

ArAS News

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

No. 75 (November 18, 2014)



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

XIX INTERNATIONAL ASTRONOMICAL OLYMPIAD

The **International Astronomy Olympiad (IAO)** is a scientific-educational event for students of the high school junior classes, 14-18 years old, which includes an intellectual competition between these students. The style of the problems is aimed at developing the imagination, creativity and independent thinking. IAO takes place each year in the first two months of the astronomical autumn (i.e. September 22 - November 22) in either an observatory, a scientific research centre (town) or at an institute of the participating countries. IAO is organized by the Authorized National Representative (Astronomical) Organization (ANRAO) of the organizing country. Our ANRAO is the Byurakan astrophysical Observatory (BAO).

Every participating country may send five students, who are the winners of the respective national Olympiads or easy competitions: three students for the group Alpha (14-15 years old) and two students to the group Beta (16-18 years old). They are to be accompanied by two team leaders as representatives of each country.

A considerable part of the knowledge which is necessary for participation in the Olympiad goes beyond the frames of the school curriculum in most of the countries in the world. Preparation for the Olympiad needs extra-curricular activities of various types, whose promoting is one of the Olympiad's aims. The IAO is being held in 3 rounds: theoretical, practical and observational. For theoretical and practical works, 4 hours are given.

This year the **19th International Astronomy Olympiad (IAO XIX)** was held in Bishkek and Cholpon-Ata (Kyrgyzstan) on October 12-21, 2014.

The opening ceremony was held in Bishkek, which was attended by the Prime Minister, the Minister of Education and Science, Kyrgyz Cosmonaut Salizhan Shakirovich Sharipove and other government officials.

Bishkek, formerly Pishpek and Frunze, is the capital and the largest city of the Kyrgyz Republic. Bishkek is also the administrative centre of Chuy Province which surrounds the city, even though the city itself is not part of the province but rather a province-level unit of Kyrgyzstan. Bishkek is situated at about 800 metres (2,600 ft) altitude just off the northern fringe of the Kyrgyz Ala-Too range, an extension of the Tian Shan mountain range, which rises up to 4,855 metres (15,928 ft) and provides a spectacular backdrop to the city. North of the city, a fertile and gently undulating steppe extends far north into neighbouring Kazakhstan. The Chui River drains most of the area.

The Olympiad and the Closing Ceremony were held in Cholpon-Ata.

Cholpon-Ata, (literally "Venus-father", the name of a mythological protecting spirit) is a resort town on the northern shore of Lake Issyk-Kul in Kyrgyzstan with a year-round population of about 12,000. It is the administrative center of the Issyk Kul District of Issyk Kul Province; this district occupies most of the lake's north shore. The town contains numerous large and small sanatoria, hotels and guesthouses to accommodate the many visitors who descend upon the lake in summer. During the Soviet era it was much frequented by vacationers brought here in organized mass tours from other parts of the USSR. The view of the imposing alpine ranges of the Tian Shan across the lake is impressive. There is a good local museum.

As it was mentioned, the IAO provides the opportunity for the students between the ages of 14 and 18 to compete on knowledge and skills in Astronomy as well as to develop friendship with each other. There were 17 teams of the following states participated in the Olympiad: Armenia, Bulgaria, Czech Republic, Estonia, India, Indonesia, Iran, Italy, Kazakhstan, Korea, Kyrgyzstan, Moscow Land, Romania, Russia, Sweden, Thailand, Ukraine.



Armenian team members, team leaders and Edgar Vardanyan with the First Rank Diploma and Special Diploma for the Best Result

In this year in IAO took part 5 Armenian students. **Edgar Vardanyan**, **Hrant Topchyan**, **Hrach Babujyan** and **Davit Aslanyan** are students of Physical and Mathematical special school after Artashes Shahinyan at Yerevan State University (YSU), and **Eduard Grigoryan** is a student from “Quantum” college. The team leaders were BAO Researcher **Dr. M.V. Gyulzadyan** and the President of Armenian Youth Aerospace Club **A.E. Grigoryan**.

