

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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IAU SOUTH WEST ASIAN ROAD INAUGURATION CEREMONY

The official Inauguration Ceremony of IAU South West Asian Regional Office of Astronomy for Development will take place on 13 October 2015 in Byurakan Astrophysical Observatory (BAO) with participation of IAU and Armenian officials, ambassadors of foreign countries and representatives of international organizations in Armenia, Armenian scientific, educational and cultural community and others.

PROGRAM

18:00-19:00 Welcome Addresses

Radik Martirosyan, President of National Academy of Sciences of RA

Armen Ashotyan, Minister of Education and Science of RA

Piero Benvenuti, IAU General Secretary

Kevin Govender, Director, IAU OAD

Haik Harutyunian, Director BAO

George Miley (IAU 2010-2020 Strategic Plan Coordinator) – *Astronomy for Development: IAU Strategic Plan 2010-2020*

Areg Mickaelian (Director, IAU SWA ROAD) – *IAU SWA ROAD Forthcoming Activities*

19:00-20:00 Welcome Reception



A regional astronomical meeting with representatives from Armenia, Georgia, Iran, Israel, Jordan, Russia, and Turkey will take place on October 12-13 in Byurakan, Armenia and will be dedicated to the official Inauguration Ceremony of IAU SWA ROAD. This will be the first face to face workshop of SWA ROAD and will aim to set the agenda for its future activities. During the Armenian-Iranian Astronomical Workshop on 14-16 October there will be an opportunity to visit various facilities that will be part of the ROAD and available to the region, as well as various side meetings with the delegates. less...

Topics

- IAU SWA ROAD establishment
- Regional Steering Committee
- Forthcoming activities

Participants

IAU and IAU OAD Officers

Piero Benvenuti (Italy) – IAU General Secretary

George Miley (Netherlands) – Astronomy for Development IAU Strategic Plan 2010-2020 Coordinator

Kevin Govender (South Africa) – IAU OAD Director

IAU SWA ROAD

Areg Mickaelian (Armenia) – IAU SWA ROAD Director, Acting President of Armenian Astronomical Society (ArAS)

Maya Todua (Georgia) – Director of Georgian National Astronomical Observatory (GeNAO), IAU SWA ROAD Steering Committee member

Habib Khosroshahi (Iran) – Director of School of Astronomy at Institute for Fundamental Research (IPM), Acting President of Astronomical Society of Iran (ASI), IAU SWA ROAD Steering Committee member

Haik Harutyunian (Armenia) – Director of Byurakan Astrophysical Observatory (BAO), IAU SWA ROAD Steering Committee member

Naira Azatyan (Armenia) – IAU SWA ROAD Programme Coordinator

Sona Farmanyan (Armenia) – IAU SWA ROAD Programme Coordinator

Gor Mikayelyan (Armenia) – IAU SWA ROAD Webmaster

Representatives of Regional Countries

Sinan Alis (Turkey) – Turkish Astronomical Society (TAD) Board Member

Noah Brosch (Israel) – Wise Observatory

Awni Khasawneh (Jordan) – General Secretary of Arab Union for Astronomy & Space Sciences (AUASS) and IAU SWA ROAD Steering Committee member

