

ArAS News

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

No. 50 (October 8, 2011)



CONTENTS:

1. ArAS: 10 years of official registration	2
2. Nobel Prize 2011 in Physics goes to astronomers	3
3. Viktor Ambartsumian International Prize	4
4. Markarian Survey in UNESCO "Memory of the World" Register	5
5. IAU Symposia #284 and #285 in the UK	6
6. International Astronomical Olympiad in Kazakhstan	7
7. Anniversaries: Vahe Oskanian – 90	8
Misak Eritsian – 75	10

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

ArAS: 10 YEARS OF OFFICIAL REGISTRATION



The Armenian Astronomical Society was in fact created on June 22, 1999, at the meeting of 16 BAO astronomers, its founding members however, the official registration as an NGO by the Ministry of Justice came 2 years later, on August 29, 2001 and at that time there were 23 members in ArAS. So now ArAS already officially exists 10 years. The first international recognition came

very soon; ArAS entered the European Astronomical Society (EAS) as an affiliated society on September 13, 2001 at the JENAM meeting in Munich. Later on it was accepted by all related international societies and organizations, so that ArAS really has an international recognition. Main goals of ArAS are: promotion of astronomy, promotion of collaboration between all astronomical institutions in Armenia, promotion of contacts and collaboration between the Armenian and other astronomers all over the world, development of the astronomical education and knowledge in Armenia. At present ArAS has 91 [members](#) from 20 countries, including 16 founding, 66 ordinary (full), 9 junior ones. All (but one) are professional astronomers. 56 are from Armenia (41 are from BAO), 9 from the USA, 4 from France, 3 from Mexico, 2 from Germany, Russia, and Spain (each). All members have their personal webpages at the ArAS website.

ArAS webpage (<http://www.aras.am>) was created in February 2002 and it is now such a detailed one that you can just visit it to have most complete information on the Armenian astronomy, including BAO. Since the same year (2002) [ArAS Electronic Newsletters](#) (ArASNews) started. Typically they appeared 4 times a year to deliver various kind of information about the Society, Armenian astronomy, Byurakan Observatory, international astronomical events, etc. to all Armenian astronomers in the world. Since 2009, ArASNews appear 8 times a year and give much more information on various matters. [ArAS annual meetings](#) and Byurakan summer schools are another type of activity that ArAS organizes together with BAO. Since 2002, 9 ArAS meetings (including the Joint European and National Astronomical Meeting in 2007, JENAM-2007) and 5 summer schools (including 3 international ones) have been organized. At most of the ArAS meetings foreign participants have been present. In 2004, another initiative was put forward: [ArAS Annual Prize for Young Astronomers](#) (since 2009, Yervant Terzian Prize). Eight young astronomers have been the winners and co-winners during these 7 years, two of them (Lusine Sargsyan and Parandzem Sinamyan) twice. ArAS maintains at its webpage a [database of Armenian astronomers](#), including astronomers with Armenian origin, all astronomers working in Armenia and all members of ArAS, altogether 257 entries. Also, a webpage with biographies (in English and Armenian) of [famous Armenian astronomers](#) has been created, covering 18 people (Anania Shirakatsi, Viktor Ambartsumian, Beniamin Markarian, Gurgen Sahakian, Paris Pishmish, Grigor Gurzadyan, Ludwik Mirzoyan, Agop Terzan, Marat Arakelian, Vahe Petrosian, Yervant Terzian, Tadevos Aghegian, Vahe Oskanian, Zadig Mouradian, Davit Sedrakian, Hrant Tovmassian, Elma Parsamian, Gabriel Kojoian). ArAS was very active in organizing the International Year of Astronomy (IYA-2009) in Armenia. Various events were organized: meetings, popular lectures, exhibitions, etc. High importance was given to mass media, educational (especially school), archaeoastronomical, amateur astronomy, and publication programs.

There are several other ambitious plans that ArAS has, like creation of its scientific and other divisions (like at IAU) and coordination of astronomy among the Armenian institutes and individual astronomers, coordination and development of archaeoastronomy (in frame of Astronomical Heritage project), astrobiology, astronomical education, and amateur astronomy in Armenia, publication of the Encyclopedic DVD on the Armenian astronomy (planned since a few years ago), etc. We believe that ArAS is really necessary for the Armenian astronomy and it will successfully serve to the development and promotion of astronomy in Armenia and among all Armenian astronomers in the world.