Following the educational style of IAO the Organizers invited famous scientists to give lectures for the participants. There were in total 3 lectures during all the program of the Olympiad. On October 19, at the conclusion of all the rounds the results were 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, we decided on the cut off level for the Golden medal, 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 October 20.

Out of all participants four students took the First Rank Diploma (which is equivalent to Gold Medals) in Olympiad. Our student **Edgar Vardanyan** took **First Rank Diploma** and **Special Diploma for the Best result in group Alpha**. His results are best in theoretical and practical rounds as well. Note also that this year Edgar was awarded a bronze medal in the 8th International Olympiad on Astronomy and Astrophysics (IOAA), which was held in Suceava (Romania) in August. We are very glad and proud and congratulate Edgar Vardanyan for such results.

Dr. Marietta Gyulzadyan, IAO Armenian team leader

INTERNATIONAL SCHOOL for YOUNG ASTROPHYSICISTS in TAJIKISTAN

International School of Young Astrophysicists took place in Tajikistan on October 6-14, 2014. The School involved about 40 young professionals and graduate students representing countries of the Commonwealth of Independent States (CIS): Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, and Ukraine.

Participants are from the educational and scientific institutions that are engaged in various aspects of nuclear physics, high energy physics, astronomy and astrophysics, electronics, information and communication technology, and small alternative energy from renewable sources. Junior researcher of Byurakan Astrophysical Observatory (BAO) **Gurgen Paronyan** was the Armenian representative at the School.



The School was supported by the Interstate Fund for Humanitarian Cooperation. The purpose of this unique science-practical program was to train young scientists for implementation of several major astrophysical projects, which also involves strengthening ties among young scientists of the Commonwealth. The main work of young scientists was accomplished at the experimental site of the Ak-Argali, which refers to the International Research Centre “Pamir-Chacaltaya” located at an altitude of 4370 meters above sea level. Favorable astronomical climate and unique equipment of the scientific center in the mountains of the Eastern Pamirs, gave the researchers the possibility of conducting a detailed study of fundamentally new processes and phenomena that occur at very high energies in Cosmic Rays. The point is that such energies have only recently become available in the laboratory, after putting in operation the Large Hadron Collider (LHC), belonging to the European Centre for Nuclear Research (CERN). Lecturers of the school are leading specialists and scientists of Moscow State University, Lebedev Physical Institute of the Russian Academy of Sciences and the Physical-Technical Institute of the Academy of Sciences of Tajikistan.

There were several other events that accompanied the School, such as meeting with the President of Tajik Academy of Sciences and discussion of issues related to the further development of the Observatory and involvement of youth in science, and excursion to Pamir Botanic Garden.

Gurgen Paronyan, BAO Junior Researcher

FIRST BYURAKAN SCIENCE CAMP



Byurakan Astrophysical Observatory (BAO) and **Armenian Astronomical Society (ArAS)** with the support of the **Ministry of Education and Science** and the **Ministry of Diaspora** and with the sponsorship of the **Fund for Armenian Relief (FAR)** organized the **First Byurakan Science Camp** on October 19-25, 2014 at BAO. During 7 days, 27 pupils accompanied by the organizers and Byurakan young astronomers stayed at BAO hotel and benefited the science atmosphere and contacts with scientists, as well as had active rest.

Organizers



Byurakan Astrophysical
Observatory (BAO)



Armenian Astronomical
Society (ArAS)

Twelve members were engaged in the execution of the project, mostly young fellows of BAO and volunteers. All duties were distributed among the team, so that each person took care for a definite task.

Local Organizing Committee (LOC)

Director of the Science Camp and Chairman of LOC: Dr. Areg Mickaelian

Coordinator of the Science Camp: Ms. Sona Farmanyan

LOC Members: H. Abrahamyan, M. Alexanyan, S. Farmanyan, K. Gigoyan, M. Gyulzadyan, H. Melkumyan, G. Ohanyan, M. Zohrabyan, and 3 volunteers, including a student from Yerevan State Medical University (YSMU) for maintenance of medical safety and care of the participants.