Oleg Malkov (Russia) – Secretary of Russian National Committee for Astronomy



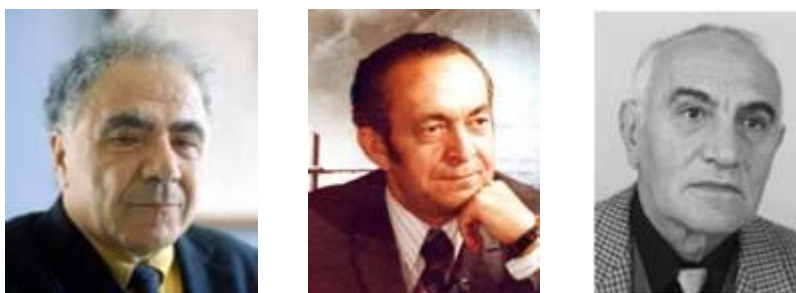
50TH ANNIVERSARY OF THE JOURNAL ASTROFIZIKA / ASTROPHYSICS

The professional journal *Astrofizika* was founded in 1965 on the initiative of **Viktor Ambartsumian**, the President of Armenian Academy of Sciences and the Director of Byurakan Astrophysical Observatory. Viktor Sobolev (Leningrad State University) took an active part in foundation of the journal. Ambartsumian was the first Editor-in-Chief of *Astrofizika* and served in this position till 1988. Among the members of the Editorial Board during these 50 years, there have been many famous scientists, such as Alexander A. Boyarchuk, Anatol M. Cherepashchuk, Viktor A. Dombrovskii, Vitali G. Gorbatskii, Samuel A. Kaplan, Evgeni K. Kharadze, Ivan M. Kopylov, Beniamin E. Markarian, Ludwik V. Mirzoyan (Editor-in-Chief in 1988-1999), Gurgen S. Sahakian, Davit M. Sedrakian (Editor-in-Chief since 2000), Viktor V. Sobolev (Chairman of the Editorial Council in 1988-1998), Yervant Terzian (USA), Boris A. Vorontsov-Velyaminov, Yakov B. Zel'dovich, and others.



Astrofizika (Afz) is a peer-reviewed scientific journal, which publishes original research in observational and theoretical astrophysics and presents recent advances in these fields. It is being published by the National Academy of Sciences of the Republic of Armenia (NAS RA) in Russian. The journal publishes original papers, review papers, book reviews, and some editorial notes, including anniversaries and obituaries.

Astrophysics (Ap) is the English translation of *Astrofizika*, which is being published by Springer. There one can find English translations of all papers published since 1965 (*Astrofizika* has been republished in English since 1965, originally by Plenum Publishing Corporation).



Astrofizika Editors-in-Chief (from left to right):

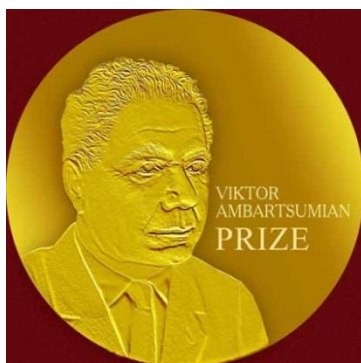
V.A. Ambartsumian (1965-1988), L.V. Mirzoyan (1988-1999) and D.M. Sedrakian (since 2000).

Celebrations on the occasion of the 50th anniversary of *Astrofizika* were held during September 15-18 in Yerevan and Byurakan. Guests (Editorial Board members and others) from France, Russia and Georgia were present. A solemn meeting was held at the Armenian National Academy of Sciences on September 16. Greeting speeches were given and the Editorial Board members were awarded medals and certificates of honour.

A detailed information on *Astrofizika* / *Astrophysics* is available at: <http://www.aras.am/astrophysics/>

VIKTOR AMBARTSUMIAN INTERNATIONAL PRIZE 2016

Call for nominations



Viktor Ambartsumian Prize is one of the important awards in astronomy/astrophysics and related sciences. It is being awarded to outstanding scientists having significant contribution in physical-mathematical sciences from any country and nationality. The Prize totals USD 500,000 and is being awarded once every two years, starting with 2010.

To apply for the Prize, a work may be presented by an author or authors' group (not more than 3 persons). The cash award is being equally shared between the winners, and a diploma, a medal and a certificate are being awarded to each winner.

The right for the nomination of works is reserved to

- Nobel Prize Winners
- Presidiums of national academies of sciences
- Scientific councils of astronomical observatories
- Councils of corresponding departments of universities

Nominations for Viktor Ambartsumian Prize are not allowed in case if the presented work has already won or at the same time has been presented for another international prize.

Necessary documents for nomination

1. Official letter of nomination signed and sealed by the corresponding body,
2. Statement of scientific results or achievements, which are being nominated,
3. Curriculum Vitae of the nominee(s),
4. List of refereed publications of the nominee(s),
5. General annotations with reports of three referees,
6. Published papers, books, CD/DVDs, or other works that are being nominated,
7. Other documents that might be important for the decision.

