

# ArAS News

NEWSLETTER OF THE  
ARMENIAN ASTRONOMICAL SOCIETY (A r A S)

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The ArAS Newsletter in the INTERNET: <http://www.aras.am/ArasNews/arasnews.html>

## IAU Symposium #304 “MULTIWAVELENGTH AGN SURVEYS and STUDIES”



The IAU Symposium #304 “**Multiwavelength AGN Surveys and Studies**” early registration is open since December 1 and will last until April 30 (<http://iaus304.aras.am/regform.html>). Also, abstract submission (<http://iaus304.aras.am/abstractform.html>) and application for financial support (IAU grants, <http://iaus304.aras.am/finsupport.html>) are open and will be active until February 28. To qualify for an IAU grant, an abstract of at least one contribution should be submitted. For the moment, already 42 invited speakers have confirmed their participation.

### The important dates and deadlines are:

1 Dec 2012	First Announcement with a call for Early Online Registration (with reduced fee), Abstract Submission, Travel Grant Application, and Hotel Reservation
1 Dec 2012	Opening of Early Online Registration (with reduced fee), Abstract Submission, Travel Grant Application, and Hotel Reservation
28 Feb 2013	Deadline for Abstract Submission and Travel Grant Application
31 Mar 2013	Abstract Notification to Submitters (Confirmation of Acceptance) and Travel Grant Notification to Applicants
30 Apr 2013	Deadline for Early Online Registration (with reduced fee) and Hotel Reservation (with reduced rate)
1 May 2013	Opening of Regular Online Registration
30 June 2013	Final Submission of Abstracts of accepted papers for the Abstracts book
10 July 2013	Second Announcement with detailed Program
20 Sep 2013	Deadline for Regular Online Registration and Hotel Reservation by the organizers
20 Sep 2013	Deadline for Submission of presentations files for online publication
25 Sep 2013	Final Announcement with detailed Program and list of Participants
6 Oct 2013	On-site Registration open
7-11 Oct 2013	IAU Symposium 304: Multiwavelength AGN Surveys and Studies
30 Nov 2013	Deadline for submission of papers for publication in the Proceedings
15 Jan 2014	Submission of the Proceedings Book by Editors for publication
May 2014	Publication of the Proceedings of the IAU S304

The Chair of LOC is **Areg Mickaelian** (Byurakan Obs., Armenia). You can find further contacts and information at the IAU S304 webpage at <http://iaus304.aras.am>.

*Areg Mickaelian, Co-chair of SOC and Chair of LOC, IAU Symp. #304*

## ArAS SCHOOL LECTURES

On the initiative of *Prof. Yervant Terzian* (Cornell University, NY, USA), a Project of Astronomical Lectures in the Armenian schools was conducted by ArAS during November 2012.

Senior schools in Yerevan and Armenian provinces together with the RA Ministry of Education and Science (Minister Mr. Armen Ashotyan and Vice-Minister for school affairs *Mr. Manuk Mkrtchyan*) were selected, altogether, 30 schools, including 18 senior and specialized schools in Yerevan and 12 senior schools in all 10 provinces (schools in Armavir, Ashtarak, Byurakan, Garni, Gavar, Goris, Gyumri, Hrazdan, Ijevan, Jermuk, Masis, and Vanadzor). Among the Yerevan specialized schools, there were Anania Shirakatsi and “Ayb” colleges and the Special College of the Armenian State Engineering University (ASEU), as well as the School for Young Leaders (SYL). The senior schools covered were from each Yerevan administrative district. Contacts were maintained with the directors of the schools who organized all local matters to receive the lecturers and allocate appropriate time for the meetings. On the other hand, a team of lecturers among the astronomers was selected based on their knowledge, teaching experience and willingness to participate in the project, altogether 8 people:



- *Dr. Haik Harutyunian*, BAO Director and ArAS Co-President
- *Dr. Areg Mickaelian*, BAO Leading Research Associate and ArAS Co-President
- *Dr. Elena Nikogossian*, BAO Scientific Secretary and ArAS Secretary
- *Dr. Hovhannes Pikichian*, BAO Senior Research Associate
- *Dr. Ararat Yeghikian*, BAO Senior Research Associate
- *Marietta Gyulzadian*, BAO Research Associate and Teacher of Astronomy and Physics at Yerevan Physics-Mathematics Specialized School, Leader of the Armenian team at the International Astronomical Olympiads (IAO)
- *Avetik Grigoryan*, former BAO researcher (1983-1992), at present Head of the Space Group of RA Ministry of Education and Science Republican Center for Technical Creation
- *Gohar Harutyunyan*, BAO Junior Research Associate

Since a few years ago Astronomy is not being taught in the Armenian schools and this project was a chance to partially compensate this gap. As only one lecture was planned in each school, it was decided to jointly prepare a general presentation (a Powerpoint file) on “Wonders of the Universe”, which included information on the history and modern state of astronomy, its present developments, achievements of the Byurakan Astrophysical Observatory (BAO) led by the outstanding scientist Viktor Ambartsumian and other famous astronomers, and a lot of beautiful pictures from the Universe. *Dr. Elena Nikogossian*, *Marietta Gyulzadyan*, *Dr. Areg Mickaelian*, and *Gohar Harutyunyan* contributed in the preparation of the presentation.



In addition, a number of promotional materials were prepared and produced to distribute in the schools for libraries, teachers and pupils. ArAS and BAO publications were used as well and some were published or produced in frame of this project. The following materials were distributed:

- brochure *“Byurakan Astrophysical Observatory”* (2011, in Armenian) by Areg Mickaelian
- brochure *“Viktor Ambartsumian: most important scientific results”* (2011, in Armenian and English) by Haik Harutyunian and Areg Mickaelian
- photo booklet *“Byurakan Astrophysical Observatory”* (2012) with a collection of photos from BAO (territory, buildings, telescopes, etc.)
- Postcards *“Viktor Ambartsumian”*
- Astronomical calendars 2013 *“Byurakan Astrophysical Observatory”*, *“Viktor Ambartsumian”* and *“Armenian Astronomers”*
- Proceedings of the conference dedicated to Viktor Ambartsumian’s 100th anniversary (2010, in English) with papers containing his views on physical and evolutionary processes in the Universe
- *“Viktor Ambartsumian”* biographical book (2011, in Russian) by Yuri Shahbazyan
- Astronomical maps (2010, first Sky maps in Armenian)
- DVD *“Viktor Ambartsumian”* (2010, in Armenian, Russian and English) with a full collection of data on our great scientist (biography, his books and papers, articles about him, photos, movies, etc.)
- DVD *“Astronomy for Schools”* (2012, in Armenian, Russian and English) produced in frame of this project and containing a lot of material necessary for the school astronomy: digitized textbooks and problem books, exercises, encyclopedia and thesauri, popular astronomical software, photos and movies, information on BAO, Viktor Ambartsumian and other famous Armenian astronomers, as well as the popular CD *“3D Atlas of the Universe”*



One of the goals of the project was the discovery of talented and interested in astronomy pupils to maintain further contacts with them and follow their further growth as potential future scientists. For this, special forms were prepared and distributed in schools as feedback from this project. Hundreds of pupils have filled in and returned these forms with their contact data. Some of the directors of the schools have sent to us gratitude letters and others have suggested continue such lectures and organize astronomical groups in their schools.



During the whole period of the project communication was maintained with the RA Ministry of Education and Science and with the directors of the selected schools. The days and hours of all the lectures were distributed. The biographies of the lecturers were made up and sent to the directors of the corresponding schools, as well as packages with promotional materials for each of them were prepared. The project (the lectures) lasted from November 7 to 30. As agreed beforehand, all lectures were organized in classrooms with projectors. To the schools in provinces, the lecturers traveled and spent typically half a day and in case of remote provinces, 1 or 2 days.