BAO Science Campers at lectures in Viktor Ambartsumian office

Target group was 12-15 year old pupils selected by the directors of schools and the Ministry of Diaspora. In addition, the organizers had individual interviews with these potential participants. The selection criteria of pupils were according to their interest of Astronomy, Physics and Mathematics. The number of participants was 27, including pupils from State Engineering University of Armenia (SEUA) high school, AYB college, Aregnazan Educational Centre (Waldorf school), Viktor Ambartsumian school, Byurakan secondary school, and others.

Program and Events

The Science Camp had rather rich program, including Scientific, Educational and Social ones. A number of lectures were given on various topics of Astronomy by BAO scientists, observations and tutorials were organized. Various meetings and discussions, intellectual and sports games, social tours were organized as well. The Science Camp events included:

- Popular astronomical interactive lectures
- Talk about the connection of Astronomy and Mythology
- Tutorials on astronomical research and software
- Watching science films with comments of professional astronomers
- Meeting with famous astronomers: *Dr. Haik Harutyunyan* and *Dr. Elma Parsamian*
- Intellectual games: Brain ring, Numbers, Blitz-contest, Astronomical contest
- Visit to the biggest BAO (2.6m) telescope
- Visit to Viktor Ambartsumian's museum
- Acquaintance with the night sky: constellations, bright stars
- Watching the peak of Orionids meteor shower
- Star gazing by small telescopes
- Excursions to Amberd, Armenian Letters, Tegher Monastery, Aghdzk, Oshakan
- Hiking in the surrounding of Byurakan (Byurakan churches)
- Sport games and competitions
- Concert with campers' participation
- Visit of parents combined with any of these events
- Awarding certificates of participation and for prizes
- Producing videos about the camp

For the selection of campers we spread camp announcement through the schools of RA. Also we wrote Press Releases about the opening and closing of the Camp and shared them with the Scientific Journalists of Armenia. Many articles were written about the Camp and a morning TV program (at H1, Armenian Public TV) hosted the organizers Areg Mickaelian and Sona Farmanyan. Numerous photos and videos were done during the events and the activities of the camp. The Camp was also presented at FAR webpage.

The Science Camp really succeeded, we got gratitude words from schools' directors, parents and campers. Most of the campers admired by the mysteries of the Universe and decided to choose astronomy as their future profession. Campers also gave willingness to help organize future science camps and figure as volunteers. We created a mailing list of all participants for future contacts and communications. All they became friends and share information on social networks.



Left: BAO Science Camp participants at Viktor Ambartsumian memorial stone. Right: portraits of some participants drawn by one of the campers Julia Tanganyan (Viktor Ambartsumian School)

The success of the First Byurakan Science Camp provides a basis for further development of this project and organizing next Byurakan Science Camps with participation of brilliant Armenian pupils, including those from diaspora. A number of the present participants will serve as volunteers to help the organization. Such Camps are now planned to be held every year in summer with a wide selection among all Armenian and Diaspora pupils.

*Dr. Areg Mickaelian, Director, BAO Science Camp
Sona Farmanyan, Coordinator, BAO Science Camp*

ArAS SCHOOL LECTURES

On the initiative of **Prof. Yervant Terzian** (Cornell University, NY, USA), a **Project of Astronomical Lectures in the schools** of the Republic of Armenia (RA) was conducted by ArAS on October 28-31. Since astronomy is not a primary subject at RA schools, this project was a chance to partially compensate this gap. High schools, including some specialized schools were selected by the Ministry of Education and Science.

The **schools involved** were:

- Yerevan A. Shahinyan Physical-Mathematical school
- Yerevan “Quantum” College
- Yerevan Anania Shirakatsi College
- Yerevan “Olympus” Educational Centre
- Yerevan National University of Architecture and Construction of Armenia high school
- 17 Yerevan high schools
- Abovyan high school (Kotayk Province)
- Aparan high school (Aragatzotn Province)
- Ashtarak high school (Aragatzotn Province)
- Charentsavan high school high school (Kotayk Province)
- Gyumri “Photon” College (Shirak Province)
- Hrazdan high school (Kotayk Province)
- Metzamor high school (Armavir Province)
- Nor Hachn high school (Kotayk Province)

The lectures were organized either in specialized classrooms with participation of at least 30 pupils, or in some cases in the school halls with participation of up to 200 people.



