

IAU SYMPOSIUM 304 in ARMENIA



The **IAU Symposium #304 “Multiwavelength AGN Surveys and Studies”** will take place in Armenia on 7-11 Oct 2013. The Early Registration and Abstract submission periods are now over and the Scientific Organizing Committee is working on study and selection of abstracts for oral talks and posters.

Altogether, 151 abstracts have been submitted, including 25 ones of invited talks (some more pending), 89 abstracts of contributed talks and 37 ones of posters. We expect a rich scientific program with many new results and exciting talks.

So far, the list of participants (<http://iaus304.aras.am/participants.html>) includes 145 astronomers from 32 countries (Argentina, Armenia, Australia, Brazil, Bulgaria, Canada, Chile, China, Colombia, France, Georgia, Germany, Greece, India, Iran, Ireland, Italy, Japan, Kazakhstan, Malaysia, Mexico, Netherlands, Poland, Portugal, Russia, Serbia, Spain, Taiwan, UK, USA, Ukraine, Venezuela).

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ArAS LECTURES at ARTSAKH SCHOOLS



On the initiative of Prof. Yervant Terzian (Cornell University, NY, USA), a Project of Astronomical Lectures in Artsakh (Nagorno Karabagh Republic) schools was conducted by ArAS on May 6-7.

High and secondary schools in Stepanakert and Shushi were selected by the Ministry of Education and Science (Minister *Mr. Slavik Asryan* and Vice-Minister for school affairs *Mr. Hambardzumyan*) of Nagorno Karabagh Republic, including specialized Physical-Mathematical

School after A. Shahinyan of Stepanakert. The astronomers also had meetings and discussions

with Stepanakert schools' teachers and with the Artsakh State University students. Altogether 10 lectures were given by 3 astronomers:

- Dr. Areg Mickaelian, BAO Leading Research Associate and ArAS Co-President
- Dr. Hovhannes Pikichian, BAO Senior Research Associate
- Gohar Harutyunyan, BAO Junior Research Associate

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

- brochure *"Byurakan Astrophysical Observatory"* (2011, in Armenian) by Areg Mickaelian
- brochure *"Viktor Ambartsumian: most important scientific results"* (2011, in Armenian and English) by Haik Harutyunian and Areg Mickaelian
- book *"Starry Sky"* (2004, in Armenian) by Sergey Nersisyan
- photo booklet *"Byurakan Astrophysical Observatory"* (2012) with a collection of photos from BAO (territory, buildings, telescopes, etc.)
- Postcards "Viktor Ambartsumian"
- Astronomical calendars 2013 "Byurakan Astrophysical Observatory", "Viktor Ambartsumian" and "Armenian Astronomers"
- Proceedings of the conference dedicated to Viktor Ambartsumian's 100th anniversary (2010, in English) with papers containing his views on physical and evolutionary processes in the Universe
- "Viktor Ambartsumian" biographical book (2011, in Russian) by Yuri Shahbazyan
- Astronomical maps (2010, first Sky maps in Armenian)
- DVD "Viktor Ambartsumian" (2010, in Armenian, Russian and English) with a full collection of data on our great scientist (biography, his books and papers, articles about him, photos, movies, etc.)
- DVD "Astronomy for Schools" (2012, in Armenian, Russian and English) produced in frame of this project and containing a lot of material necessary for the school astronomy: digitized textbooks and problem books, exercises, encyclopedia and thesauri, popular astronomical software, photos and movies, information on BAO, Viktor Ambartsumian and other famous Armenian astronomers, as well as the popular CD "3D Atlas of the Universe"



One of the goals of the project was the discovery of talented and interested in astronomy pupils to maintain further contacts with them and follow their further growth as potential future scientists. For

this, special forms were prepared and distributed in schools as feedback from this project. Hundreds of pupils have filled in and returned these forms with their contact data. Some of the directors of the schools have sent to us gratitude letters and others have suggested continue such lectures and organize astronomical groups in their schools.

