

# ArAS News

NEWSLETTER

ARMENIAN ASTRONOMICAL SOCIETY (A r A S)



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

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## PARTICIPATION OF ARMENIA TO THE 3<sup>RD</sup> FACE-TO-FACE MEETING OF REGIONAL OFFICES OF ASTRONOMY FOR DEVELOPMENT



The Office of Astronomy for Development (OAD) has, at present, nine Regional Offices and Language Expertise Centers around the world. These offices work closely with the OAD in order to implement the International Astronomical Union (IAU) Strategic Plan. Regional Coordinators and representatives from all these offices will convene for this meeting at the OAD's offices in Cape Town. They will have the opportunity to meet stakeholders. With the establishment of five new regional offices in 2015, this marked the largest gathering of Astronomy for Development stakeholders in South Africa. Participants discussed strategies and developed a roadmap for the future of Astronomy for Development.

Areg Mickaelian, the Director of IAU South West Asian Regional Office of Astronomy for Development South West Asian Regional Office represented IAU South West Asian ROAD activities. And Sona Farmanyan, Task Force 3 Public Outreach Coordinator gave a talk on the role of Archaeoastronomy and Astronomy in Culture in IAU strategic plan of astronomy for development.

A Networking Reception and Dinner was hosted by the OAD to celebrate the upcoming 5th Anniversary of the OAD's establishment and the recent global recognition offered by the prestigious Edinburgh Medal. It was attended by representatives from all Regional Offices, the Steering Committee, the International Astronomical Union, Department of Science and Technology (DST), National Research Foundation (NRF), South African Astronomical Observatory (SAAO), University of Cape Town (UCT), members of the OAD's network in Cape Town and elsewhere in South Africa, colleagues and collaborators from universities, observatories, research institutions, government agencies, non-profit sector, and many other parties.

# ISYA-2016 INTERNATIONAL SCHOOL FOR YOUNG ASTRONOMERS



The International School for Young Astronomers (ISYAs) is one of the rooted educational activities of the International Astronomical Union (IAU) since 1967. It aims to broaden the participants' perspective on astronomy by lectures from an international faculty on selected topics of astronomy, seminars, practical exercises and observations, and exchange of experiences.

To ensure a robust financial and organizational basis for the operation of the ISYA program, the Office for Young Astronomers (OYA) has been established in 2015 in collaboration between the Norwegian Academy of Sciences and Letters (NASL) and the IAU. This office is operated by a Steering Committee chaired by an IAU Vice-President. The domicile of OYA is the NASL in Oslo, Norway.

The 38th ISYA to be held at the School of Astronomy at the Institute for Research in Fundamental Sciences. The school is generally a three-week international postgraduate school for regions where students have less opportunity to be directly exposed to the full extent of up-to-date astrophysics (mainly, but not exclusively, from astronomically developing countries). During the school both theory and observations are addressed. The participants essentially gather from countries in the region of the host country, this time Iran. The Lecturers are experts coming from all over the world.

OYA provides financial support for all travel of students and faculty, both within the host country and international. The host institution covers expenses during the ISYA, such as accommodation and boarding for students and faculty, and provides the infrastructure for lectures and tutorials.

## **Important dates**

Registration open: 10th March 2016

Registration close: 1st June 2016

Notice to foreign participants: 15th June 2016

Arrival of participants: 20th Aug 2016

For more details please follow the link: <http://www.astro.ipm.ir/isya2016/index.jsp>



## ASTRONOMICAL NATIONAL OLYMPIAD

The final (Republican) phase of the Astronomical School Olympiad was held at Yerevan, Phys.-Math. School (PMS) after A. Shahinyan on March 29. In total 16 pupils participated. Dr. Ashot Hakopian, BAO senior researcher, was the Chair of the Jury and the other members were Dr. Avetik Grigoryan, Dr. Marietta Gyulzadian, Dr. Emilia Karapetian, Dr. Areg Mickaelian, Dr. Tigran Nazaryan, and Dr. Sergei Nersisyan.



Five problems were offered from the fields of celestial mechanics, astrometry, astrodynamics and radiation theory. Most of the participants showed deep knowledge and displayed high results. Pupils from PMS and “Quantum” college showed the best results. As a result, First-rank diploma was awarded to Edgar Vardanyan (PMS), Ashot Matevosyan (“Quantum”), Ara Mambreyan (PMS), Eduard Khalafyan (“Quantum”). Second-rank diploma to David Gevorgyan (PMS), Hrachya Babujyan (PMS), Hayk Harutyunyan (PMS), Third-rank diploma to Mher Khachatryan (PMS), and Tigran Galstyan (PMS).