The documents should be submitted to

Viktor Ambartsumian Prize International Steering Committee, Presidium, National Academy of Sciences, Marshal Baghramyan ave. 24, Yerevan 0019, Republic of Armenia. Phone: +374-10-525505.

Deadline for nominations

March 18, 2016. The decisions will be made before **July 18, 2016** and Award of Viktor Ambartsumian Prize will take place on **September 18, 2016**.

Viktor Ambartsumian Prize International Steering Committee

Prof. **Radik M. MARTIROSYAN** (Armenia, Chair, president@sci.am)

Prof. **Catherine J. CESARSKY** (France, catherine.cesarsky@cea.fr)

Prof. **Anatol CHEREPASHCHUK** (Russia, director@sai.msu.ru)

Prof. **Norio KAIFU** (Japan, norio.kaifu@nao.ac.jp)

Prof. **Michel MAYOR** (Switzerland, michel.mayor@unige.ch)

Prof. **Vahe PETROSIAN** (USA, vahep@stanford.edu)

Prof. **Brian SCHMIDT** (Australia, brian@mso.anu.edu.au)

Prof. **Joseph SILK** (UK, silk@astro.ox.ac.uk)

Prof. **Yervant TERZIAN** (USA, terzian@astro.cornell.edu)

Contact

Dr. Areg M. MICKAELIAN (Scientific Secretary, International Steering Committee, phone: +374-91-195914, E-mail: aregmick@aras.am, aregmick@yahoo.com).

Sona V. FARMANYAN (Executive Secretary, International Steering Committee, phones: +374-10-525505, +374-55-911307, E-mail: sona.farmanyan@mail.ru, vaprize@sci.am).

Viktor Ambartsumian International Prize official webpage

<http://vaprize.sci.am>

Previous winners of Viktor Ambartsumian International Prize

2010: **Michel Mayor** (Switzerland), **Garik Israelian** (Spain) and **Nuno Santos** (Portugal) – *for their important contribution in the study of relation between planetary systems and their host stars*

2012: **Jaan Einasto** (Estonia) – *for his fundamental contributions to the discovery of dark matter and the cosmic web* and

Igor Novikov (Russia) – *for his pioneering formulation how to confirm observationally that our Universe started as a hot Universe, and for proposing the method for determination of quasar masses*

2014: **Felix Aharonian** (Germany) – *for his outstanding contributions to the field of high energy astrophysics and to the physics of cosmic accelerators, and leading role in the development of the stereoscopic system of Cherenkov telescopes* and

Igor Karachentsev (Russia) and **Brent Tully** (USA) – *for their fundamental contribution in the cosmology of the Local Universe*

ArAS PRIZE for YOUNG ASTRONOMERS 2015



December 1 is the deadline for nominations for **ArAS Annual Prize for Young Astronomers (Yervant Terzian Prize) 2015**.

The prize will be awarded to a young scientist under 35 working in astronomy or related field and showing significant results in research and/or other scientific activities connected anyhow with the Armenian astronomy. **Nominations** may be made by ArAS members or any research organization from Armenia or elsewhere and should be sent to one of the ArAS Co-Presidents (Haik Harutyunian, Areg Mickaelian or Yervant Terzian).

Nominations should include personal data of the nominee (first name, surname, affiliation, position, education, degree, birthdate, e-mail address, personal homepage if available) and a brief description of his/her achievements during the year (2016) including:

- scientific results (up to 1 page),
- letter from the supervisor describing the personal contribution of the nominee,
- published, accepted and submitted papers
- (in refereed journals, in proceedings of
- meetings, and other),
- participation in meetings and schools,
- given talks, seminars, and presented posters,
- scientific missions,
- honours, awards and research grants,
- membership,
- teaching activity,
- organizational activity,
- other activities, whatever is considered to be important.

