

ArAS News

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

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We wish you Merry Christmas and Happy New Year!

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

INTERNATIONAL YEAR of ASTRONOMY NEWS



Update from the **International Year of Astronomy (IYA-2009)** events (world and Armenia).

Latest activities and events:

Nov 8-16	14 th International Astronomy Olympiad in China; two Armenian pupils – winners of the Olympiad
Nov 17	Leonid meteors: over 500 meteors per hour
Dec 14	NASA WISE (<i>Widefield Infrared Survey Explorer</i>) mission
Dec 15	Opening of Viktor Ambartsumian's monument in Yerevan
Dec 23	<i>Prof. Elma Parsamian's</i> 80 th anniversary
Dec	Outcome of ANSEF proposals 2010: two BAO groups have been awarded ANSEF grants
Dec 28	Armenian IYA-2009 Closing Ceremony at NAS RA in Yerevan; awards to Armenian astronomers and journalists
Jan, 2010	E-ELT site selection: Chile or Canary Islands
Jan 9-10, 2010	IYA-2009 closing ceremony in Padua, Italy

The IYA webpage is available at <http://www.astronomy2009.org/> and the IYA-2009 Armenian webpage, at http://www.aras.am/IYA_2009.htm.

OPENING of VIKTOR AMBARTSUMIAN'S MONUMENT in YEREVAN



The celebration of Viktor Ambartsumian's 100th anniversary took place in 2008. However, some events were continued in 2009 as well. One of the expected important things was Ambartsumian's monument in the centre of Yerevan. On **December 15**, its official opening took place. The monument has been erected in front of the Yerevan State University (YSU) Observatory, the first site where Ambartsumian worked in Armenia before the construction of the Byurakan Observatory. Sculptor **Tariel Hakobyan**, Professor of the Academy of Fine Arts, is the author of the monument, the sculptor who also created Ambartsumian's bust in front of the main building of BAO. The sculpture has 3m 20cm height. A number of official guests participated in the ceremony of opening; President of Armenia Serzh Sargsyan, Mayor of Yerevan Gagik Beglaryan, President of NAS RA Radik Martirosyan, Rector of the YSU Aram Simonyan, Director of BAO Haik Harutyunian, et al.

IYA-2009 CLOSING CEREMONY in ARMENIA

The official Closing Ceremony of the International Year of Astronomy in Armenia took place on December 28, 2009, in the Small Conference Hall of the Armenian National Academy of Sciences (NAS). Some 60 people were present. The session was opened by the President of NAS *Prof. Radik Martirosyan*, followed with welcome addresses by the Director of BAO *Dr. Haik Harutyunian*, representative of UNESCO in Armenia *Kristina Mehrabekyan*, Chair of the Union of Manufacturers and Businessmen of Armenia *Arsen Ghazaryan*. The Coordinator of IYA-2009 in Armenia *Dr. Areg Mickaelian* presented a report on the world and Armenian events during 2009. Then a number of prizes and awards were granted to astronomers, journalists, and sponsors. For their significant support to the Armenian astronomy, “*VivaCell*”, “*Apaven*”, “*Antares*”, “*Edit Print*”, and “*Aray*” companies were awarded Letters of Commendation from BAO and ArAS (for other awards, read *Sections 4: “ArAS/BAO awards*”, *5: “ArAS Prize for young astronomers*”, *6: “NAS RA Letters of Commendation to Armenian astronomers*”, and *7: “IYA-2009 Armenian Journalists Awards*”).

After the session, *Prof. Radik Martirosyan* received the winners of the International Astronomical Olympiad 2009 and their teachers. The pupils received gifts (IYA-2009 Celestron 76mm FirstScope Telescopes) and *Marietta Gyulzadian* received a Letter of Commendation for her contribution in astronomical education in Armenia (read about IAO in *Section 11 “Armenian pupils – winners of the International Astronomy Olympiad*”).