We express our deep gratitude to the sponsors of the project: **Yervant Terzian (USA)**, **Araxy Bablanian (USA)** and **Yeran Tchelikjian (Canada)**.

It is possible that this program will be continued in 2013 and in the future to visit more schools and establish more contacts with the interested pupils.

*Areg Mickaelian*

## CANARY ISLANDS WINTER SCHOOL of ASTROPHYSICS



On November 4-16, the XXIV Canary Islands Winter School of Astrophysics organized by the Institute of Astrophysics of Canary Islands (IAC) took place in Puerto de la Cruz, Tenerife, Spain. These annual schools started in 1989 and have covered many fields of modern Astronomy. The XXIV school was focused on the “Astrophysical Applications of Gravitational

Lensing”. The aim of the school was to provide a wide-ranging and up-to-date overview of different aspects of gravitational lensing and its application to several fields of Astrophysics (Dark Matter, Galaxies structure, Quasar accretion disks, Exoplanets, etc.) and Cosmology. The school was particularly designed to introduce young researchers to the use of gravitational lenses as a tool in their current work. Lectures and tutorials were taught by invited lecturers Chris Fassnacht (University of California, Davis, USA, “*The Future of Lensing*”), Andy Gould (Ohio State University, USA, “*Exoplanets*”), Chuck Keeton (Rutgers, the State University of New Jersey, USA, “*Tutorial for Lens Modeling*”), Veronica Motta (Universidad de Valparaíso, Chile, “*Galaxies and Cosmology*”), Peter Schneider (Bonn University, Germany, “*Dark Matter in Clusters and Large Scale Structure*”), Sherry Suyu (University of California, Santa Barbara, USA, “*Lensing Basics*”), Jorge Jimenez-Vicente (Granada University, Spain, “*Tutorial for Inverse Ray Shooting*) and Joaquim Wambsganss (Centre of Astrophysics of Heidelberg University, Germany, “*AGN and Quasars*”). Visits to the Teide Observatory in Tenerife, to the Roque de los Muchachos Observatory in La Palma and to the IAC Headquarters in La Laguna (Tenerife) were organized. There were about 50 participants from 16 different countries: Argentina, Armenia, Australia, Belgium, Chile, Czech Republic, Denmark, France, Japan, Iran, Italy, Germany, Netherlands, Spain, UK and USA. Participants of the Winter School also had opportunity to display their current works by presenting a poster contribution. From Armenia, Gohar Harutyunyan, junior researcher of Byurakan Astrophysical Observatory (BAO) participated and presented two posters: “*Multiple galaxies and groups among the Byurakan-IRAS Galaxies*” and “*MW Studies of Markarian Galaxies in frame of the Armenian Virtual Observatory*”.

Gohar Harutyunyan

## ArAS PRIZE for YOUNG ASTRONOMERS (YERVANT TERZIAN PRIZE)



**Dr. Vardan Adibekyan** is the winner of the **ArAS Annual Prize for Young Astronomers (Yervant Terzian Prize) 2012**. The prize is being 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. A diploma and sum of \$500 have been awarded to the winner. The Prize is being sponsored by one of ArAS Co-Presidents *Prof. Yervant Terzian* (Cornell University, USA) and since 2009 the Prize is named after him. The winner 2012 was announced at the BAO general annual meeting on December 20.

Vardan (29) at present is a post-doc fellow at the Porto University Astrophysics Centre (CAUP), Portugal, working with *Prof. Nuno Santos*. He was also one of the ArAS Prize winners in 2008.

During 2012, he showed an extremely high activity, publishing 4 refereed papers in "Astronomy & Astrophysics", as well as he prepared 5 more papers for publication and presented talks at 4 meetings. He has graduated from the YSU Physics Department in 2006 with a specialization of Astrophysics. In 2006-2009, he was a Ph.D. student and defended his thesis in 2009. Since 2006 he lectured at the YSU, since 2009 he worked at BAO. His research has been devoted to active galaxies and extrasolar planets. Vardan is an ArAS member.

