

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/arasnnews.html>

IAU OFFICE for ASTRONOMY DEVELOPMENT

South African Astronomical Observatory (SAAO) has been selected as host for the IAU OAD



At its 88th meeting, on 13 May 2010 in Baltimore, USA, the Executive Committee of the International Astronomical Union (IAU) has selected the SAAO, a national facility of the South African National Research Foundation (NRF), to host the IAU Office for Astronomy Development (OAD). The IAU's decadal strategic plan, *Astronomy for the Developing World*, is built upon the unparalleled success of the IAU and UNESCO initiative, the International Year of

Astronomy (IYA2009). The strategic plan was developed over two years, and its implementation was approved during the August 2009 IAU General Assembly, in Rio de Janeiro, Brazil. By building on the momentum from the IYA2009 and its large network of 148 countries, this ambitious plan represents the long-term commitment of the IAU to expanding development programmes through astronomy over the next decade.

The OAD is the key component of this challenging mission and will play a central role in the coordination and management of all the existing IAU educational activities, as well as in the recruitment and mobilisation of participating volunteers. The OAD will also be a vital liaison between the IAU Executive Bodies and the IAU National Members, as well as the main contact point between the IAU and the national authorities. The IAU jointly with the SAAO will soon appoint a Director to lead the OAD on behalf of the IAU Executive Committee.

Read more here: <http://www.astronomy2009.org/news/pressreleases/detail/iya1003/>

JENAM-2010 in LISBON



The European Week of Astronomy and Space Science JENAM-2010 will be held on Sep 6-10 in Lisbon, Portugal. It is being jointly organized by the European Astronomical Society (EAS) and Sociedade Portuguesa de Astronomia (SPA). The Second Announcement is now issued with a call for contributions.



JENAM 2010 will host seven **Symposia**:

- S1: From Varying Couplings to Fundamental Physics
- S2: Environment and the Formation of Galaxies: 30 years later
- S3: Dwarf Galaxies: Keys to Galaxy Formation and Evolution
- S4: From Macro to Micro Stellar Transits
- S5: Star Clusters in the Era of Large Surveys
- S6: Science Cases for Optical and IR Interferometry
- S7: The Square Kilometer Array: Paving the way for the new 21st century radio astronomy paradigm

Eleven **Special Sessions**:

- SPS1: Astronomy Challenges for Engineers & Computer Scientists
- SPS2: Radio-Astronomy in Iberia

- SPS3: ESO - ALMA Early Science: opportunities and tutorials
- SPS4: ESA - Elements of the science programme
- SPS5: Astronomy Planning in Europe - Towards an Even Stronger European Astronomy
- SPS6: New Trends in Global Astronomy Education
- SPS7: Education and Outreach after IYA2009 in Europe
- SPS8: Amateur and professional astronomers in Europe: how pro-am cooperation is changing astronomy
- SPS9: The 30 years of IRAM
- SPS10: CERN
- SPS11: Teacher Training Session

More information can be accessed at the JENAM 2010 website at <http://www.jenam2010.org/>.
Important! End of early registration is July 7.

TEN YEARS of the ISAAC NEWTON INSTITUTE ARMENIAN BRANCH

The **Isaac Newton Institute (INI) of Chile, Armenian Branch** has been founded in June 2000 by an agreement between the **INI President Dr. Gonzalo Alcaino** and the Director of the Byurakan Astrophysical Observatory (BAO), wishing to contribute to further development of scientific research in observational and theoretical astrophysics in Armenia. Since then *Dr. Areg Mickaelian* is its Resident Director. Results of the research conducted by the scientists of INI Armenian Branch are being submitted for publication to the four most prestigious journals in astronomy, namely the ***Astrophysical Journal*** and the ***Astronomical Journal*** in the United States, and ***Astronomy and Astrophysics*** and ***Monthly Notices of the Royal Astronomical Society*** in Europe.