ARAS/BAO AWARDS

In connection with the International Year of Astronomy (IYA-2009) ArAS and BAO had announced Benjamin Markarian, Marat Arakelian, Gurgen Sahakian, Ludvik Mirzoyan and Paris Pishmish awards. This year two of these awards have been granted: **Prof. Elma Parsamian** (BAO) won *Ludwik Mirzoyan award* for outstanding services in astronomy and **Dr. Elena Nikogossian** (BAO) won *Paris Pishmish award* for the best female astronomer.



Prof. Elma S. PARSAMIAN is one of our renowned scientists. She has significant contribution as in science, so as in science administration, organizational affairs at BAO, teaching, and editorial work. At present she is active in astronomy as well: she is the Chair of the Specialized Council for Scientific Degrees and Head of a research group at BAO. Read Parsamian's biography in section 11: “*Anniversaries. Elma Parsamian – 80*”.



Dr. Elena H. NIKOGOSSIAN at present is the Scientific Secretary at BAO. She is a research associate at the group for studies of young stellar objects headed by T.Yu. Magakian. Before she worked on investigations of clusters of galaxies. She took her PhD degree in 2002. Elena is a member of EAS and founding member and the Secretary of ArAS. In 2009, she published two papers together with T.Yu. Magakian and T.H. Movsessian and other co-authors, one in *Astron. J* (“*Near-IR Spectroscopy of Young Stars in the Braid Nebula Star Formation Region in Cygnus OB7*”) and one in *Astrofizika/Astrophysics* (“*Search for HH-objects and emission stars in star formation regions. VI. Herbig-Haro objects and emission stars in the region of the GM 1-64 and GM 2-4 nebulae*”).

ARAS PRIZE for YOUNG ASTRONOMERS (YERVANT TERZIAN PRIZE)

ArAS announced its Annual Prize Award results for 2009. The Prize was founded in 2004 by *Prof. Yervant Terzian* (Cornell, USA) and since this year will be named after him, *Yervant Terzian Prize*. *Lusine Sargsyan* (BAO), has been announced as the winner who showed outstanding results during 2009. Certificates and a sum of USD 250 donated by *Prof. Terzian* were handed to *Lusine*. Thus, since this year the ArAS prize has been increased to USD 250.



Lusine A. SARGSYAN, 31, has graduated from the Yerevan State University (YSU) in 2001. She works at BAO since 2000 and at present is a research associate. She also is a Ph.D. student under the supervision of *Dr. A.M. Mickaelian* and has finished her thesis in 2009, which has been accepted by the Council for Scientific Degrees. She is involved in studies on infrared galaxies (IRAS and SST), and the Digitized First Byurakan Survey (DFBS). In 2009, *Lusine* published five journal papers (in *Astrophys. J.*, 2 in *Astrofizika/Astrophysics*, *Romanian Astron. J.*, and *Data Science Journal*) and has several other contributions in proceedings of meetings. *Lusine* is an active member of the Armenian Virtual Observatory (ArVO) team, has participated in a number of projects (CRDF, ISTC A-1451 and A-1606), has been invited for collaboration with *Prof. D. Weedman* to Cornell University (USA) and with *Dr. D. Engels* to Hamburger Sternwarte (Germany), for 2 months each. Despite her young age, she was one of the lecturers at the Second Byurakan Summer School for YSU students (July 2009), as well as helped a lot in organization of this school. In 2009, she also participated in 3 meetings held in Byurakan. *Lusine* was also active in the International Year of Astronomy (IYA-2009) affairs and is now appointed as the secretary of LOC of the International School for Young Astronomers to be held in Byurakan in Sep 2010 (ISYA-2010). *Lusine* was the winner of the first ArAS Annual Prize for Young Astronomers and the annual award for young Armenian scientists by Gyulbenkyan foundation in 2004. She is an ArAS member since 2002, and has been the Editor of ArAS Newsletter in 2005.

NAS RA LETTERS of COMMENDATION to ARMENIAN ASTRONOMERS

Armenian National Academy of Sciences has granted Letters of Commendation to 12 Armenian astronomers. Two type of letters were awarded:

- “Deserved Letters” (**Armen Gyulbudaghian, Haik Harutyunian, Tigran Magakian, Norair Melikian, Arthur Nikoghossian, and Artashes Petrosian**)
- “Honorary Letters” (**Tigran Movsessian, Ashot Akopian, Kamo Gigoyan, Areg Mickaelian, Elena Nikogossian, and Smbat Balayan**)

These letters are awarded for obtained achievements in science and for honest work.