Since a few years ago Astronomy is being taught very briefly in the Nagorno-Karabakh schools and this project was a chance to partially compensate this gap. A general presentation (a Powerpoint file) on “Wonders of the Universe” was prepared, which included information on the history and modern state of astronomy, its present developments, achievements of the Byurakan Astrophysical Observatory (BAO) led by the outstanding scientist Viktor Ambartsumian and other famous astronomers, and a lot of beautiful pictures from the Universe.

During the whole period of the project communication was maintained with the NKR Ministry of Education and Science. As agreed beforehand, all lectures were organized in classrooms with projectors.

We express our deep gratitude to the sponsor of the project *Prof. Yervant Terzian* (USA) and the NKR Ministry of Education and Science for organizational help.

SCHOOL ASTRONOMICAL REPUBLICAN OLYMPIAD 2013

The final (Republican) phase of the Astronomical School Olympiad was held at the Byurakan Observatory and at PhysMath School after A. Shahinyan on April 22. In total 41 pupils from Yerevan, Aragatsotn, Armavir, Kotayk and Shirak provinces took part, including 6 International Astronomical Olympiads 2010-2012 medal winners (Gevorg Martirosyan, Arsen Vasilyan, Vardges Mambreyan, Vahan Aslanyan, Karen Hambardzumian and Siranush Babakhanova). *Dr. Ashot Hakopian*, BAO senior researcher, was the Chair of the Jury and the other members were BAO researchers Marietta Gyulzadian, *Dr. Ararat Eghikian* and *Dr. Areg Mickaelian*, Yerevan State University professor *Dr. Emilia Karapetian*, Armenia State Pedagogical University professor *Dr. Sergei Nersisyan* and International Astronomical Olympiad 2004 winner and BAO PhD student Tigran Nazaryan.

Five problems were offered from the fields of celestial mechanics, astrometry and radiation theory. The participants showed deep knowledge and displayed high results. Pupils from Shahinyan Phys.-Math. School (PMS), the Armenian State Engineering University (ASEU) College and the “Quantum” college showed the best results. As a result, First-rank diploma were awarded to 4 pupils: **Vahan Aslanyan** (PMS), **Vardges Mambreyan** (PMS), **Gevorg Martirosyan** (PMS) and **Arsen Vasilyan** (ASEU), Second-rank diploma to 1: Karen Hambardzumian (PMS), Third-rank diploma to 4: Siranush Babakhanova (PMS), Eduard Grigoryan (“Qvant”), Hrachya Davtyan (ASEU) and Hayk Soghomonyan (PMS), and Certificates of Commendation to 5 pupils: Hrachya Babudjyan (PMS), Hrant Topchyan (PMS), Davit Khechoyan (“Qvant”), Ara Mambreyan (PMS) and Astghik Tsolakyan (ASEU).

This Olympiad also was a qualifying phase for the International Astronomical Olympiad that will be held this fall in Lithuania. Let us remind that the Armenian pupils have excellent traditions at the International Astronomical Olympiads, having 8 gold, 5 silver and 14 bronze medals in total and by team counts being one of the best during the whole 17-year history of Olympiads.

More information at: <http://www.aras.am/Education/olympiads.html>

ANANIA SHIRAKATSI MEDAL to YERVANT TERZIAN



The famous Armenian astronomer Prof. Yervant Terzian has been awarded Anania Shirakatsi medal by the President of Armenia *Mr. Serzh Sargsyan*. The official ceremony was held on April 4, 2013 in New York during the honouring of *Prof. Terzian*. The medal was handed by the Armenian Ambassador to UN *Mr. Karen Nazaryan*.

Prof. Terzian, the David C. Duncan Professor in the Physical Sciences, Department of Astronomy, Cornell University, is one of the prominent modern astronomers, known in the fields of physics of the interstellar medium, planetary nebulae, galaxies, radio astronomy, and others. He is one of the ArAS Co-Presidents and the Chairman of the Research Council of ANSEF.



