professional astronomers and live music performances, set within the lunar-like landscape of Teide National Park and under the canopy of the Milky Way. The Teide National Park – a UNESCO World Heritage Site – is one of the world’s best stargazing locations because of its clear dark skies, high altitude and low pollution and is recognised as a “Starlight Tourist Destination”. The



party last year provided such creative inspiration that one of Europe’s most interesting alt/rock bands NOSOUND launched a live CD and DVD called *Teide 2390* which was recorded at the Teide Observatory in Tenerife during their performance.

Mr. Carlos Alonso, President of the Tenerife Island Government, says, “Following the success of last year’s festival and a growing interest in stargazing as a popular excursion in Tenerife, we are delighted to host this prestigious event and hope the gathering of these great minds in one of the world’s stargazing capitals will inspire travel to and exploration of our wonderful island.”

RELEASE OF IAU ASTRONOMY OUTREACH NEWSLETTER #6



Read in this issue:

0. From the Editors

1. CosmicLight IYL2015: Cosmic Light EDU kit workshops

2. The IAU Office for Astronomy Outreach booth at the IAU General Assembly

3. HighLIGHT of the Month: Using animation to celebrate light

4. CosmicLight around the world

5. NASA Innovation Pavilion

6. Resources: Universe of Spectroscopy

7. Cool stuff from around the web

8. Upcoming meetings & global events around the globe

9. Contributions to this newsletter

RELEASE OF UNIVERSE AWARENESS MAY ISSUE



Read about the latest Universe Awareness activities taking place around the world!

UNAWE International Workshop 2015: Programme and Registration



Registration has now opened for the UNAWE International Workshop 2015. The workshop will take place during the World Space Week from 5-9 October in Leiden, the Netherlands. Registration is open until 30 June 2015 and travel grant application deadline is 15 June 2015.

Open University (UK) creates science of light animation to celebrate IYL2015

The Open University (UK) has released a new animation to celebrate the International Year of Light 2015 and has opened a call for translators.

100 Education activities about Light and Photonics

Looking for education activities to use during International Year of Light 2015? UNAWE curated a list of 100 activities about the wonders of light and photonics for the International Year of Light and Light-based Technologies 2015 (IYL 2015).



Blue Marble in Empty Space



Using photographs and models, students are taken on a virtual journey to outer space. They can look back at the Earth as they travel further away and see it increasingly growing smaller.

Make Your Own Periscope



An understanding of optics begins with exploring and enjoying the fun and tricks of light. In this activity, make a simple periscope that will let you see around corners and over walls.

The Tale of Two Medusas

A famous Greek story tells of the beautiful golden-haired Medusa who was vain and selfish, which eventually got her into trouble with the powerful goddess Athena. Athena turned each of Medusa's beautiful golden locks of hair into a poisonous snake for punishment. The cosmic cloud of gas and dust in this picture is called the Medusa Nebula.



Cosmic Lens Zooms in on Warped Galaxy



Last year, using the ALMA telescopes, astronomers made this strange photo of a very distant galaxy. The galaxy isn't distorted because of curved mirrors or special camera lens, but because the distant galaxy was observed through a Cosmic Lens. The galaxy in this picture is really, really far away.

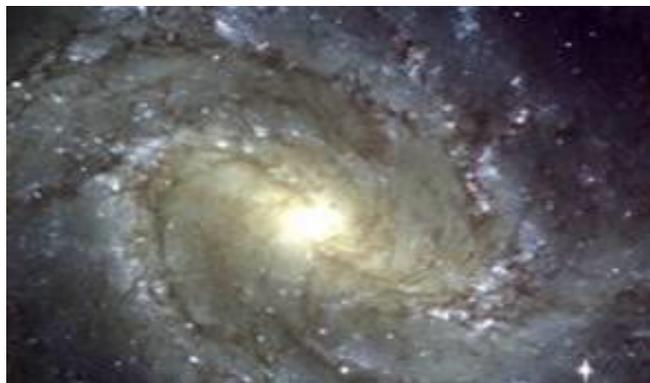
The Dark Side of Star Clusters

A few weeks ago, around a galaxy far, far away, a new type of mysterious "dark" star cluster was spotted. A galaxy called Centaurus A is surrounded by thousands of globular clusters. Many of them are normal. The brighter ones have more stars, and that makes them more massive. But a small number look really strange.