IYA-2009 ARMENIAN JOURNALISTS AWARDS

In connection with the International Year of Astronomy (IYA-2009), BAO and ArAS together with “*Armenpress*” News Agency had established awards for most active journalists writing on astronomical subjects. Two awards have been granted:

- for the most active journalist in 2009: Lusine Martirosyan (“Armenpress” News Agency)
- for the best publication on astronomical subjects: Melanya Barseghyan (“Aravot” newspaper)

In addition, a Letter of Commendation was awarded to “**Armenpress**” **News Agency** (Managing director: Hrayr Zoryan) for many-sided coverage of IYA-2009 and advertizing astronomy in 2009. Particularly, one of the important things in frame of the project “*Cosmic Diary*” was the series of biographical articles about famous Armenian astronomers at the “Armenpress” website (altogether 20 biographies).

ANSEF ANNOUNCES 2010 AWARDS

ANSEF announced grants 2010. This time, 27 projects have been awarded ANSEF grants and there are two astrophysical ones among them:



Artur Hakobyan (Byurakan Astrophysical Observatory): “*Different Type of Supernovae, Stellar Population and Star Formation in Galaxies*”



Abraham Mahtesyan (Byurakan Astrophysical Observatory): “*Two-point correlation functions of groups and clusters of galaxies, radio galaxies and quasars*” (William Mesrobian Astronomy Award)

Since 2001, in the field of astronomy and astrophysics, ANSEF has supported 26 projects (USD 5000 each; projects by 19 Principal Investigators involving more than 60 scientists), including 20 projects from BAO and 6 from YSU.

More information about ANSEF is given at <http://www.ansef.org> and particularly about the astronomical projects (list of all winners and titles of projects), at <http://www.aras.am/AnsefGrants/ansefgrants.html>.

CNRS-SCS GRANTS

This year the French National Centre for Scientific Research (CNRS) and the Armenian State Committee of Science of the Ministry of Education and Science (SCS MES RA) had announced co-sponsored grants for collaborative projects between French and Armenian scientists. As a result, 10 projects have been awarded grants and among them three are astrophysical ones:



Haik Harutyunian (BAO) *Stratification of chemical composition and stellar oscillations*



Tigran Magakian (BAO) *Search and monitoring of young stellar objects*



Artashes Petrosian (BAO) *Supernovae, stellar populations, and star-formation in galaxies*

These grants will allow further collaboration between the French and Armenian scientists; funds are allocated mainly for mutual visits so that typically 4 missions from each part in frame of each project will be possible during the next 2 years.

ARMENIAN PUPILS - WINNERS of the INTERNATIONAL ASTRONOMY OLYMPIAD

The **14th International Astronomy Olympiad** (IAO) was held in Hangzhou (China) on November 8-16, 2009. The International Astronomy Olympiads have been held in Europe and Caucasus eleven times, the XI IAO visited South Asia, and now it was the second time IAO visited East Asia. There were 18 teams of the following states participated on the Olympiad: Armenia, Bulgaria, China, Croatia, Czech Republic, Estonia, India, Indonesia, Italy, Kazakhstan, Korea, Lithuania, Romania, Russia, Moscow Land, Serbia, Sweden, Ukraine. The City of Hangzhou is located in the southern part of the fertile Yangtze River Delta. It was first settled as early as 4,700 years ago, thus giving birth to the auroral Liangzhu Civilization.