At least one refereed publication is required to qualify for the Prize. Preference will be given to nominees having publications in journals with higher impact factors (IF), with less co-authors and papers with the nominee as the first co-author, as well as the own contribution stated by the supervisor will be rather important. Nominations will be discussed and the winner(s) will be named by the ArAS Council (Haik Harutyunian, Tigran Magakian, Areg Mickaelian, Elena Nikoghosyan and Yervant Terzian). The winner will be announced in the last issue of ArAS Newsletter (#76) at the end of the year. A **diploma** and sum of **\$500** will be awarded to the winner. The Prize was established in 2004 and is being sponsored by ArAS Co-President **Prof. Yervant Terzian** (Cornell University, USA). Since 2009 the Prize is named after Yervant Terzian.

Previous ArAS Annual Prize (Yervant Terzian Prize) Winners

2014	Gurgen PARONYAN (BAO)
2013	Hayk ABRAHAMYAN (BAO) and Avet HARUTYUNYAN (IAC, Spain)
2012	Vardan ADIBEKYAN (CAUP, Portugal)
2011	Marine AVTANDILYAN (ASPU)
2010	Paranzem SINAMYAN (BAO)
2009	Lusine SARGSYAN (BAO)
2008	Vardan ADIBEKYAN (YSU) and Artur HAKOBYAN (BAO)
2007	Igor CHILINGARIAN (OBSPM, France)
2006	Lilit HOVHANNISYAN (BAO) and Paranzem SINAMYAN (BAO)
2005	Artak HARUTYUNYAN (BAO) and Elena HOVHANNESSIAN (BAO)
2004	Lusine SARGSYAN (BAO)

ESO/OPTICON/IAU Summer School

The ESO/OPTICON/IAU summer school on modern instruments, their scientific cases and practical data reduction took place in Brno, Czech Republic, from 1 to 11 September, 2015. The school was held under the joint organization of the Astronomical Institute, Academy of Sciences of the Czech Republic, Ondrejov, Department of Theoretical Physics and Astrophysics, Faculty of Science, Masaryk University, Brno, Czech Republic, European Southern Observatory, Optical Infrared Coordination Network for Astronomy, and in collaboration with the IAU International School for Young Astronomers (IAU), supported by the Norwegian Academy of Science and Letters.



ISYAs have the goal of bringing together young students of Astronomy, Astrophysics and related sciences, and providing them with unique learning experience.

The school was devoted to Instrumentation/Observatories of ESO, Proposal writing, Descriptions and explanations of METHODS, with introduction to specific instruments. Also there were lectures on hot topics such as Supernovae, AGNs, Exoplanets, Black Holes etc. And the most important part was a Practical work on projects under the lead of experienced tutors. Each group was consisted of four students and had his topic and the results of the projects were presented on the last day of the school.

The school involved 40 MSc's, PhD students, PostDocs, or more senior astronomers from 16 countries (Armenia, Austria, Bulgaria, Czech Rep., Egypt, France, Germany, Greece, Iran, Italy, Portugal, Serbia, Slovakia, Spain, Turkey and Ukraine).

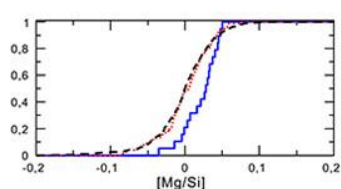
Junior Researchers of Byurakan Astrophysical Observatory (BAO) Naira Azatyan and Hasmik Andreyan were Armenian representatives at the school. The lectures were given by a number of well-known scientists, such as Michel Dennefeld, Ernst Paunzen, Matthew Lehnert, Bruno Leibundgut, Norbert Werner and other astronomers.

Naira Azatyan and Hasmik Andreyan

Stellar atmosphere can be used to predict the composition of rocky exoplanets: Vardan Adibekyan

In two recently published articles^{1,2}, researchers from Instituto de Astrofísica e Ciências do Espaço (IA3) show that the ratio of some heavy elements in a star, like Magnesium (Mg), Silicon (Si) and Iron (Fe), have a crucial influence in the composition of rocky exoplanets.

In several previously published articles, it is suggested that the ratio of Fe, Mg and Si in the Sun is similar to that of the Earth, Venus, Mars and some meteorites. Thus, in the Solar System, the relative abundance of these elements in the Sun's photosphere⁴ can be used to derive the composition and structure of rocky exoplanets.