Prof. Terzian's scientific fields are quite broad: from planetary nebulae (PNe) and pulsars to galaxy pairs and quasars. His studies have been carried out mainly in radio, however many papers are devoted to IR, optical, and UV observations as well. He is an author or co-author of 232 scientific publications and the editor of 6 books, including "Carl Sagan's Universe" (1997). Out of these publications 164 are in refereed scientific journals, including papers in Nature, where only outstanding results are being accepted. According to the ADS database, during 1962-2008, there are altogether 315 publications by Terzian, many still possibly being missed.

Prof. Terzian is member of a number of professional societies and organizations: IAU, International Union of Radio Science, AAS, ArAS, Hellenic Astronomical Society (HelAS), Sigma Xi, Scientific Research Society, Astronomical Society of New York, Historical Astronomy Division, Society for Scientific Exploration, American Association for the Advancement of Science. In 1990, he was elected Foreign Member of the Armenian National Academy of Sciences (NAS), and in 2002, Co-President of the Armenian Astronomical Society (ArAS).



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Terzian's organizational activities have been rather large: he has been chairman, vice-chairman, or member of numerous committees and commissions of the IAU Working Groups, US National Academy of Sciences, New York Astronomical Society, NASA, NSF, etc.

For his research achievements and teaching merits *Prof. Terzian* has been awarded numerous titles, degrees, awards, medals, and honors.

BENIAMIN MARKARIAN WEBPAGE



A webpage of famous Armenian astronomer Benjamin Markarian was created dedicated to his 100th anniversary. On the webpage one can find Markarian's biography and biographical chronology, memories about him by V.A. Ambartsumian, Yu.Yu. Balega & A.I. Shapovalova, E.A. Dibay, A.V. Zasov, D.W. Weedman and other astronomers, his scientific results in different areas, First and Second Byurakan Spectral Surveys, scientific results on variable stars, Stellar Clusters and Associations, information about Markarian Galaxies, full list of his publications, photo gallery, etc. IAU

Symposium 304 (7-11 October, 2013, Byurakan, Armenia) is also devoted to B. Markarian's 100th anniversary.

Benjamin Markarian (1913-1985) was one of the greatest observing astronomers of the 20th century. He was the author of the famous Byurakan surveys (First Byurakan Survey, FBS or Markarian survey and Second Byurakan Survey, SBS) and the discoverer of ~1500 UV-excess galaxies (Markarian galaxies). His scientific works refer to the physics of stars, stellar clusters and galaxies. He took part in working out of the theory of fluctuations observed in the distribution of stars taking into consideration the interstellar absorption. On the basis of observational data he has confirmed that the stellar associations expand. Markarian has worked out a new classification of stellar clusters and in 1952 he has compiled and published "An atlas of different types of stellar clusters". In 1963 he revealed 73 galaxies with an unusual color to their spectral class. He has worked out a special method (for selecting galaxies with ultra-violet excess) on the basis of which 1965-1980 a spectral sky survey was obtained in the Byurakan Observatory. He has revealed 1500 objects of special class which are called by his name (Markarian galaxies or UVX galaxies).

List of publications

English Original

Link	Authors	Title	Publication	Vol	No	Pages	Month	Year
	Markarian B.E., Nekrasova S.V.	The Eclipsing Variable SS Camelopardalis	Bulletin of the Yerevan Astrophysical Observatory		4	19-27		1942
	Markarian B.E.	Fluctuations in Star Numbers According to Data of Star Counts	Reports of Academy of Sci. of Arm. SSR	1		5-12		1944
	Markarian B.E.	Fluctuations in the Visible Distribution of Stars and the Cosmic Absorption	Candidate Thesis, AS Arm. SSR, Yerevan			91p.		1944
	Markarian B.E.	The Distribution of Stars and the Cosmic Absorption in the Direction of the Galactic Poles	Reports of Academy of Sci. of Arm. SSR	IV	1			1946
	Markarian B.E.	The Influence of the Interstellar Absorption Matter on the Integral Brightness of Stars in the Direction of the Galactic Poles	Reports of Academy of Sci. of Arm. SSR	IV	5	129-132		1946
	Markarian B.E.	Fluctuations in the Visible Distribution of Stars and the Cosmic Absorption	Communications of BAO	1				1946
	Markarian B.E.	Stellar Association in the Selected Area NII	Reports of Academy of Sci. of Arm. SSR	X	2	61-65		1949
	Ambartsumian V.A., Markarian B.E.	Stellar Association around the P Cygni	Communications of BAO	2				1949
	Markarian B.E.	Stellar Association around NGC 2244	Reports of Academy of Sci. of Arm. SSR	XI	4	113-118		1950
	Markarian B.E.	On the classification of the Galactic Open Stellar Clusters	Communications of BAO	5		3-34		1950
	Markarian B.E.	The Stellar Association of Carina	Reports of Academy of Sci. of Arm. SSR	XII	5	123-145		1951
	Markarian B.E.	On the classification of open (galactic) stellar clusters. I. Preliminary list of open O-type star clusters	Communications of BAO	9		1-40		1951
	Ambartsumian V.A., Markarian B.E.	Stellar Association around the P Cygni	Papers of the Soviet Astronomy, Berlin	1		43-53		1951
	Ambartsumian V.A., Markarian B.E.	Stellar Association around NGC 2244	Papers of the Soviet Astronomy, Berlin	1		55-60		1951
	Markarian B.E.	A Revised List of Stellar Clusters of Type O	Reports of Academy of Sci. of Arm. SSR	XV	1	11-15		1952