At present, 24 researchers make up the INI Armenian Branch staff: Hamlet Abrahamian, Tigran Arshakian, Smbat Balayan, Lidia Erastova, Kamo Gigoyan, Armen Gyulbudaghian, Artur Hakobyan, Susanna Hakopian, Haik Harutyunian, Lilit Hovhannisyan, Rafik Kandalyan, Arthur Karapetian, Tigran Magakian, Norair Melikian, Areg Mickaelian, Gor Mikayelyan, Tigran Movsessian, Hripsime Navasardian, Arthur Nikoghossian, Elena Nikoghossian, Artashes Petrosian, Lusine Sargsyan, Parandzem Sinamyan, and Armen Sinanian.

Six research groups have been created in the Armenian Branch for more purposeful work. The subjects and heads are: Physics and Evolution of Stars (T.Yu. Magakian), Variable Stars (N.D. Melikian), Physics and Evolution of Galaxies (A.R. Petrosian), Surveys and Studies of New Objects (A.M. Mickaelian), Observational Cosmology (H.A. Harutyunian), Theoretical Astrophysics (A.G. Nikoghossian).

During these 10 years, 57 high-level papers have been published in *ApJ*, *AJ*, *A&A*, and *MNRAS* in frame of the INI Armenian Branch (out of 73 papers in these journals), in fact the vast majority of the best papers produced by BAO researchers. Most productive members have been A.R. Petrosian (19 papers), T.Yu. Magakian (10), A.M. Mickaelian (9), K.S. Gigoyan (8), T.H. Movsessian (8), and N.D. Melikian (6).

During its 10-years existence, INI have played an important role in the development of astronomy in Armenia, and we hope it will continue supporting the Armenian astronomers and the Armenian astronomy in general.

*Dr. Areg Mickaelian,
Resident Director, INI Armenian Branch*

ArAS PRIZE for YOUNG ASTRONOMERS 2010

ArAS is pleased to announce its **Annual Prize for Young Astronomers (Yervant Terzian Prize) 2010**. 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. They should include personal data for the nominee and a brief description of his/her achievements during the year, including important scientific results, all published papers, participation in meetings, given talks, etc., whatever is considered to be important. At least one refereed publication is required to qualify for the Prize.

The **deadline** for applications is **December 1**. The winner will be announced in the last issue of ArAS Newsletter at the end of the year. A **diploma** and sum of **\$250** will be awarded to the winner. The Prize is being sponsored by the ArAS Co-President **Prof. Yervant Terzian**.

VIKTOR AMBARTSUMIAN DVD, version 2

A 2nd version of the DVD devoted to V.A. Ambartsumian's life and activity has recently been released. The 1st version was produced in 2008 on occasion of his 100th anniversary. It is the fullest collection of his biography, scientific results, achievements, publications, photos, etc. The DVD is made in html format and is similar to a webpage where a user may browse and find all provided information. Along with (mostly) internal references, there are some external references that require Internet connection and can give access to web pages related to Ambartsumian.

The main sections (menus) are: **Home**, **Biography**, **About Ambartsumian**, **Ambartsumian's Science**, **Important Scientific Results**, **Achievements**, **Publications**, **Photo Gallery**, **Video Gallery**, **Commemoration**, **Statements and Homilies**, and **About this DVD**.

Most of the material given on the DVD was not freely available before and in this sense is new; scanned publications, photos, digitized videos. We have collected PDF files from Internet or have scanned 237 original publications (including 18 books) and 37 translated versions of papers. We have also collected from Internet or have scanned 433 photos that describe Ambartsumian's life and activity, family and colleagues, etc. Three video movies about the Byurakan Observatory and Ambartsumian are also available.

In addition, the most complete lists of Ambartsumian's publications (610 counts), dates of life (334), achievements (136), and important publications about Ambartsumian (73) have been compiled and are present on the DVD. Some statistics on the publications and achievements is also given. We have carried out cross-translations and we give most of the materials in English, Russian, and Armenian.

