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LOCAL NEWS

The XV Joint Byurakan-Abastumani Colloquium

On May 1-5, the Byurakan Astrophysical Observatory (BAO) hosted the XV Joint Byurakan-Abastumani Colloquium. This year the colloquium was dedicated to Lyudwik Mirzoyan's 100th anniversary, one of the well-known Armenian astronomers.

The colloquium gathered together 41 Armenian and Georgian astronomers, who had the opportunity to exchange their experience and latest research results. Valeri Hambaryan from Germany joined as well.



The XV Joint Byurakan-Abastumani Colloquium. BAO. 2023



The XV Joint Byurakan-Abastumani Colloquium. BAO. 2023

Colloquium sessions covered a variety of topics: Solar Physics, stars and nebulae, galaxies and Cosmology, as well as Theoretical Astrophysics.

The scientific collaboration between the Armenian and Georgian astronomers was established in 1930s with the efforts of Viktor Ambartsumian, founder of the Byurakan Astrophysical Observatory, and Evgeni Kharadze, founder of the Abastumani Astrophysical Observatory.

NEW SCIENTIFIC STUDIES

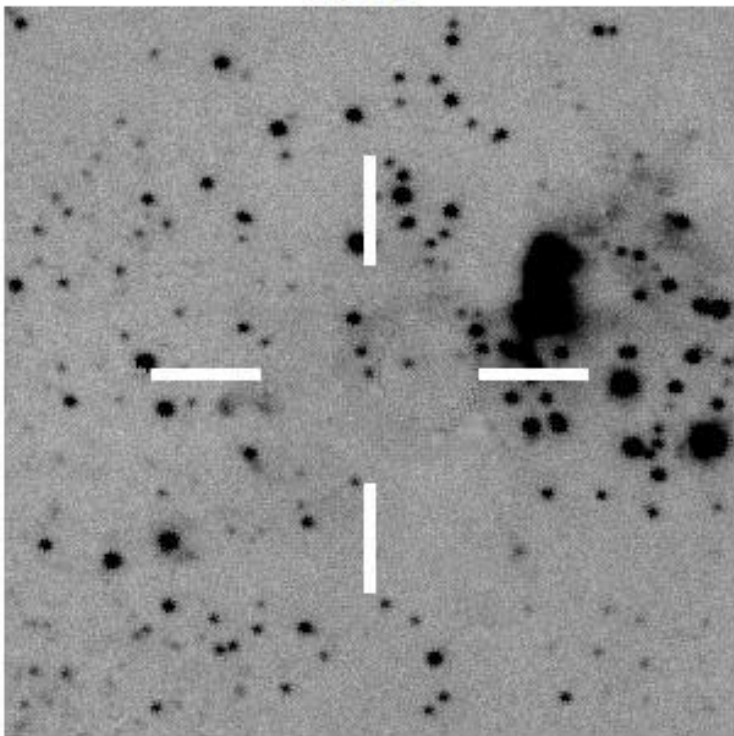
“New eruptive variable(s) in the RAFGL7009S HII region” was published in the British Journal Monthly Notices of the Royal Astronomical Society

Elena Nikoghosyan, BAO Leading Research Associate

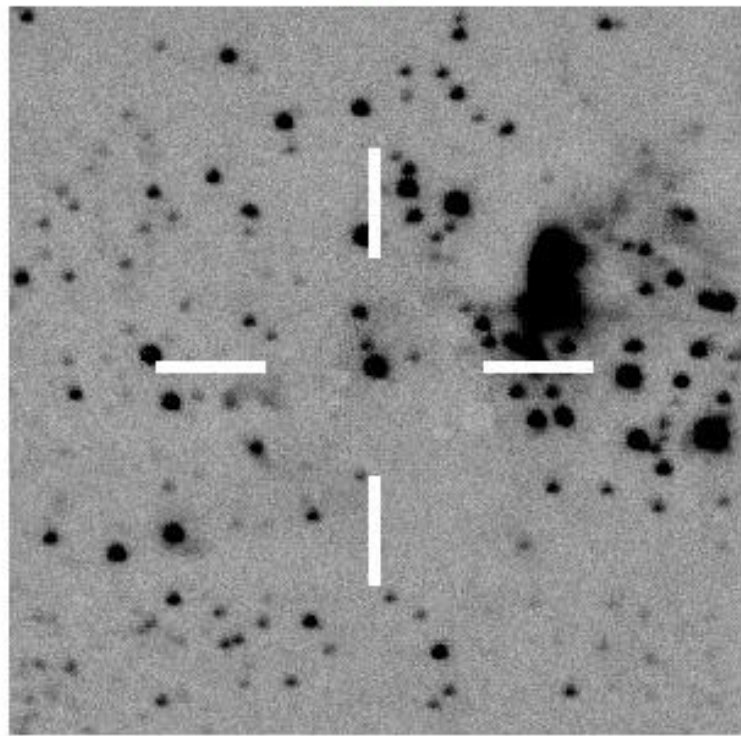
Researchers of the Byurakan Astrophysical Observatory Nikoghosyan, E. H., Azatyan, N. M., Andreasyan, D. H., Samsonyan, A. L., Yeghikyan, A. G., Baghdasaryan, D. S. together with Kaper, L. and Harutyunyan, N. A. published their new paper, [“New eruptive variable\(s\) in the RAFGL7009S HII region”](#), in the Monthly Notices of the Royal Astronomical Society.