IA's team used high resolution spectra, from different telescopes, to determine the stellar parameters and ratios of several these elements, in three stars with known exoplanets – CoRoT-7, Kepler-10 and Kepler-93. Results show that, in the analyzed exoplanets and their host-stars, we see the same type of relation that was measured between the chemical compositions of Solar System bodies.

Nuno Cardoso Santos (IA & University of Porto): “The data shows that a detailed analysis of the chemical composition of stars with planets is important, not only to determine the architecture of planetary systems, but also to infer the internal structure, composition, and even habitability potential of individual planets”.

These articles also show that the Mg/Si ratio can have a pivotal role in the structure and chemical composition of terrestrial exoplanets. This fraction is thus the key to measure some characteristics of exoplanets, like mass or radius.

Since these elements are forged in the nucleus of stars, or in supernovae explosions, Vardan Adibekyan (IA and University of Porto) argues that: “Its relative abundance depends on where in and when, through the galaxy's chemical evolution, were they formed.”

He adds: “It is interesting that most of the low-mass planet hosting stars that we observed show higher ratio of Mg/Si that is observed in the photosphere of our Sun. More interestingly, this important mineralogical ratio probably increases with time, leading us to conclude that the ancient planets were probably hosting stars that had a much different composition than the Sun, which should be reflected in the composition and structure of the rocky planets that they use to host.”

The team also produced a third article⁵ about habitability of exoplanets. The article came about after because of the discussions between researchers of different fields, during the international conference Habitability in the Universe: From the Early Earth to Exoplanets, organized by IA earlier this year in Porto (Portugal).

About this work, Adibekyan says that: “The Universe is full of surprises and there is certainly no shortage of interesting questions. But I think exoplanetologists are drawing closer to the answer to some of the oldest and most daring questions of humanity: Are we alone in the Universe and what is our place in it?”

These studies will have a significant impact in the analysis of the exoplanets discovered by future space mission, especially those where IA is a partner, like CHEOPS and PLATO-2.0 (ESA).

RELEASE OF ASTROPHYSICS SEPTEMBER ISSUE



NAS RA journal “Astrophysics” (Russian translation of “Astrofizika”) Vol. 58, Issue 3 was released in September.

Following papers are included:

New Radial Velocities for Dwarf Galaxies in the Local Volume

I. D. Karachentsev, M. E. Sharina, D. I. Makarov, Yu. A. Perepelitsyna, E. S. Safonova

Spiral Galaxies with a Larger Fraction of Dark Matter in the Region of 3-10 Mpc Around the Virgo and Fornax Clusters

N. G. Kogoshvili, T. M. Borchkhadze, A. T. Kalloghlian

The Rotation of Galaxy Clusters

H. M. Tovmassian

Spectral Study of Some SBS Galaxies. Physical Conditions. Abundance of Oxygen and Nitrogen

M. V. Gyulzadyan

Magnetic Protostars

Yu. V. Glagolevskij

Investigation of Faint Galactic Carbon Stars from the First Byurakan Spectral Sky Survey. II. Early-Type Carbon Stars