Areg Mickaelian

NOBEL PRIZE 2011 in PHYSICS GOES TO ASTRONOMERS



The Royal Swedish Academy of Sciences has decided to award the Nobel Prize in Physics for 2011 to astronomers, members of cosmological teams working on supernovae projects. The Prize will be divided between **Saul Perlmutter** (Supernova Cosmology Project, Lawrence Berkeley National Laboratory and the University of California, Berkeley, USA) on one hand, and two members of the High-z Supernova Search Team, on the other hand: **Brian P. Schmidt** (Australian National University, Weston Creek, Australia) and **Adam G. Riess** (Johns Hopkins University and the Space Telescope Science Institute, Baltimore, USA). The official wording is: "*for the discovery of the accelerating expansion of the Universe through observations of distant supernovae*". They have studied several dozen supernovae, and discovered that the Universe is expanding at an ever-accelerating rate. In 2007, Perlmutter, Riess and Schmidt won also the Gruber Prize in Cosmology, the most prestigious awards in this field.



Saul Perlmutter



Brian P. Schmidt



Adam G. Riess

Every year since 1901 the Nobel Prize has been awarded for achievements in physics, chemistry, physiology/medicine, literature and peace. The Nobel Prize is an international award administered by the Nobel Foundation in Stockholm, Sweden. Since 1969, a Prize in Economic Sciences in Memory of Alfred Nobel (1833-1896), founder of the Nobel Prize, established by Sveriges Riksbank is being awarded as well. Each prize consists of a medal, personal diploma, and a cash award (10 million Swedish kronas). The awarding ceremony is to be held in Stockholm on December 10, the day of death of Alfred Nobel.

During the whole history of Nobel Prizes, astrophysical achievements have won 7 times:

- 1967 – Hans Bethe (USA) "*for his contributions to the theory of nuclear reactions, especially his discoveries concerning the energy production in stars*";
- 1974 – Sir Martin Ryle (UK) and Antony Hewish (UK) "*for their pioneering research in radio astrophysics: Ryle for his observations and inventions, in particular of the aperture synthesis technique, and Hewish for his decisive role in the discovery of pulsars*";
- 1978 – Arno Allan Penzias (USA) and Robert Woodrow Wilson "*for their discovery of cosmic microwave background radiation*";
- 1983 – Subramanyan Chandrasekhar (USA) "*for his theoretical studies of the physical processes of importance to the structure and evolution of the stars*" and William Alfred Fowler (USA) "*for his theoretical and experimental studies of the*

nuclear reactions of importance in the formation of the chemical elements in the universe";

- 2002 – one half jointly to Raymond Davis Jr. (USA) and Masatoshi Koshiba (Japan) "for pioneering contributions to astrophysics, in particular for the detection of cosmic neutrinos" and the other half to Riccardo Giacconi (USA) "for pioneering contributions to astrophysics, which have led to the discovery of cosmic X-ray sources";
- 2006 – John C. Mather (USA) and George F. Smoot (USA) "for their discovery of the blackbody form and anisotropy of the cosmic microwave background radiation";
- 2011 – one half to Saul Perlmutter (USA), the other half jointly to Brian P. Schmidt (Australia) and Adam G. Riess (USA) "for the discovery of the accelerating expansion of the Universe through observations of distant supernovae".

It is interesting to note that astrophysical projects have won Nobel Prizes in Physics only 4 times during the first 100 years, and 3 more times in the last 10 years, which is a direct evidence of the growth of importance of Astrophysics in modern science.

Areg Mickaelian, Gohar Harutyunyan

VIKTOR AMBARTSUMIAN INTERNATIONAL PRIZE

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, 2012. The decisions will be made before July 18, 2012 and Award of Viktor Ambartsumian Prize will take place on September 18, 2012.

Viktor Ambartsumian Prize International Steering Committee:

Prof. Radik M. MARTIROSYAN (Armenia, Chair, president@sci.am), Prof. Gennady S. BISNOVATYI-KOGAN (Russia, gkogan@mx.iki.rssi.ru), Prof. Catherine J. CESARSKY (France, catherine.cesarsky@cea.fr), Prof. Michel MAYOR (Switzerland, michel.mayor@unige.ch), Prof. Jayant V. NARLIKAR (India, jayant@iucaa.ernet.in), Prof. Martin J. REES (UK, mjr@ast.cam.ac.uk), Prof. Davit M. SEDRAKIAN (Armenia, dsedrakian@ysu.am), Prof. Yervant TERZIAN (USA, terzian@astro.cornell.edu), Prof. Robert E. WILLIAMS (USA, wms@stsci.edu).