*Lectures by Avetik Grigoryan at Yerevan No. 119 high school and
by Dr. Areg Mickaelian at Ashtarak high school*

Altogether **30 lectures** were given by **7 astronomers**:

- **Dr. Haik Harutyunian**, BAO Director and ArAS Co-President
- **Dr. Areg Mickaelian**, BAO Leading Research Associate, ArAS Co-President and Project Manager of the Armenian Virtual Observatory (ArVO)
- **Dr. Elena Nikogossian**, BAO Scientific Secretary and ArAS Secretary
- **Dr. Hovhannes Pikichian**, BAO Senior Research Associate
- **Dr. Ararat Yeghikian**, BAO Senior Research Associate
- **Dr. 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)
- **Dr. Avetik Grigoryan**, former BAO researcher (1983-1992), at present Head of the Space Group of Republican Technical Creativity Center of RA Ministry of Education and Science



Lecture by Dr. Hovhannes Pikichian at Metzamor high school

A general **presentation on “Wonders of the Universe”** (PowerPoint file) was prepared, which included information on the history and modern state of astronomy, its present developments, achievements of BAO led by the outstanding scientist Viktor Ambartsumian and other famous astronomers, and a lot of beautiful pictures from the Universe. As agreed beforehand, all lectures were organized in classrooms with projectors.

A number of **promotional materials** were distributed to the schools libraries, teachers and pupils. ArAS and BAO publications were used as well and some were published and produced in frame of this project. The following materials were distributed:

- Brochure “*Byurakan Astrophysical Observatory*” (2011, in Armenian) by Areg Mickaelian
- Photo booklet “*Byurakan Astrophysical Observatory*” (2012) with a collection of photos from BAO (territory, buildings, telescopes, etc.)
- Brochure “*Viktor Ambartsumian: most important scientific results*” (2011, in Armenian and English) by Haik Harutyunian and Areg Mickaelian
- Brochure “*Viktor Ambartsumian: Life and Activities*” (2014, in English) by Areg Mickaelian
- Postcards “*Viktor Ambartsumian*”
- Proceedings of the conference “*Evolution of Cosmic Objects through their Physical Activity*” dedicated to Viktor Ambartsumian’s 100th anniversary (2010, in English) with papers containing his views on physical and evolutionary processes in the Universe
- Proceedings of the conference “*Astronomical Heritage in the National Culture*” dedicated to Anania Shirakatsi’s 1400th anniversary (2014, 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*” (2014, in Armenian, Russian and English) reproduced in frame of this project and contains a lot of necessary materials 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*”.



Astronomical promotional materials distributed to schools libraries, teachers and pupils

One of the goals of the project was the discovery of **talented pupils interested in astronomy**. We will 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 us gratitude letters and others have suggested continue such lectures and organize astronomical groups in their schools.

ArAS School Lectures project was **supported by**:

Mrs. Araxy Babalanian (Florida, USA)

Mrs. Yeranuhi Tchelikjian (Montreal, Canada)

Prof. Yervant Terzian (New York, USA)

On behalf of ArAS we acknowledge this generous support and look forward for further activities.

Dr. Areg Mickaelian, Project Manager, ArAS School Lecture Program
Sona Farmanyan, Coordinator, ArAS School Lecture Program

“ASTRONOMY for SCHOOLS” DVD



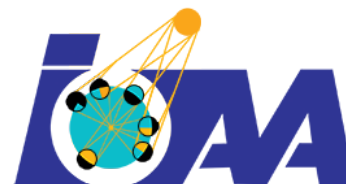
“Astronomy for Schools” DVD (2014, in Armenian, Russian and English) contains a lot of useful information for pupils and teachers. For the first time “Astronomy for Schools” DVD was produced in 2012 and recently it has been reproduced in frame of ArAS school lectures project initiated by *Prof. Yervant Terzian*. DVDs were distributed to the schools where lectures were given by BAO astronomers. The DVD is a collection of necessary materials for the school astronomy program, including 38 digitized or electronic textbooks, problem books, encyclopedia, thesauri, and other books, exercises, 16 popular astronomical software, more than 1000 photos, movies, materials on BAO, Viktor Ambartsumian (including 14 books by or about him, photos and films) and

other Armenian astronomers, and the CD “3D Atlas of the Universe”. The DVD may be used for educational and popular purposes and will be granted to other schools as well for further free distribution. It may serve as an example for other subjects to produce similar DVDs.