ANNIVERSARIES



Tateos AGEKIAN – 100. Tateos Artem Agekian is one of the Soviet Armenian merited astronomers. In the result of his productive activity numerous significant scientific results, as well as a number of distinguished scientists and classical monographs of astronomy were created.

Tateos Agekian was born on May 12, 1913 in Batumi. In 1938 he graduated from the mathematical-mechanical department of the Leningrad State University. In 1938-1941 he worked at a secondary school and parallelly studied at the correspondence post-graduate course of Leningrad State University. In 1941-1945 Agekian participated in the Great Patriotic War in the post of chief of the staff of anti-aircraft artillery regiment (with title of a captain). For his military services he was awarded a Second-rank Order of the Great Patriotic War and medals. After the demobilization he returned to Leningrad State University and since 1946 he professed stellar dynamics, stellar kinematics and stellar statistics. In 1947 he defended his candidate thesis and in 1958 he became a doctor of physical-mathematical sciences. In 1961 he was honored with a professorship. His scientific researches refer to the problems of galactic astronomy, dynamics of stellar systems, stellar statistics and celestial mechanics. He obtained the main scientific results in the spheres of the theory of irregular field of stellar systems, dynamics of stellar systems based on data of radio observations, theory of motion in the field of rotational-symmetrical potential.

Agekian investigated in detail the role of diffuse matter in the problems of stellar dynamics. Taking into consideration the gravitational and radiation pressure forces he obtained a mathematical expression for the star acceleration in the interaction of the star with the system of dusty clouds. He has displayed that while passing from early subclasses to later ones the phenomenon of growth of residual velocities of stars of O and B spectral classes is explained by the acceleration obtained as a result of interaction of hot giants with diffuse matter. He discussed the joint influence of galactic clustering and slice-shaped structure of absorbing matter on the visible distribution of galaxies. Agekian worked out a method of investigating the kinematics of the Galaxy with the profile of 21cm wavelength radio line profile of neutral hydrogen. He investigated the evolution of rotational quasi-stable systems of interacting bodies. He proposed a method of investigation of characteristics of motion in the field of potential given with help of gradients of the field of directions. He adjusted the concept of complanarity of numerous stellar systems and he made a number of conclusions concerning the shift complanarity during the evolution. He observed a few general regularities of evolution of rotational systems of interacting bodies.

In common with scientific researches Agekian paid great attention to pedagogical work and to the popularization of science. He is the author of textbooks devoted to the problems of use of the theory of probability and mathematical statistics ("The principles of theory of errors for astronomers and physicists", "The theory of probability for astronomers and physicists"), a number of chapters of "Course of astrophysics and stellar astronomy" (1951) and the monograph "Stars, galaxies, Metagalaxy" (3 editions, the last one in 1981). The latter was also translated and published in English, Italian and Romanian. Ten candidate theses were defended under Agekian's supervision, and the four of his pupils defended a doctorate thesis as well.