The texts describing Ambartsumian's science are taken from *Prof. L.V. Mirzoyan's books*. As in the 1st version, here we give an updated list of 20 most important scientific results by Ambartsumian (compiled by H.A. Harutyunian and A.M. Mickaelian), which are significant contributions in astrophysics and cosmogony, theoretical physics and mathematics. An interactive Curriculum

Vitae compiled for the first version has also been updated, as well as the list of items named after V.A. Ambartsumian (scientific terms, an asteroid, etc.) has been significantly complemented.

A.M. Mickaelian is the scientific compiler of the DVD, and H.A. Harutyunian is the editor. Technical compilation and design is made by G.A. Mikayelyan, and the scanned materials, translations, and updates are made by A.M. Mikayelyan. The DVD is produced by funds of Viktor Ambartsumian International Prize Office operated by the National Academy of Sciences of the Republic of Armenia (NAS RA).

Areg Mickaelian, Haik Harutyunian

ITALIAN-ARMENIAN COLLABORATION WEBPAGE



The Italian-Armenian collaboration in astronomy dates back to 1960s-1970s (V.A. Ambartsumian, L.V. Mirzoyan, M. Rodono, L. Rosino), when a cooperation between the

Byurakan and Asiago observatories was conducted on discovery and studies of flare stars. There were coordinated observations of flare stars and the results were accumulated and studied to understand the flare activity of dwarf stars. A more intimate cooperation between Italian and Armenian astronomers was established in 1980s when the Italian young researcher Massimo Turatto spent a few months in Byurakan and started collaborating with Artashes Petrosian and some other Armenian astronomers. Many science papers appeared in top-level astronomical journals related to the research on supernovae and active galaxies. Later on, in early 2000s, a large collaboration started between the Byurakan Observatory and Universita di Roma La Sapienza (UniRoma1) on the digitization of the famous Markarian survey plates and creation of the Digitized First Byurakan Survey (DFBS) database. Areg Mickaelian and Enrico Massaro are the coordinators of this collaboration which has resulted in the electronic DFBS database at UniRoma1 website and publication of many papers as well as the DFBS book. High-energy sources and late-type stars are other topics of this collaboration. Many mutual travels were accomplished for discussion of scientific work, participation in seminars and conferences, and observations. Interestingly, the famous astronomer of Armenian origin Fabio Mardirossian works in Italy (Trieste), as well as three PhD/post-doc students study/work at Italian universities and institutions. Italian astronomers regularly participate in meetings held in Byurakan and by support of Italian scientists the Armenian students have participated in prestigious summer schools in Vatican and l'Aquila. Outstanding Italian astronomers who visited Armenia were: Leonida Rosino (1966), Francesco Bertola (1966, 1998), Marcello Rodono (1984, 1989), Cesare Barbieri (2007). In 2005, collaboration between the Italian and Armenian Virtual Observatories (VO) started which involves several institutions in Italy and is aimed at creation of VO access for the DFBS, as well as several science projects based on the DFBS have been conducted.

Therefore, we found useful to create a webpage devoted to this collaboration. Recently it was open on the ArAS webpage (available among the main menus).

Italian-Armenian collaboration webpage describes the history of mutual contacts, forms of the collaboration, collaborations between Byurakan and Padua/Asiago/Catania and between Byurakan and UniRoma1, the joint DFBS project, collaboration of Virtual Observatories (Italian VO and ArVO), participating institutes and scientists (15 Italian and 14 Armenian scientists are listed),

academic visits, participation of Italian astronomers in meetings held in Byurakan in 1966-2007, participation of Armenian students in summer schools held in Italy in 1991-2010, participation of Italian students in Byurakan international summer schools in 2006 and 2008, teaching of Italian lecturers at the Byurakan international summer school in 2006, invited seminars by Armenian astronomers in Italy, joint publications (totaling 44 and mostly in international refereed journals), and Italian astronomers of Armenian origin. At the end, photo gallery is given with photos showing joint research, meetings, and just friendship of the Armenian and Italian astronomers.