ASTRONOMICAL OLYMPIAD WINNERS at NAS RA



In 2014, Armenian pupils participated in two international astronomical Olympiads: **8th International Olympiad on Astronomy and Astrophysics (IOAA)** in Romania and **19th International Astronomy Olympiad (IAO)** in Kyrgyzstan. Altogether our team members won 1 Gold, 2 Silver and 2 Bronze medals. At IOAA, two Armenian pupils became owners of Silver medals (**Arsen Vasilyan** and **Gevorg Martirosyan**), and two others got Bronze medals (**Edgar Vardanyan** and **Vardges Mambreyan**). The team leaders were Marietta Gyulzadyan and Emilia Karapetyan. At IAO, **Edgar Vardanyan** won Gold medal and became the best participant. The team leaders were Marietta Gyulzadyan and Avetik Grigoryan.



*International Olympiad on
Astronomy and Astrophysics*

On November 14, the President of the National Academy of Sciences of the Republic of Armenia (NAS RA) *Prof. Radik Martirosyan* received our Olympiad participants and the team leaders. These pupils have altogether won 12 medals at astronomical Olympiads in 2011-2014, as well as have successfully participated in international Physics and Informatics Olympiads. Armenian team leaders Marietta Gyulzadyan and Avetik Grigoryan, Director of the Yerevan Phys.-Math. School Haykaz Navasardyan and ArAS Co-President Areg Mickaelian were also present at the meeting.

A talk about astronomical Olympiads, state and problems of astronomy and science in general in Armenia and in the world. An amateur telescope, astronomical souvenirs, astronomical books, DVDs, and other materials were awarded to Olympiad participants and team leaders.



Armenian Olympiad team members and team leaders with NAS RA President. From left to right: Avetik Grigoryan, Hrach Babujyan, Vardges Mambreyan, Marietta Gyulzadyan, Radik Martirosyan, Davit Aslanyan, Arsen Vasilyan, Gevorg Martirosyan, Edgar Vardanyan, Eduard Grigoryan and Haykaz Navasardyan

ArAS PRIZE for YOUNG ASTRONOMERS (YERVANT TERZIAN PRIZE) 2014



December 1 is the deadline for nominations for **ArAS Annual Prize for Young Astronomers (Yervant Terzian Prize) 2014**.

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 (Haik Harutyunian, Areg Mickaelian or Yervant Terzian).

Nominations should include personal data of the nominee (first name, surname, affiliation, position, education, degree, birthdate, e-mail address, personal homepage if available) and a brief description of his/her achievements during the year (2014) including:

- scientific results (up to 1 page),
- letter from the supervisor describing the personal contribution of the nominee,
- published, accepted and submitted papers (in refereed journals, in proceedings of meetings, and other),
- participation in meetings and schools,
- given talks, seminars, and presented posters,
- scientific missions,
- honours, awards and research grants,
- membership,
- teaching activity,
- organizational activity,
- other activities, whatever is considered to be important.

At least one refereed publication is required to qualify for the Prize. Preference will be given to nominees having publications in journals with higher impact factors (IF), with less co-authors and papers with the nominee as the first co-author, as well as the own contribution stated by the supervisor will be rather important. Nominations will be discussed and the winner(s) will be named by the ArAS Council (Haik Harutyunian, Tigran Magakian, Areg Mickaelian, Elena Nikoghosyan and Yervant Terzian).

The winner will be announced in the last issue of ArAS Newsletter (#76) at the end of the year. A **diploma** and sum of **\$500** will be awarded to the winner. The Prize was established in 2004 and is being sponsored by ArAS Co-President **Prof. Yervant Terzian** (Cornell University, USA). Since 2009 the Prize is named after Yervant Terzian.

Previous ArAS Annual Prize (Yervant Terzian Prize) Winners

- 2013** Hayk ABRAHAMYAN (BAO) and Avet HARUTYUNYAN (IAC, Spain)
- 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)