The Opening Ceremony of the XIV IAO took place in Hangzhou High School that is a historied high school in Hangzhou, China. It was established in 1899. Since 2002, Hangzhou High School Astronomy Club has become a famous and influencing astronomy amateurs' group. During the Olympiad the Local Organizing Committee arranged excursions to Tian-huang-ping Observatory and Shanghai Sheshan Observatory, the Bamboo Forest, West Lake, Hangzhou History Museum, Six Harmonies Pagoda and Qianjiang New City. The Closing Ceremony took place on November 16 in Hangzhou High School. Cultural program of the Closing Ceremony was presented by Classical Chinese Sing and Dance. The Tian-huang-ping Observatory has a famous viewpoint in Zhejiang Province. It belongs to Anji County and is 60 kilometers away from Hangzhou City. It has the biggest pumped storage power station in China and the third biggest one in the world. Shanghai Sheshan Observatory is located on the top of the West Sheshan Mountain. Its predecessor is Sheshan Observatory, which was built by the French Jesuit in 1900 (Guangxu 26 year) that covers an area of 8000 square meters. At that time, it equipped with a 400 cm Binoculars called "Far East First". And it had taken more than 7,000 rare astronomical photos in a century.

Following the educating style of the International Astronomy Olympiad the Organizers invited famous scientists to give lectures for the participants. There were total 6 lectures during all programme of the Olympiad. On November 15, at the conclusion of all the rounds the results being available, the Jury Board members have 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 November 16 in Hangzhou High School. Cultural program of the Closing Ceremony was presented by Classical Chinese Sing and Dance.

Out of 124 participants six students took the First-rank Diploma in the Olympiad. Two of them were our Armenian students: **Hayk Hakobyan** and **Hayk Tepanyan**. We are very glad and congratulate them for such results. Other four I rank diploma were taken by Indian (2), Chinese, and Russian students.



From left to right: Hovhannes Shmavonyan (Diploma of Participation), Ashot Akopian (Armenian Team Leader), Hayk Tepanyan (I Diploma), Marietta Gyulzadyan (Armenian Team Leader), Michael Gavrilov (Founding Chairman of the International Astronomy Olympiad), Zhu Jin (Chairman of Local Organizing Committee), and Hayk Hakobyan (I Diploma).

Marietta Gyulzadian

ANNIVERSARIES. Elma PARSAMIAN - 80



One of our famous astronomers, **Prof. Elma Parsamian** celebrated her 80th anniversary. Since the early years of foundation of the Byurakan Observatory, she has had a significant contribution in the development of the Armenian observational astrophysics, as well as in preparation of future astronomical generations.

Prof. Parsamian was born on December 23, 1929 in Yerevan. Finishing the secondary school with a gold medal, she studied in 1949-1954 at the Yerevan State University (YSU), Department of Physics and Mathematics. After the graduation of YSU in 1954 she started working in Byurakan. She was a post-graduate in 1957-1960 and took her Ph.D. degree at the YSU in 1963 under the supervision of Prof. G.A. Gurzadian, “*Colorimetric and polarimetric investigation of some cometary nebulae*”. In 1967-1986, Parsamian was a senior researcher, in 1986-2000, a leading researcher, and since 2000 she is a principal researcher at BAO. In 1983, she defended her second thesis and

became a Doctor of Sciences. Since 1989 she is a Professor of the YSU. In 1983-1987, Parsamian simultaneously worked at the Armenian Pedagogical Institute as the Chair of the Department of Astronomy and Theoretical Physics. In 1967-1971 and 1990-1991 she lectured at the YSU and has been a supervisor of diploma and Ph.D. theses. In 1991-1995, Parsamian worked at Tonanzintla Observatory in Mexico as a researcher of the highest "C" degree. There she also lectured at the University in 1992. In 1996, she was a visiting scientist at the Max-Planck-Institute für Astronomy in Heidelberg (Germany). In 2000, Parsamian was elected a Corresponding member of the Armenian National Academy of Sciences, and in the same year, a member of the Editorial Board of journal "Astrofizika".