#### All ArAS Annual Prize Winners 2004-2012:

- 2012 Vardan ADIBEKYAN (CAUP, Portugal)
- 2011 Marine AVTANDILYAN (ASPU)
- 2010 Parandzem SINAMYAN (BAO)
- 2009 Lusine SARGSYAN (BAO)
- 2008 Vardan ADIBEKYAN (YSU) and Artur HAKOBYAN (BAO)
- 2007 Igor CHILINGARIAN (OBSPM, France)
- 2006 Lilit HOVHANNISYAN (BAO) and Parandzem SINAMYAN (BAO)
- 2005 Artak HARUTYUNYAN (BAO) and Elena HOVHANNESSIAN (BAO)
- 2004 Lusine SARGSYAN (BAO)

#### GTPP CERTIFICATE to AVETIK GRIGORYAN



**Avetik Grigoryan** was awarded **Galileo Teacher Training Program (GTPP) certificate** thus becoming the third Galileo teacher in Armenia (in 2011 such certificates were given to Marietta Gyulzadyan and Tigran Nazaryan). The award ceremony was held at the BAO general annual meeting on December 20. Galileo teachers should use novel methods in astronomy education and train other teachers sharing their knowledge.

Avetik Grigoryan (51) is an astrophysicist. He has worked at BAO at the department of theoretical astrophysics. Then he created a group of pupils and taught astronomy and related sciences. At present it is called Space club of the RA Ministry of Education and Sciences Republican Centre for Creativity, where the main directions of teaching are aeronautics, aviation, astronomy and astronautics. He is a member of ArAS and the Jury of the republican astronomical Olympiads. He participated in the International Astronomical Olympiads as Jury member and the Armenian team leader.

Avetik Grigoryan has written a scientific-popular book "*From the Deep of Ages to the Universe*". 20 years of experience in educating astronomy and related scientific and technical disciplines (aeronautics, aviation and astronautics, as well as the fundamentals of physics, chemistry, biology, informatics, technology) for secondary school students resulted in writing this book, which required five years of hard work and persistent efforts. It presents a fascinating popular science story about the cognizing race of mankind in aeronautics, aviation, astronomy and astronautics starting from ancient ages to our time, as well as about the mankind's space future. The book has serious methodological advantages against the existing text-books and encyclopedias. The book will be very interesting, inspiring and useful for a wide range of readers (especially secondary and high school students, teachers of natural sciences, amateur astronomers, and generally any inquisitive person). After being published it will surely have an appreciable success and will contribute to popularization and education of the mentioned areas in Armenia. By this it will promote particularly the future development of astronomy in Armenia.

## CALENDAR of EVENTS 2013 on ARAS WEBPAGE



“Calendar of Events 2013” is already available at ArAS webpage *Calendar of Events* menu. The Calendar includes all the most important astronomical events of 2013 known at the moment, including the sky events and the international and Armenian astronomy upcoming events.

In the first (Sky Events) group Solar and Lunar Eclipses (2 and 3 respectively in 2013; Solar eclipses will be on May 10 and Nov 3), all the main meteor showers (altogether 20, Lyrids in April, Eta Aquarids in May, Perseids in August, Orionids in October, Leonids in November and Geminids in December being the strongest ones), lunar phases, 7 conjunctions of the planets, oppositions of Saturn, Uranus and Neptune, occultations of planets by the Moon and the most dangerous near-Earth objects transits are included. In November-December, the very bright comet ISON will approach to the Sun.

The second (International and Armenian astronomy events) group includes the most important affairs of BAO and ArAS, international and local meetings, summer schools and astronomical Olympiads, anniversaries of the Armenian and foreign outstanding astronomers, and space missions. Particularly, the European Week of Astronomy and Space Science (EWASS) will be held on 8-13 July 2013 in Turku, Finland. The most important event in the Armenian astronomy in 2013 is the IAU Symposium #304 “Multiwavelength AGN surveys and studies” dedicated to Benjamin Markarian’s 100<sup>th</sup> anniversary, which will be held on 7-11 October in Armenia. Beside, 8 other IAU symposia on various topics of astrophysics will be held in India, Netherlands, China, Canada, France, Poland and USA. The 100<sup>th</sup> anniversaries of the Armenian astrophysicists Tadevos Agekian and Gurgen Sahakian will be celebrated as well. The launch of the ESA “Gaia” space telescope is expected in 2013, which will observe and measure Our Galaxy in details and may make a revolution in astronomy.