Tateos Agekian passed away on January 15, 2006 in Leningrad. For his great contribution in the development of astronomy the small planet of Solar System #3862 was named after Agekian.



Ludwik MIRZOYAN – 90. Ludwik V. Mirzoyan is one of the beneficients of the Armenian astronomy whose whole life and scientific activity were devoted to the Byurakan Observatory and to the development of Armenian astronomy. His scientific, pedagogical, editorial, scientific-organizational and scientific-administrative works are colossal and invaluable. Mirzoyan has always been beside V. A. Ambartsumian and played one of the main roles in the formation and prosperity of the Byurakan Observatory, in the acquisition of the great scientific fame.

Ludwik Mirzoyan was born on May 1, 1923 in Yerevan. In 1942-1945 he took part in the Great Patriotic War. In 1947 Mirzoyan graduated from the faculty of physics-mathematics of the Yerevan State University and started working at the Byurakan Observatory. In 1948-1950 he was at the post-graduate studies at the Byurakan Observatory. In 1948 L. Mirzoyan published his first scientific paper. In 1949 he lectured at the Yerevan State University. In 1951 Mirzoyan became a candidate of sciences of physics and mathematics. In 1953-1959 Mirzoyan was the Scientific Secretary of the Byurakan Observatory; in 1953 he became a member of the Scientific Council. In 1958 he was elected a member of the International Astronomical Union and of its professional commissions. In 1956-1986 he was the Deputy Director of the Byurakan Observatory; since 1965 he was the Head of the Scientific Department on physics of stars and nebulae. In 1968 he was awarded a doctorate of the sciences of physics and mathematics, in 1970 he got a professorship. In 1970 he was elected a member of the Astronomical Council of the Academy of Sciences of the USSR, in 1970 as an associate member of the International Academy of Astronautics. In 1970-1975 he was an advising member of the Astrophysical Institute of Paris. In 1974 he became an Honored Scientist of the Armenian SSR. In 1974 Mirzoyan was awarded an Order of Labor Red Flag, a title of an Honored Scientist of the Armenian Republic. In 1974-1987 he was a member of the Editorial Council of the Soviet Republic of Armenia and the Chairman of the scientific-branch council on astronomy, in 1976-1998 a member and the Deputy Chair of the Specialized Council at the Byurakan Observatory, since 1986 he was a Principal Scientist of the Byurakan Observatory and a Head of a thematic group. In 1986 L. Mirzoyan became a Corresponding Member of the Academy of Sciences of the Armenian SSR. In 1965-1988 he was the Deputy Editor-in-Chief and in 1988-1998 he was the Editor-in-Chief of the all-union journal "Astrofizika". In 1990 he became a member of the European Astronomical Society; in 1996 he was an academician of the Academy of Sciences of the Republic of Armenia. Mirzoyan was a member of the presidium of the society "Knowledge", the President of the science-methodological council on Astronomy and Cosmonautics.

L. Mirzoyan's main scientific results are the proposing of a new method of determination of interstellar selective absorption, the working out of the method of "synthetic" stellar association and the demonstration of the expansion of OB-association, the determination of the value of A constant of the Galactic rotation, the investigation of the problem of K effect, the discovery and the investigations of hundreds of flare stars in Orion and Pleiades and in other systems and in Solar neighborhood, the spectrophotometric investigation of unusual objects, such as V1057 Cyg, FG Sge, RW Aur and SS Cyg, the investigation of Shahbazian compact groups of compact galaxies, etc.

Altogether, Mirzoyan has 271 scientific publications, including 171 scientific papers (128 of them in scientific journals and 43 of them in proceedings of conferences), 15 books and booklets, 65 popular scientific articles and information materials. If we add the organization of a number of conferences, the editing of the journal "Astrofizika", 20 books and the proceedings of conferences, the teaching at the Yerevan State University, the training of a dozen of academic personnel (including foreign scientists) to all above mentioned, Mirzoyan's great merit in Armenian astronomy becomes clear.

The distinguished scientist passed away on July 20, 1999 in Yerevan.