Parsamian's studies concern the physics of gaseous nebulae, investigation of variable stars in star clusters and associations, and archaeoastronomy. She has carried out colorimetric and polarimetric study of cometary nebulae (the subject of her PhD thesis). In 1965, Parsamian published the first catalog of cometary nebulae. Since 1965, she was engaged in studies of variable (mainly flare) stars. In 1970-1981 she participated in the large program of search and investigation of flare stars in young stellar groups (Pleiades, Orion, Hyades, Praesepe, Cygnus, etc.) organized in BAO under the supervision of Prof. L.V. Mirzoyan. Parsamian has discovered and observed numerous flare stars. In 1976, she has worked out a new method for determination of the age of flare stars and stellar associations and clusters containing flare stars. In 1979, together with V.M. Petrosian, Parsamian published her second catalog of cometary nebulae containing 106 such objects. She has studied the frequency distribution function of flare stars in the Orion association and estimated that there were 1.5 times as many flare stars than in Pleiades. In 1982, together with the Mexican astronomer E. Chavira, she published a catalog of 534 stars having H α emission in the Orion nebula region adding many new such stars to Haro's list. At present Parsamian is the PI of a research group in Byurakan and works on spectral study of fours and subfuors, spectrophotometry of planetary nebulae and problems of distribution of flare activity and frequency of flares of flare stars. Some cometary and planetary nebulae discovered by her have been named after Parsamian.

Parsamian has justified the astronomical significance of buildings in Metsamor, Zorats stones (Karahunge), and Angelakot. Particularly, she discovered proves about the existence of astronomical observing platforms in Metsamor. She showed that Sirius was observed in Metsamor in 2500-2600 B.C.

As a result, Parsamian has published 136 scientific, as well as a number of popular papers. She has participated in more than 50 international and all-union symposia and conferences, including 4 IAU General Assemblies and several other IAU meetings.

Parsamian is a member of IAU (1976), EAS (1990), EAAS (1996), and ArAS (2001). She also is a member of New York Academy of Sciences (1995), member of BAO Specialized Council for Scientific Degrees (1980) and its Chair (2000), Vice-President of the working group "Flare Stars" of the Commission on Stellar Physics of the academies of sciences of Socialist countries (1985-1988), member of the USSR Commission on Preparation of Astronomical Staff (1986-1991), member of Editorial Board of the journal "Historical-Astronomical Investigations" (1988-1992), member of astronomical scientific-methodological commission of the USSR universities and institutes (1990-1992). Parsamian has been awarded the medal "For Labour Valour" (1971), Letter of Commendation of the Armenian NAS (1981), and Anania Shirakatsi medal (2003).

Areg Mickaelian

ANNIVERSARIES. Gagik TOVMASSIAN - 50



Dr. Gagik Tovmassian is 50. At present Gagik is one of the most active and productive Armenian astronomers in the world.

Gagik Tovmassian was born on Dec 18, 1959 in Yerevan. He is the son of the famous Armenian astronomer Hrant Tovmassian. He studied at the Yerevan State University (YSU), Department of Physics in 1976-1981 and started working at the Byurakan Astrophysical Observatory (BAO) in 1980. In 1984-1988, he was a post-graduate student at BAO and partly, at the Crimean Astrophysical Observatory. Gagik took his Ph.D. degree on "*Investigation of Cataclysmic Variables*" in 1990 under the supervision of Prof. A.A. Boyarchuk. In 1993, Gagik moved to Mexico and worked as a Professor at Computer Systems Department of Universidad De Las Americas Puebla, Mexico (1993-94), post-doc (1994-95), resident astronomer (1995-98), and researcher (Investigador Titular "A" T.C., since 1998) at National Astronomical Observatory of IA UNAM Ensenada, Mexico. In 2000-2004 he was also an adjunct professor at San Diego State University (San Diego, USA) and in 2004-2005, a visiting researcher at the Center for Astrophysics and Space Sciences (UCSD San Diego, USA).

Gagik's main area of research are Cataclysmic Variables (CVs), particularly – magnetic CVs. He has studied a number of ROSAT sources. At present he is actively engaged in studies of short-period CVs, which are at the latest stages of evolution. A long work has been carried out on SBS1150+599A (an object discovered in Byurakan), an extremely oxygen-poor planetary nebula, as well as other similar objects. Some research was also carried out on Shahbazian compact groups of compact galaxies. Though he mainly works on optical observations however, he has obtained observing time and observed with IUE, FUSE, XMM, and Chandra space telescopes, as well as a number of major instruments such as ESO New Technology Telescope (NTT), William Herschel Telescope (WHT), Gemini, Keck, and ESO Very Large Telescope (VLT).