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

Gohar S. HARUTYUNYAN (Executive Secretary, Viktor Ambartsumian Prize International Steering Committee, phones: +374-10-525505, +374-77-797090, E-mail: goharutyunyan@gmail.com, vaprize@sci.am).

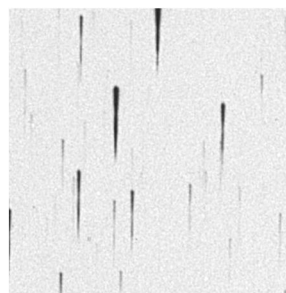
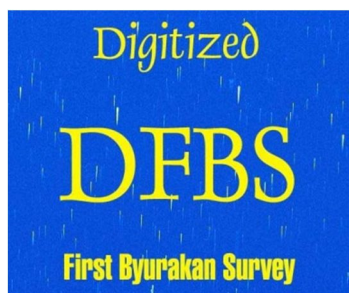
Viktor Ambartsumian International Prize official webpage: <http://vaprize.sci.am>.

MARKARIAN SURVEY in UNESCO “MEMORY of the WORLD” REGISTER



The First Byurakan Survey (FBS) carried out by outstanding Armenian astronomer Beniamin Markarian is among seven new entries to a United Nations world heritage register. These collections were approved provisionally by the International Advisory Committee of the Memory of the World Programme in May 2011 subject to the provision of minor modifications or clarifications for full inscription to proceed. These clarifications have now been endorsed and UN Educational Scientific and Cultural Organization (UNESCO) Director-General Irina Bokova has approved the inscription of the new items.

The new admissions bring to 245 the total number of items on Memory of the World Register, launched by the UNESCO in 1992 to preserve valuable archives and library collections all over the world and ensure their wide dissemination. It includes all types of material, including stone, celluloid, parchment and audio recordings. The vision of the Memory of the World Programme is that the world's documentary heritage belongs to all, should be fully preserved and protected for all and, with due recognition of cultural mores and practicalities, should be permanently accessible to all without hindrance.



The FBS contains the records of a unique astronomical survey carried out by Markarian. The survey involved the largest ever astronomical study of the nearby universe and is considered one of the most important achievements of 20th century astrophysics. It has been carried out by Benjamin Markarian and his colleagues in 1965-1980 on the Byurakan Astrophysical Observatory 102/132/213cm Schmidt telescope. FBS is the largest spectral survey in the world. It covers the whole Northern Sky and part of the Southern Sky at high galactic latitudes. The FBS was conducted originally for search of galaxies with UV-excess. The discovery of 1515 UV-excess (UVX) galaxies by Markarian and colleagues (later called Markarian galaxies) was the first and the most important work based on the FBS plates. The FBS has been digitized in 2000-2005 (Digitized First Byurakan Survey, DFBS). It is the largest spectroscopic database in the world, providing low-dispersion spectra for 20,000,000 objects and the first digitization project in Armenia.

Armenia is involved in Memory of the World Register since 1997 with Mesrop Mashtots Matenadaran.

Areg Mickaelian, Gohar Harutyunyan

IAU SYMPOSIA #284 and #285 in the UK

The International (IAU) Symposium
Energy Distribution (SED2011), 5-9 Sep
Preston, UK.



Astronomical Union
#284, the Spectral
of Galaxies
2011, UCLAN,

The IAU S284 was jointly organised by the University of Central Lancashire (Preston) and the Max-Planck Institut für Kernphysik (Heidelberg); it took place on 5-9 Sep 2011 at the University of Central Lancashire (UCLAN) in Preston, United Kingdom. Following on from the workshop "The Spectral energy distribution of Gas-Rich Galaxies: Confronting Models with Data (SED2004)" held in Heidelberg in October 2004, this IAU symposium aimed to bring together developers and users of self-consistent physical or semi-empirical models for the emergent panchromatic SEDs of galaxies ranging over the complete accessible range from gamma-rays to radio. The main goal was to highlight techniques that derived physical information amounting to more than the sum of the information which could be gained from separately analysing the emissions from each individual spectral domain. Thereby, the meeting provided a forum for the interaction of modellers with both observers assembling multiwavelength (MW) datasets on galaxies and theoreticians considering fundamental physical processes in galaxies.

More than 160 participants were present from almost 40 countries. From Armenia, **Dr. Areg Mickaelian** (BAO) participated in the symposium. He contributed with a poster presentation "*Spectral Energy Distribution and classification of bright active galaxies*" (co-authors: Hayk Abrahamyan, Gurgen Paronyan, Gohar Harutyunyan). Another Armenian astronomer, **Dr. Igor Chilingarian** (SAI, Moscow, Russia) participated with a poster "*NBursts+phot: parametric recovery of galaxy star formation histories from the simultaneous fitting of spectra and broad-band spectral energy distributions*".