Areg Mickaelian

PUBLICATIONS of ARMENIAN ASTRONOMERS in 2000-2009

In ArASNews #39, we presented the list of most productive Armenian astronomers in 2000-2009. As many physicists also work in various fields of astronomy (high-energy astronomy, pulsars, cosmic rays, cosmology and astroparticle physics, etc.), there are a number of other scientists missed from our list. Here we have complemented our list by physicists from the Yerevan Physics Institute (YerPhI) and have complied an updated version. The modified list of top 20 scientists is given below, where three new physicists are included.

#	Authors	Country / Inst.	Astrophys. J.	Astron. J.	A&A	MNRAS	ApJ / Ap	Other journals	All ref. journals	Proceedings	Other papers	All publications	Weighted sum
1	Aharonian, Felix	Germany / Ireland	42		95	14		64	215	79	2	296	331.0
2	Sahakian, Vardan	Armenia / YerPhI	14		74			25	113	2	2	117	159.0
3	Akhperjanian, Ashot	Armenia / YerPhI	14		74			23	111	1	3	115	157.0
4	Lazarian, Alex L.	USA	64		2	10		29	105	94	9	208	194.5
5	Mirzoyan, Razmick	Germany	41		26			22	89	13		102	129.0
6	Chilingarian, Ashot A.	Armenia / YerPhI	32		2			35	69	36	1	106	104.5
7	Sedrakian, David M.	Armenia / YSU	1		1		37	24	63	12	1	76	70.5
8	Chavushyan, Vahram H.	Mexico	10	4	14	3	1	28	60	33	6	99	95.0
9	Israeliian, Garik L.	Spain	9		36	1		12	58	48	6	112	108.0
10	Pogosyan, Dmitri	Canada	23		1	6		21	51	19	1	71	76.0
11	Mkrtychian, David E.	South Korea	1	3	11	6		26	47	34		81	74.5
12	Mickaelian, Areg M.	Armenia / BAO	1	2	6		21	13	43	24	15	82	67.0
13	Tovmasian, Gagik H.	Mexico	5	2	18	3		14	42	23	8	73	71.5
14	Petrosian, Vahe	USA	31	1				6	38	52	4	94	82.0
15	Khangulyan, Dmitri V.	Germany	6		16	4		11	37	6		43	53.0
16	Sedrakian, Armen D.	Germany			1			36	37	1	2	40	39.0
17	Danielyan, Varuzhan	Armenia / YerPhI	22		2			12	36	4		40	50.0
18	Pogosian, Levon	USA / Canada						34	34	4	1	39	36.5
19	Tamazian, Vakhtang S.	Spain	1	11	5		9	7	33	11	12	56	53.0
20	Alecian, Evelyne	France / Canada	1		12	9		10	32	18	1	51	52.5

OXFORD “STARS & STONES 2010” EXPEDITION TO KARAHUNGE



The “**Stars & Stones 2010**” expedition has been officially approved and supported by the University of Oxford and Royal Geographical Society. The expedition’s main objective is to encourage the development of Armenia, by protection and internationalization of our heritage.

The expedition will shed a new light on the mystery of the unique monument Qarahunge promoting international involvement and efforts to preserve the monument. This research project will position Qarahunge into the bigger narrative relating to other stone henges throughout Europe. This narrative story will also form an important input into establishing the universal significance of the site as well as its relative condition compared to other better-known sites such as Stonehenge.

ARMACAD.info will provide infotainment as we believe that the expedition and the documentary movie will boost local and international appreciation of this unique prehistoric monument. Firstly, it will increase international awareness of the Armenian heritage and secondly, it will attract more tourists to Armenia.

The expedition is organized by **Dr. Mihran Vardanyan**, an Oxford astrophysicist, and includes a group of other scientists from Oxford, as well as local participants from Armenia.

More detailed information is available on “Stars and Stones 2010” web site: <http://qarahunge.gerezman.com/>. An announcement will also appear at the IAU Commission 41 and at <http://www.archeoastronomy.org/heritage/index.html> which is the page for the Archeoastronomy of the European Society “Astronomy in Culture”.