The webpage is available at: <http://aras.am/Calendar/all2013.htm>

## SOLAR and LUNAR ECLIPSES 2001-2050 on ARAS WEBPAGE



The full list of Solar and Lunar eclipses for 2001-2050 is now available at ArAS webpage *Calendar of Events* menu. The period is selected to make available eclipses in the near past and in the near future observable for the present generation. The lists include altogether 110 Solar and 114 Lunar eclipses. There are 35 partial, 32 total, 37 annular and 6 hybrid Solar eclipses in the list. Hybrid eclipses, when total and annular eclipse is being observed, are very rare and particularly, such an eclipse will happen on November 3, 2013. Whereas usually there are in average 2-3 Solar eclipses per year, however they last not long (total eclipses last 2-7 minutes) and in the same geographical location they are very rare events. For example, only 11 eclipses given in the list will be visible in Armenia (and all only in partial phase); the upcoming eclipses are in 2019, 2020 and 2022. The list of Lunar eclipses includes 45 total, 27 partial and 42 penumbral ones. Lunar eclipses last much longer than Solar ones (total eclipses last 3-4 hours) and they are visible from large areas of the Earth so that most of them will be visible also from Armenia.

The lists are available at: <http://aras.am/Calendar/solareclipses.htm> (Solar eclipses) and <http://aras.am/Calendar/lunareclipses.htm> (Lunar eclipses).

## TWO YEARS of SCIENTIFIC JOURNALISM in ARMENIA



In December 2010 a group of the Scientific Journalists of Armenia was created to facilitate and promote scientific (mostly astronomical) publications in mass media. Some 80 members are involved in the mailing list of this group from various mass media: TV, radio, newspapers, Internet media, as well as some other scientists. In addition, a Facebook group has been open and 287 members are active, including (mostly young) scientists and journalists. On December 13, the first ArAS press-release was distributed through mailing list and the FB group. Since then, 212 press-releases have been distributed (in average, 8-9 monthly) resulting in more than 2000 publications in newspapers and Internet web-sites. Moreover, a number of interviews and press-conferences were taken additionally to present more detailed materials on various subjects. For the moment, the prevailing number of the publications is related to space subjects and contribution from other fields of science is desirable and welcome. Thus, a significant increase of scientific publications and of interest to astronomy/science has been recorded. We have also organized a number of seminars on interesting subjects of astronomy and related fields. Finally, in 2011 ArAS together with the Oxford Armenian scientific society (OxArm) established and awarded prizes for the best scientific journalists.

The FB group is active at <https://www.facebook.com/groups/144651068920380/>

## ANNIVERSARIES



**Gabriel Kojoyan – 85.** *Prof.* Gabriel Kojoyan is one of the outstanding Diaspora Armenian astronomers and well-known American radio-astronomers of the 20th century. He has a serious contribution in astrophysics, as well as in astronomical instrument-making. Gabriel Kojoyan was born on December 11, 1927 in Providence (Rhode Island, USA). He was Harry and Nazley (Petikian) Kojoyans' son. He graduated from Brown University (1952) getting bachelor's degree in the field of electrical engineering. Later in 1957 he graduated from Rhode-Island University getting master's degree in the field of nuclear physics. He lived in the