As a result, since 1984, Gagik has published 57 papers in all major astronomical refereed journals such as *AJ*, *ApJ*, *A&A*, *MNRAS*, *PASP*, *Ap&SS*, *AN*, *RMxAA*, *Astron. Reports*, *Astron. Letters*, and *Astrofizika*, as well as one paper in *Nature*. Gagik has also published 52 other papers, including in proceedings of international meetings. He was the co-editor (together with E. Sion) of the Proceedings of IAU Colloquium #194 "*Compact Binaries in the Galaxy and Beyond*" (2004). He has participated in many international conferences and has given several invited talks.

Gagik has been teaching astronomy/astrophysics, as well as computation and databases courses in universities of Mexico and at summer schools and has been a thesis director in 2009. He is a member of IAU (1994), "*Armenian Engineers and Scientists of America*" association (AESA, 1994), and ArAS (2003).

Areg Mickaelian

The CLUSTER *TERZAN 5* as a REMNANT of a PRIMORDIAL BUILDING BLOCK of the GALACTIC BULGE

Nature, 26.11.2009, by F.R. Ferraro et al.

ESO 45/09 - Science Release



25 November 2009

Cosmic "Dig" Reveals Vestiges of the Milky Way's Building Blocks

Peering through the thick dust clouds of our galaxy's "bulge" (the myriads of stars surrounding its centre), and revealing an amazing amount of detail, a team of astronomers has unveiled an unusual mix of stars in the stellar grouping known as Terzan 5 (discovered by the Armenian astronomer Agop TERZAN, *note by Areg Mickaelian*). Never observed anywhere in the bulge before, this peculiar "cocktail" of stars suggests that Terzan 5 is in fact one of the bulge's primordial building blocks, most likely the relic of a proto-galaxy that merged with the Milky Way during its very early days.



The star cluster Terzan 5



Around Terzan 5



Zooming on Terzan 5

"The history of the Milky Way is encoded in its oldest fragments, globular clusters and other systems of stars that have witnessed the entire evolution of our galaxy," says Francesco Ferraro from the University of Bologna, lead author of a paper appearing in this week's issue of the journal Nature. *"Our study opens a new window on yet another piece of our galactic past."*

Like archaeologists, who dig through the dust piling up on top of the remains of past civilisations and unearth crucial pieces of the history of mankind, astronomers have been gazing through the thick layers of interstellar dust obscuring the bulge of the Milky Way and have unveiled an extraordinary cosmic relic.

The target of the study is the star cluster Terzan 5. The new observations show that this object, unlike all but a few exceptional globular clusters, does not harbour stars which are all born at the same time — what astronomers call a "single population" of stars. Instead, the multitude of glowing stars in Terzan 5 formed in at least two different epochs, the earliest probably some 12 billion years ago and then again 6 billion years ago.

The galactic bulge is the most inaccessible region of our galaxy for astronomical observations: only infrared light can penetrate the dust clouds and reveal its myriads of stars. *"This could be the first of a series of further discoveries shedding light on the origin of bulges in galaxies, which is still hotly debated,"* concludes Ferraro. *"Several similar systems could be hidden behind the bulge's dust: it is in these objects that the formation history of our Milky Way is written."*

REMINDER about ARAS ANNUAL FEES

We would like to remind all ArAS members that annual dues 2009-2010 are being collected. As before, to avoid bank fees sometimes comparable to the annual dues, money may be paid directly to the ArAS treasurer Tigran Movsessian in Armenia or to any of ArAS officers (Co-Presidents, Vice-President, or Secretary); for members residing in the USA, the best would be to pay to *Prof. Yervant Terzian* so that he transfers the money through FAR office to Armenia.

There is no change in the membership fees:

Region	Full member	Junior member
Armenia:	USD 10	USD 5
Western Europe, USA & Canada:	USD 50	USD 25
Other countries:	USD 30	USD 15