This Olympiad was also a qualifying phase for 2016 International Astronomical Olympiad (IAO) in Russia and International Olympiad of Astronomy and Astrophysics (IOAA) in Indonesia. Let us remind that the Armenian pupils have excellent traditions at IAO, and by team results is being one of the best during the whole 20-year history of Olympiads.



For more information please follow the link: <http://olymp.am/>

## “IMMERSIVE EDUCATION SOLUTIONS” – new voice in the Armenian educational reality

What takes to have an interesting class? Nowadays we see a tendency when smart technologies, such as smartphones, tablets, smart boards, computers and others, come to replace traditional educational methods. This is mostly reasoned with the younger generation need for visualized and entertaining educational content. Nevertheless, we rarely face this tendency in the Armenian educational systems.



### IMMERSIVE EDUCATION S O L U T I O N S

This was the motivational force behind establishment the “Immersive Education Solutions” project. The project aims at producing a series of immersive (FullDome) educational movies and shows on astronomy, physics, chemistry, biology, geography, ecology, as well as on history, and other spheres of education. The movies are going to be produced with three different levels of difficulty for elementary, secondary and high schools.

Back in 2015, Mr. Levon Aramyan, astrophysicist from Byurakan Astrophysical Observatory, and his wife Ms. Armine Ghazaryan, R&D engineer presented the IES project idea during the Young Researcher’s “Mergelyan” Club initiated by “New Technology Education Fund” and “Technology and Science Dynamics” and were invited to lead the R&D astrophysics team of “Technology and Science Dynamics” company. TSD is a Research and Development corporation located in Santa Barbara, CA, USA and Yerevan, Armenia with links to more than fifteen international research & development centers. Company’s R&D Center is the innovative idea and solutions hub, where

professionals of various scientific backgrounds respond to new product development. TSD R&D astrophysics team under Mr. Aramyan's supervision has been working on the project for already a year and soon we will witness the first 360 degree fulldome astronomical educational movie.



It is noteworthy to mention the fact that out of more than 1000 startup project and idea applications from around 140 countries presented during the 2016 Tech-I Global Pitch Competition, IES has been the only one from the whole Caucasus region to be selected as semifinalist. From April 1 until May 1, the semifinalists' 90 second pitch videos will be put to a global online vote to help determine the thirty finalists to pitch at the 2016 Global Entrepreneurship Summit (GES 2016), June 23-24 in Silicon Valley, CA. To be a part of the 2016 GIST Tech-I finalist selection process, visit [www.gistnetwork.org/tech-i/vote](http://www.gistnetwork.org/tech-i/vote) to watch the semifinalists' pitch videos and vote for "Immersive Education Solutions" project every day until May 1. You can vote for IES once per day for the entire month of voting. Each time you vote, you will also have the opportunity to nominate Armenia to win GIST Regional Startup Boot Camp training resources for its entrepreneurs in 2017.

*Levon Aramyan, Project Coordinator*



## SCIENTIFIC TOURISM IN SOUTH WEST ASIAN REGION

On March 16, South West Asia Regional Office of Astronomy for Development and Armenian Astronomical Society held a conference on "Scientific Tourism in the South West Asian Region" at the Armenian Institute of Tourism in Yerevan. The conference was welcomed by the rector of the Armenian Institute of Tourism Robert Minasyan, Head of Department of Tourism of the Ministry of Economy Mekhak Apresyan and Supreme Certifying Commission of RA Vice-President Atom Mkhitarian.



The conference brought together the most active representatives of tourism and science communities. It was a kind of starting point for tight collaboration between science and tourism, i.e. research institutions and individual scientists on one hand, and travel agencies and experts in tourism on the other hand. Areg Mickaelian, Head of Scientific Tourism chair at Armenian Institute of Tourism, talked on the role of scientific tourism in strengthening of regional and international rating of Armenia. Presentations were given by Zaruhi Hayryan, Head of academic programs at NAS RA International Scientific-Educational Center – Perspectives of scientific literary tourism development in the Republic of Armenia; Arkadi Sahakyan, director at Avarayr travel agency – Avarayr travel agency's experience of organizing scientific tourism; Sargis Aghayan, biologist, director at Ecotour LLC – Ecotourism and scientific tourism as tools for research and preservation of biodiversity; Lilit Mkrtychyan, presented the identity through traditional holidays: the museum as an educational environment; Zaruhi Asaturyan, Perspectives of scientific tourism in Yerevan Physics Institute and Sona Farmanyan, the coordinator of the project, represented the whole project, its tasks and future activities.