state of Wisconsin for 22 years, later he moved to California. He got a doctorate of sciences in physics (1966, University of California, Berkeley). Kojoyan worked in Tracerlab (1966-1967), at NASA Ames (1967-1968), at the University of Massachusetts (1969-1971), at the Technical Institute of Massachusetts (MIT, 1972-1973) and at Pahlavi University of Shiraz in Iran (1975-1976). In 1976 and 1978 as a visiting professor he also worked at the Byurakan Astrophysical Observatory under V.A. Ambartsumian's supervision, investigating Markarian galaxies. Since 1978 he has worked at Eau Claire University of Wisconsin; he was a professor of physics and astronomy. He was one of the favorite lecturers; he was especially known for his enthusiasm and often for non-traditional approach to the subject. Kojoyan's scientific interests refer to the extragalactic and galactic radio astronomy, which was the primary field of his researches. Other fields of his researches were the physics of elementary particles, solar physics and non-linear optics. During the last years of his life he also worked on the problem of quantum points at the centre of Optical Sciences of the University of Arizona. He initiated, projected and constructed a coordinate measuring device of great exactness in common with his group at Eau Claire. In particular, that device measured the exact positions of hundreds of galaxies, which were later observed in Green Bank and Arecibo. These works were published in the American high-ranked *Astronomical Journal*. Kojoyan managed the realization of projects of a number of other devices. One of his significant works was the coordinate measuring of Markarian galaxies, which was realized in common with Byurakan astronomers. And before his death he took the initiative of the project in measuring the coordinates of objects of the Second Byurakan Survey as well. Kojoyan's scientific works always brought forth spacious projects where his pupils could also be included and have a success. He often helped his students with his own resources. At present Kojoyan's pupils are well-known professors and scientists of numerous American universities and research institutes. Kojoyan has traveled to many places of the world due to his works; from Canada to Peru and from Europe to Middle East, published many scientific works. Kojoyan was a member of American Astronomical Society. He was a member of the Union for Armenian Relief and Armenian Youth Union in Providence and Boston as well. Gabriel Kojoyan passed away on May 17, 1998 at the age of 70, being a victim of heart attack. Kojoyan was also known as a very honest, human, friendly person with a sense of humor.



**Emil Mirzabekyan – 90.** On December 12 we celebrated the 90<sup>th</sup> anniversary of the outstanding Armenian radiophysicist acad. Emil Hayk Mirzabekyan. He was born in 1922 in Yerevan. He participated in the 2<sup>nd</sup> World War. In 1950, he graduated from the Yerevan University and in 1951 started working at the Arm. SSR Academy of Sciences Institute of Physics, then entered Moscow P.N. Lebedev Physics Institute PhD courses and defended his PhD thesis under the supervision of the famous radioastronomer *Prof.* S.E. Khaykin. In 1955-60, he worked at the Byurakan Astrophysical Observatory (BAO). Since 1960 he was

the Director of the Arm. SSR Academy of Sciences newly founded Institute of Radiophysics and

Electronics organized by him on the basis of BAO Department of Radioastronomy. In 1971 he was elected corresponding-member of the Arm. SSR Academy of Sciences, in 1974 – academician, in 1974-76 he was the academician-secretary of the Arm. SSR Academy of Sciences Physical-Technical Sciences and Mechanics Division, and since 1976 – the Vice-President of the Arm. SSR Academy of Sciences. Mirzabekyan has lectured at the YSU, where the Department of Radiophysics was opened on his initiative. His research works were devoted to studies of supersensitive radio detecting systems at the ultra-high frequencies (UHF) range. He was the founder of UHF radiophysics in Armenia. He has created a new type of electromagnetic radiation exploration devices and he was the first to study the polarization of the solar radio emission. His studies found broad practical applications in various spheres of economy. The supersensitive detecting systems created by Mirzabekyan and his fellows are being applied in space explorations. In 1961 Mirzabekyan became a member of the International Astronomical Union (IAU). He was a Deserved Figure of the Arm. SSR science and engineering (1974), Deputy of the Arm. SSR Supreme Council X convocation. He was awarded with orders of Red Star, Patriotic War 2<sup>nd</sup> degree and October revolution. Emil Mirzabekyan deceased after heavy illness at the age of 58 years, on September 16, 1980 in Moscow.