The International
#285, New
23 Sep 2011,



Astronomical Union (IAU) Symposium
Horizons in Time Domain Astronomy, 19-
Oxford, UK.

Modeling and interpreting variability is key to understanding the formation, growth, evolution, and destruction of cosmic objects, from stars to planets, from galaxies to interstellar grains. Studies of variability are a key and growing component of research in contemporary astrophysics, and are so important that projects and instruments are dedicated to the examination of just one form of variability, or one aspect of its diverse manifestations. Because variability manifests itself in many complicated ways and is dependent on intrinsic astrophysics and observation and data analysis techniques, research efforts tend to be stovepiped by sub-discipline. The possible existence of commonalities between different phenomena and different observing methods has tended to be overlooked. This Symposium reversed that trend by examining the phenomenon of variability itself, crossing traditional wavelength/frequency and time-scale boundaries in the process. It covered all aspects of time-domain astronomy, and aimed to draw out a more profound understanding of the physics involved.

More than 230 participants were present from more than 40 countries. From Armenia, **Dr. Areg Mickaelian** (BAO) participated in the symposium. He contributed with a poster presentation "*Variability analysis based on POSS1 and POSS2 photometry*" (co-authors: Alain Sarkissian and Parandzem Sinamyan).

INTERNATIONAL ASTRONOMICAL OLYMPIAD IN KAZAKHSTAN

The 16th International Astronomy Olympiad (IAO XVI) was held in Almaty (Kazakhstan) on September 22-30, 2011. There were 21 teams of the following states participated on the Olympiad: Armenia, Bulgaria, China, Czech Republic, Estonia, India, Indonesia, Iran, Italy, Kazakhstan, Korea, Lithuania, Romania, Russia, Moscow Land, Serbia, Sweden, Ukraine, Crimea, Thailand and Kirgizia. Following the educating style of the International Astronomy Olympiad the Organizers invited famous scientists to give lectures for the participants. There were total 4 lectures during all programme of the Olympiad.

On September 28, at the conclusion of all the rounds the results being available, the Jury Board members had a meeting to look at the overall performance of all the students without knowing their names or nationalities (the so-called "blind minutes"). As the usual procedure at this meeting, they decided on the cut off level for the I Diploma, II Diploma, III Diploma (corresponding to the Gold, Silver and Bronze Medals) and Diploma of Participation. But, as per convention, the names should not be announced till the Closing Ceremony. The Closing Ceremony took place on September 29 in Almaty Bobek Observatory.

Out of 140 participants six junior and five senior group students took the First-rank Diploma in the Olympiad. One of them is our Armenian student, Levon Stepanyan (“Quantum” College). Our students Vardges Mambreyan, Karen Hambartsumyan (both from Phys.-Math. school after A. Shahinyan) and Virab Gevorgyan (“Quantum” College) took Bronze Medals. Our team leaders were Marietta Gyulzadyan (BAO and Phys.-Math. school) and Tigran Nazaryan (YSU and “Quantum” College).



From left to right: Tigran Nazaryan (Team Leader), Karen Hambartsumyan (Bronze Medal), Levon Stepanyan (Golden Medal), Aram Mkrtychyan, Marietta Gyulzadyan (Team Leader), Virab Gevorgyan (Bronze Medal), Vardges Mambreyan (Bronze Medal).

Marietta Gyulzadyan

ANNIVERSARIES



Vahe OSKANIAN – 90. *Dr. Vahe Oskanian is one of the benefactors of Armenian astronomy. He is simultaneously known both as one of the most outstanding astronomers of Yugoslavia and as one of the leaders of one of the most important directions of the Byurakan Astrophysical Observatory; the investigation of variable stars. Vahe Oskanian’s scientific activity is a distinguished example of development of science when in the result of lack of knowledge an opinion and a theory are formed, but the initial viewpoint is denied due to consistent work and addition of knowledge ceding new notions.*

Vahe Oskanian was born on September 2, 1921 in Belgrade, Yugoslavia. Here he finished school and gymnasium. In 1940 Oskanian entered the Electrotechnical Department of the Belgrade University, but the World War II broke out, and Yugoslavia was occupied by the Germans, in correspondence of which all higher educational institutions were closed. Since 1946, after the end

of the war, changing the department, he continued his study at the Department of Astronomy of the Faculty of Mathematics of the Belgrade University, which he graduated in 1949. In parallel, since 1945 he worked at the Belgrade Observatory by public order, and since 1948 he became a constant worker of the Observatory. In August, 1949, graduating from the University, Oskanian was enlisted to the Yugoslav Army and in December, 1950, completing the service, he returned to his work at the Department of Double and Variable Stars of the Belgrade University. He made his first observations with the help of Graph visual photometer. Then he undertook the making of a new high sensitivity electrophotometer-polarimeter for observations of stars. At the same time he took part in Observatory works of services of the activity of the Sun and the occultation of stars by the Moon. The works that Vahe Oskanian published in 1946-1953 are mainly devoted to these fields.