An active discussion was held at the end of the conference, which aimed at identifying and evaluating the demand for scientific tourism of foreign and local visitors, discovering the scientific tourism potential and resources of Armenia, finding key issues and problems of organization and realization of scientific tourism in the above mentioned sites and finding solutions to them. Scientific principles and directions of organizing tourism were discussed and new ideas were suggested for promoting the region through scientific tourism.

The conference was organized with the support of the Swiss Agency for Development and Cooperation.

*Anush Mikayelyan, Scientific Tourism Coordinator*



## RELEASE OF ASTROPHYSICS MARCH ISSUE



NAS RA journal “Astrophysics” (Russian translation of “Astrofizika”) Vol. 59, Issue 1 was released in March.

Following papers are included:

**Isentropic “Shock Waves” in Numerical Simulations of Astrophysical Problems**

G. S. Bisnovatyi-Kogan, S. G. Moiseenko Pages 1-10

Addition Laws for Intensities of Radiation Emerging from Scattering Atmospheres Containing Energy Sources

**A. G. Nikoghossian, N. G. Kapanadze Pages 11-19**

Possible Reasons for the Slow Rotation of BF Ori

**S. G. Shulman Pages 20-30**

Fractality of Isotherms of the Cosmic Microwave Background Based on Data from the Planck Spacecraft

**A. A. Mylläri, A. A. Raikov, V. V. Orlov, P. A. Tarakanov, V. N. Yershov... Pages 31-37**

**Photometric Analysis of the Eclipsing Binaries with Eccentric Orbits GSC 4277 0586=V0898 Cep and GSC 4481 0230=V0922 Cep**

V. S. Kozyreva, A. V. Kusakin Pages 38-47

**Spectral Characteristics of Radiation from the Nucleus of the Seyfert Galaxy NGC 1275 After an Epoch of its Maximum Activity**

I. F. Bikmaev, L. M. Sharipova, A. I. Galeev, A. É. Akhmetkhanova Pages 48-56

**Distribution of Pulsars in the Galaxy**

H. A. Andreasyan, R. R. Andreasyan, G. M. Paronyan Pages 57-67

**Analysis of UBV-Photometric Observations of the Massive, Early-Type Binary System V729 Cyg (Cyg OB2 No. 5)**

E. A. Antokhina, M. I. Kumsiashvili, K. B. Chargeishvili Pages 68-79

**Gravitational Radiation of Compact Stars**

M. V. Hayrapetyan, D. S. Baghdasaryan Pages 80-89

**Magnetic Field of Strange Dwarfs**

D. S. Baghdasaryan Pages 90-100

**Comparative Analysis of the Activity Cycles of the Atmospheres of the Sun and of Stars of the Solar-Type**

E. A. Bruevich, V. V. Bruevich, E. V. Shimanovskaya Pages 101-113

**Internal Radiation Field in the Nonlinear Transfer Problem for a One-Dimensional Anisotropic Medium. I.**

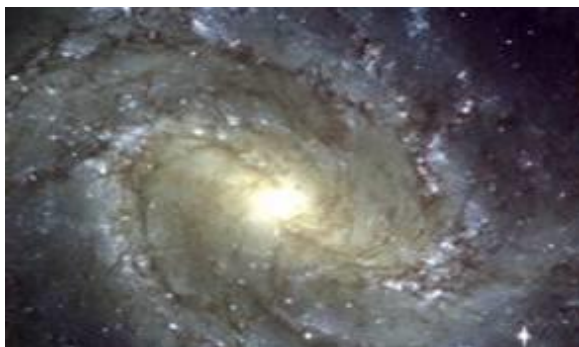
H. V. Pikichyan Pages 114-125

**REVIEWS**

**Properties and Formation of Star Clusters**

M. E. Sharina Pages 126-14

## RELEASE OF ASTROCOURIER APRIL ISSUE



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#### PREFACE:

March 20 – International Day of Planetariums  
On the Discovery of Gravitational Waves  
The mission Exomars successfully started to Mars  
Oskar Klein Medal 2015 Awarded to Russian Astrophysicist Rashid Sunyaev  
Astrophysicist Sergey Popov Became Best Populariser of Science 2015. “Sagan's Effect and Popularization of Science”

#### ANNIVERSARIES:

20<sup>th</sup> Anniversary of Astrocourier  
On S.B. Pikelner's 95th Anniversary