RAYMOND WILSON – WINNER of KAVLI AWARD for ASTROPHYSICS 2010



Raymond Wilson, whose pioneering optics research at ESO made today’s giant telescopes possible thanks to “active optics” technology, has been awarded the 2010 Kavli Prize in astrophysics. The founder and original leader of the Optics and Telescopes Group at ESO, Wilson shares the million-dollar prize with two American scientists, Jerry Nelson and Roger Angel.

The biennial prize, presented by the Norwegian Academy of Science and Letters, the Kavli Foundation, and the Norwegian Ministry of Education and Research, was instituted in 2008 and is given to researchers who significantly advance knowledge in the fields of nanoscience, neuroscience, and astrophysics, acting as a complement to the Nobel Prize. The award is named for and funded by Fred Kavli, the Norwegian entrepreneur and philanthropist who later founded the Kavlico Corporation in the US — today one of the world’s largest suppliers of sensors for aeronautic, automotive and industrial applications.

Raymond Wilson, who joined ESO in 1972, strived to achieve optical perfection, developing the concept of active optics as a way to enhance the size of telescopic primary mirrors. It is the size of these mirrors that determines the ability of a telescope to gather light and study faint and distant objects. Before active optics, mirrors over six metres in diameter were impossible, being too heavy,

costly, and likely to bend from gravity and temperature changes. The use of active optics, which preserves optimal image quality by continually adjusting the mirror's shape during observations, made lighter, thinner so-called "meniscus mirrors" possible.

Wilson first led the implementation of active optics in the revolutionary New Technology Telescope (NTT) at ESO's La Silla Observatory, and continued to develop and improve the technology until his retirement in 1993. Since then, active optics have become a standard part of modern astronomy, applied in every big telescope including ESO's Very Large Telescope (VLT), a telescope array with four individual telescopes with 17.5 cm thick 8.2-metre mirrors. Active optics has contributed towards making the VLT the world's most successful ground-based observatory and will be an integral part of ESO's European Extremely Large Telescope (E-ELT) project. Active optics technology is also part of the twin 10-metre Keck telescopes, the Subaru telescope's 8.2-metre mirror and the two 8.1-metre Gemini telescopes.

Co-prize winners Jerry Nelson and Roger Angel respectively pioneered the use of segmentation in telescope primary mirrors — as used on the Keck telescopes, and the development of lightweight mirrors with short focal ratios.

Raymond Wilson recently also was awarded another prize, the European Astronomical Society (EAS) Tycho Brahe Prize.

ANNIVERSARIES

Dr. Rafik VARDANIAN – 75 (20.05.1935 – 14.02.2000). Dr. Vardanian was one of BAO's oldest scientists, first polarimetric observations and the foundation of the practical astronomy group at BAO are related to his name. He was born in village Tegh 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 (supervisor: Dr. Karlos Grigorian). Then he defended his Doctoral thesis in 1986 and became a Leading Research Associate in 1995. He was also a Head of a Laboratory. Vardanian's main interests were in the field of polarimetric studies and groups of galaxies. Dr. Vardanian died in 2000 still at an active age for scientific work.

Prof. Ara AVETISSIAN – 60 (27.05.1950). Prof. Avetissian is one of the leading theoreticians at the Yerevan State University (YSU). He was the Chair of the Department of Astrophysics and at present is the Director of the YSU Viktor Ambartsumian Astronomical Observatory in Yerevan. His main interest is cosmology. Since 2007, he is an ArAS member.

Dr. Gagik TER-KAZARIAN – 60 (21.06.1950). Dr. Ter-Kazarian has graduated from the YSU Department of Physics, Chair of Astrophysics and worked at BAO. His main interests are the physics of compact cosmic bodies, gravitation, elementary particles, and cosmology.

Dr. Karen TOKHATYAN – 50 (23.05.1960). Dr. Tokhatyan has graduated from the YSU Department of Physics, Chair of Astrophysics and since then works at the Institute of History of the Armenian National Academy of Sciences (NAS). His main interest is the investigation of ancient Armenian rock art. Since 2007, he is an ArAS member.