Since 1952 on Oskanian's initiative the group of investigation of variable stars was separated. Its aim was to investigate newly revealed stars of UV Ceti type and red dwarf stars displaying flare activity. Using his own made electrophotometer-polarimeter for this purpose, in 1952-1953 the largest flares, ever observed on UV Ceti Star, were registered. In 1955 Oskanian became an IAU member. In 1956-1957 with an intention of collaboration he worked and refined at the Byurakan Observatory. In 1960 he founded the department of astrophysics of the Belgrade Observatory, which he headed until 1966. In 1961 Oskanian defended a doctorate thesis on the topic "*Variable Stars of UV Ceti Type*". Since 1964 he professed at the Department of Astrophysics of the faculty of mathematics of Belgrade University. In 1964 and in 1965 he was elected the Head of the Belgrade Observatory; parallely he was the Editor-in-Chief of the periodicals "*Bulletin of the Belgrade Observatory*" and "*Publications of the Belgrade Observatory*".

In 1966 Oskanian moved to Armenia with his family and continued his work at the laboratory of electrophotometry of BAO, which he headed from 1970 to 1986. In 1970-1980 he professed the professional course of practical astrophysics, electro-photometry at the Chair of Astrophysics of the YSU Department of Physics. In 1986 he moved from BAO to All-Union Institute of Radiophysical Measurements, where he held the post of the head of the Department of Astrophysics.

Since the Belgrade Observatory had an astrometric bias, naturally most of the early works of Oskanian's scientific activity were also astrometrical, except the investigations of the activity of the Sun. But he was more interested in astronomical problems, particularly those years newly revealed red dwarf stars displaying flare activity, and after a short time he started investigating those stars. These stars, which were called flare stars, later became the main subject of Oskanian's scientific activity. The classification of flares of stars according to the brightness and duration of the flare belongs to him. His further investigations indicated that such flares took place on other stars as well (not only on red dwarf stars), and the flares of all those stars, as well as the flares of the Sun, had the same nature.

The year of professionalization spent at the Byurakan Observatory had a special significance in Oskanian's scientific life. It was stimulation for founding a department of astrophysics in the Belgrade Observatory; due to its works the observatory changed its main scientific direction. In 1953-1962 Oskanian had an active role in the popularization of the astronomy in Yugoslavia, gave numerous lectures and published 23 popular scientific articles in different periodicals.

Giving importance to the observational astronomy, he was interested in the problems of increasing the efficiency of observations, as well as the problems of getting utmost information from measurements, in other words the use of information theory in astronomical observations, which

allows to estimate the obtained information, and based on this to organize the measurements so that the informativity of obtained material will be maximum. The results of those investigations were summarized in a number of articles. During the last years of his life he was particularly interested in the problem of description of polarized light. The comprehensive statistical working out of numerous, accurately made measurements indicated that against the existing opinion that the polarization of light was described only by wave nature of the light; in fact it is more accurately introduced by a quantum approach. Unfortunately, those works were not completed because of his early death.

The results of his scientific activity were summarized in various periodicals and books published in 87 articles. Vahe Oskanian passed away in January 1989 in Yerevan.



Misak ERITSIAN – 75. Recently *Dr. Misak Eritsian* celebrated his 75th anniversary. Misak Hakob Eritsian was born on September 15, 1936 in village Ujan, Ashtarak District, Armenia. He got his higher education at the Yerevan State University (YSU), Department of Physics, taking an M.Sc. degree in Astrophysics in 1958. Since 1960 he worked at the Byurakan Astrophysical Observatory (BAO); first as a Junior Research Associate, and since 1986, as a Research Associate. In 1981 he defended his Ph.D. thesis in Astrophysics at BAO (supervisors: Karlos Grigorian and Vahe Oskanian). His main research fields are variable stars: UV Ceti, T Tau, Mira Ceti, Herbig Ae/Be

type stars, H-alpha objects, etc. Eritsian has published some 40 papers with the results of his studies.