#### ANNOUNCEMENTS:

News of the European Astronomical Society  
News of the Armenian Astronomical Society  
Announcement of V.G. Teyfel's Book: "Planets – My Destiny. About Planets and Not Only"  
Results of Conferences: Eleventh Annual Conference: “Physics of Plasma in the Solar System”

#### INVITATION TO CONFERENCES AND SCHOOLS:

International Scientific Conference "Astronomical School for Young Scientists",  
Ukraine, Kiev, 2016, May 26-27  
Seventh Conference in the Series "Modern Stellar Astronomy", dedicated to Leonid  
Petrovich Osipkov's 70th Anniversary, 8-10 June 2016 in Caucasus Mountainous  
Observatory (CMO) SAI MSU after M.V. Lomonosov  
Memorial – to the memory of Vladimir Ivanovich Pronik

Astrocourier Newsletter is available in the following link:  
<http://www.sai.msu.su/EAAS/rus/astrocourier/070415.htm>

# RELEASE OF NRAO NEWSLETTER



## NRAO Structural Changes: Announcing the Separation of the Green Bank Observatory and the Long Baseline Observatory

The GBT and VLBA, which were recommended for divestment several years ago, will exit NRAO and become independent facilities known as the Green Bank Observatory (GBO) and the Long Baseline Observatory (LBO).



## ALMA Cycle 4 Call for Proposals

The ALMA Director, on behalf of the Joint ALMA Observatory and the partner organizations in East Asia, Europe, and North America, is pleased to announce the ALMA Cycle 4 Call for Proposals for scientific observations to be scheduled from October 2016 to September 2017.



## 1mm VLBI Pre-Announcement

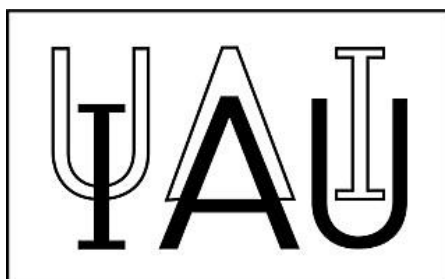
The NRAO is pleased to announce a Call for Proposals for 1mm Very Long Baseline Interferometry using the phased output of the ALMA and the Event Horizon Telescope during ALMA Cycle 4.



## Upcoming Events

- **2016 NRAO Postdoctoral Symposium**  
Mar 28 - 29, 2016 | Green Bank, VA
- **NRAO Live! (Carnegie Observatories)**  
Mar 31, 2016 | Pasadena, CA
- **Molecular Gas in Galactic Environments**  
Apr 4 - 7, 2016 | Charlottesville, VA
- **ALMA Baseline Correlator Workshop**  
May 2 - 5, 2016 | Charlottesville, VA
- **15th Synthesis Imaging Workshop**  
Jun 1 - 8, 2016 | Socorro, NM
- **AAS Splinter Session: North American ALMA Development Program**  
Jun 14, 2016 | San Diego, CA
- **Half a Decade of ALMA: Cosmic Dawns Transformed**  
Sep 20 - 23, 2016 | Indian Wells, CA

## RELEASE OF IAU ASTRONOMY OUTREACH NEWSLETTER 2016 #6 March #2



In this newsletter:

From the Editors

3rd Face-to-face Meeting of the Regional Offices of Astronomy for Development

Deputy Director of the International School for Young Astronomers — Vacancy

National Outreach Contact Corner: News from Canada

Beyond Cosmic Light: Global Science Opera

Get ready for Global Astronomy Month 2016

e-book 100 Educational Activities about Light and Photonics

Multiwavelength Universe

Preparing for 2017's All-American eclipse

AuthorAID online course in research writing 2016

Meetings & global events for 2016

a) Important deadlines

b) Recently added

c) Upcoming

Contributions to IAU Outreach Newsletter for 2016





# APRIL CALENDAR OF ASTRONOMICAL EVENTS

Monthly Calendar of Astronomical Events  
APRIL 2016

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				1	2	3
4	5	6	7 New Moon	8	9 Herculids-1 meteor shower	10
11	12	13	14 Lunar crescent (first quarter)	15	16 Lyrids meteor shower	17
18 Lunar occultation of Venus	19	20	21 Eta Aquarids meteor shower	22 Full Moon Conjunction of Venus vs. Uranus	23	24
25 Astronomy Day	26	27	28	29	30 Lunar crescent (last quarter)	31



# LUNAR PHASES OF APRIL