The newsletter is available in the following link: <http://www.unawe.org/>

RELEASE OF ASTROCOURIER MAY ISSUE



CONTENTS

Preface

EAAS XII General Meeting

Scientific Conference “*Astronomy from Our Cosmic Neighbourhood to Deepest Cosmology*”, SAI, MSU, 25-30 May 2015

Chronicle of Events:

- 150 years of I.I. Mechnikov Odessa National University and its Chair of Astronomy
- The SCOSTEP Visiting Scholar (SVS) program

Calendar of Conferences and Schools:

- 25-29 May 2015, “*Astronomy and Space Physics*”, dedicated to 170th Anniversary of Astronomical Observatory of Taras Shevchenko National University of Kyiv
- 4-7 June 2015, Kazan, Youth School “*Cosmic Science*”
- 22-26 June 2015, European Week of Astronomy and Space Science (EWASS 2015)
- 16-23 August 2015, Odessa, Ukraine 5-th Gamow International Conference in Odessa: “*Astrophysics and Cosmology after Gamow: Progress and Perspectives*” and 15th Gamow Summer School: “*Astronomy and beyond: Astrophysics, Cosmology, Cosmomicrophysics, Astroparticle Physics, Radioastronomy and Astrobiology*”
- 5-9 October 2015, Pulkovo XIX All-Russian annual conference on Solar physics “*Solar and Solar-Terrestrial Physics – 2015*”

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Dr. Rafik VARDANIAN – 80. On May 20, we celebrated the 80th anniversary of one of the oldest BAO astronomers, *Dr. Rafik Vardanian*. The first polarimetric observations and the foundation of the practical astronomy group at BAO are related to his name. He was born on 20.05.1935 in the village Togh in Goris region (Southern Armenia). He graduated from the YSU Department of Physics, Chair of Astrophysics in 1958 and already since his student years (1957) started working at BAO. He was a post-graduate in 1964-1966 and defended his PhD thesis in 1967 (scientific advisor: *Dr. Karlos Grigorian*). Then he defended his Doctoral thesis in 1986 and became Leading Research Associate in 1995. He was also Head of a Laboratory at BAO. Vardanian's main interests were in the field of polarimetric studies of variable stars (Mira variables, Cepheids, T Tauri and flare stars, etc.), interstellar absorption, Markarian galaxies, quasars and radio galaxies, and groups of galaxies, including compact groups of compact galaxies. He published some 100 papers in *Astrofizika (Astrophysics)*, *Reports of the USSR Academy of Sciences*, *Kinematika i Fizika Nebesnykh Tel (Kinematics and Physics of Celestial Bodies)*, *IBVS*, *Peremennye Zvezdy (Variable Stars)*, *Astronomical Circular*, *Communications of BAO* and Proceedings of meetings. *Dr. Vardanian* passed away on 14.02.2000 in Byurakan still at his active age for much more research work.

JUNE CALENDAR OF ASTRONOMICAL EVENTS

Monthly Calendar of Astronomical Events
JUNE 2015

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2 Full moon	3	4	5	6 Junior Astronomers Club visit to Byurakan	7
8	9 Lunar crescent (last quarter)	10	11 Cepheids-1 meteor shower	12 Lunar occultation of Uranus	13	14 IVOA interoperability meeting
15 Lunar occultation of Mercury	16 New moon	17 Ararat Yeghikian's 60 th anniversary	18	19	20	21 Summer Solstice
22 Bootids meteor shower	23 Sir Fred Hoyle's 100 th anniversary	24 Lunar crescent (first quarter)	25	26	27	28 Grigor Broutian's 60 th anniversary
29	30 ArAS Newsletter #82 release	31				