K. S. Gigoyan, A. Sarkissian, D. Russeil, N. Mauron, G. Kostandyan, R. Vartanian, H. V. Abrahamyan, G. M. Paronyan

Star Formation Regions in LDN 1667

A. L. Gyulbudaghian

Hot Strange Stars. IV. Mass Defect and Stability

G. S. Hajyan, A. G. Alaverdyan

Some Properties of Stationary Gravitational Fields

R. M. Avagyan, G. H. Harutyunyan, S. V. Sushkov

Physical Conditions in Regions of Line Formation of Solar Type Stars

L. H. Rodrigues-Merino, O. Cardona, A. Flores

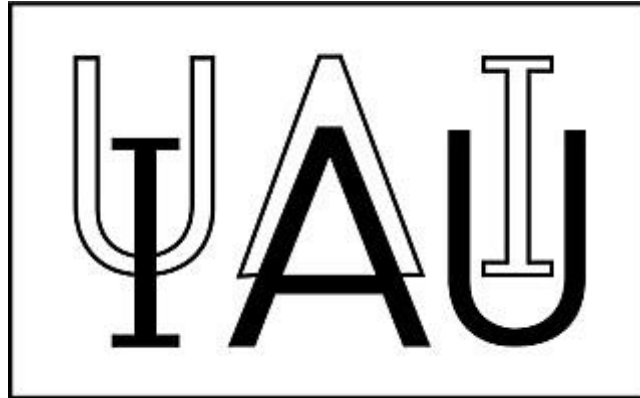
Distribution of Solar Flares with Respect to Associated Coronal Mass Ejection (CME) Span During 1996 to 2012

B. Bhatt, L. Prasad, Hema Mathpal, R. Mathpal

Planetary Motion in the Atmospheres of Red Giants

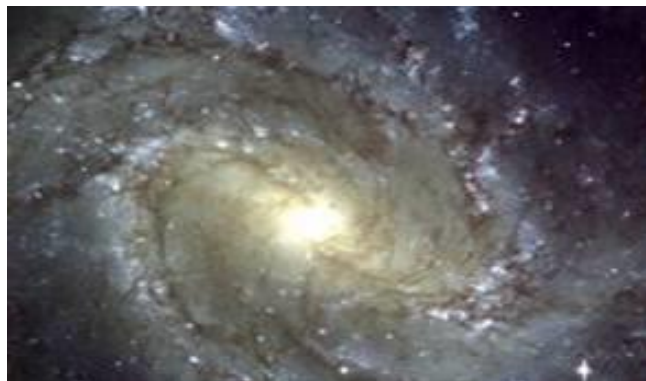
M. I. Volobueva, P. A. Tarakanov

RELEASE IAU ASTRONOMY OUTREACH NEWSLETTER 2015 #12



1. From the Editors
2. IAU signs agreements for five new coordinating offices of Astronomy for Development
3. OAD Call for Proposals: Projects in 2016
4. HighLIGHT of the Month: Celebrating light with NASA
5. CosmicLight around the world
6. Space Scoop in Sri Lanka
7. Deployable models of NASA's James Webb Space Telescope to promote hands-on learning
8. 1st Symposium on Space Educational Activities
9. National Astronomical Observatory of Japan dedicates international symposium to astronomy museums
10. Upcoming meetings & global events
11. Contributions to this newsletter

RELEASE OF ASTROCOURIER JULY ISSUE



CONTENTS

Preface

Anniversaries:

80th Anniversary of Gnedin Yuri

Review of Conferences:

XXIX General Assembly of International Astronomical Union

International Solar Conference in Baku

The 15th Ukrainian International Conference on Space Research

Chronicle of events:

International Workshop: Advances in Space Research and Technologies October 20-23, 2015, Almaty, Kazakhstan

News of Armenian Astronomical Society

Astrocourier Newsletter is available in the following link:

<http://www.sai.msu.su/EAAS/rus/astrocourier/230915.htm>

OCTOBER CALENDAR OF ASTRONOMICAL EVENTS

Monthly Calendar of Astronomical Events
OCTOBER 2015

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3 Junior Astronomers Club visit to Byurakan Observatory	4 Lunar crescent (last quarter)	5 ArAS member James Houck's 75th anniversary	6	7
8 "Astronomical Surveys and Big Data" International Symposium	9 Draconids meteor shower	10	11 Lunar occultation of Venus	12 Lunar occultation of Mercury New moon	13 Official Inauguration of IAU SWA ROAD Office of Astronomy for Development Armenian-Iranian Astronomical Workshop	14 Uranus at opposition Orionids meteor shower
15 ArAS member Milcho Tsvetkov's 70th anniversary	16	17 Conjunction of Mars vs. Jupiter	18	19	20 Astronomy Day Part 2, declared by the Astronomical League Lunar crescent	21
22	23	24	25 2nd Byurakan Science Camp (2BSC)	26 Lunar occultation of Uranus Conjunction of Venus vs. Jupiter Triple Conjunction of Venus, Jupiter and Mars	27 Full moon Super Moon	28
29	30 IVOA interoperability meeting	31				