The Byurakan Astrophysical Observatory has always been at the forefront of this direction of astrophysical research. Over the past decades, several FUors were discovered and studied. This list was completed with another object that was discovered this year. A comparison of the observations made almost over the past 20 years showed that the brightness of the new FUor, J183421.85-055951.0, has increased almost a thousand times (see Figure). The object itself is a young star located in the active region of star formation RAFGL7009S, at a distance of about 2 kpc ($6 \cdot 10^{16}$ km). Its spectral characteristics indicate that this young star is surrounded by a massive circumstellar disk, the accretion activity of which could lead to such a significant

2007



2011



Images of J183421.85-055951.0 obtained on the Infrared Telescope of the United Kingdom in 2007 and 2011.

increase in brightness. In addition, this young star is a source of intense collimated outflow, which is also one of the properties of FUors.

Studying stars, understanding the basic laws of their formation and evolution is one of the fundamental questions of modern astrophysics. Therefore, great attention is paid to this issue. The efforts of astrophysicists of the whole world gave significant results, revealing some secrets of the Universe. However, among the very rich and diverse stellar population, there are objects among young stars that still remain a mystery. These are the so-called FUor - young eruptive stars, the brightness of which can increase more than a thousand times in a few days, and remain at the same level for several decades. These objects, since the middle of the last century, when the first three such objects were discovered, are objects of intensive study by astrophysicists.

It's interesting to know that it was Viktor Ambartsumian (BAO founder) to name these stars FUors (after the FU star of Orion Constellation, FU-Or).

However, despite the increased attention, they remain a mystery. Moreover, only about 30 such stars are known. Until today, several different models have been proposed to explain the FUors phenomenon. They are based on various physical processes that can lead to a sharp increase in the accretion of matter from the circumstellar disk to the surface of the star. However, none of the proposed models can fully explain all the observational properties of these objects. A number of issues remain unresolved What causes large accretion events? What disables them or temporarily stops them? Do all stars experience high-amplitude accretion flares in the process of formation, or do special circumstances require this? And this list can be continued. Therefore, it is not surprising that every newly opened FUors is a significant event and it becomes an object of active study.

ANNIVERSARIES

Tateos Agekian's 110th Anniversary

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 (1913-2006). 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



Tateos Agekian

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 N 3862 was named after Agekian.

OTHER NEWS

International Day of Light

The International Day of Light celebrates the role light plays in science, culture and art, education, and sustainable development, and in fields as diverse as medicine, communications, and energy.

The International Day of Light is celebrated each year on May 16. Its purpose, per UNESCO, is to strengthen cooperation and leverage its potential to foster peace and development. Light-based technologies play an important role in education, science, art, culture, sustainable development, communications, energy and medicine.

The annual celebration is organized by UNESCO.



**International
Day of Light**

16 May

International NASE Course 2023 for Armenian School Teachers

On June 5-27, the Network for Astronomy School Education (NASE) program will be held for Armenian teachers of Physics (and in some cases mathematics and geography): <http://sac.csic.es/astrosecundaria/en/Presentacion.php>.

The courses will be conducted online by NASE international lecturers. In order to facilitate the possible language barrier of Armenian teachers, all presentations will be in Armenian. Moreover, young astronomers from the Byurakan Astrophysical Observatory (BAO) will be present online at each lesson to provide additional explanations if needed.

The program is held under the auspices of the International Astronomical Union (IAU). The program manager is Roza Maria Ross (Spain), the deputy is Beatrice Garcia. The head of the program from Armenia is BAO director Areg Mickaelian, the coordinator is Sona Farmanyanyan and the head of the assistant teachers' group is Arus Harutyunyan.



Richard Ellis Receives \$500,000 Gruber Cosmology Prize

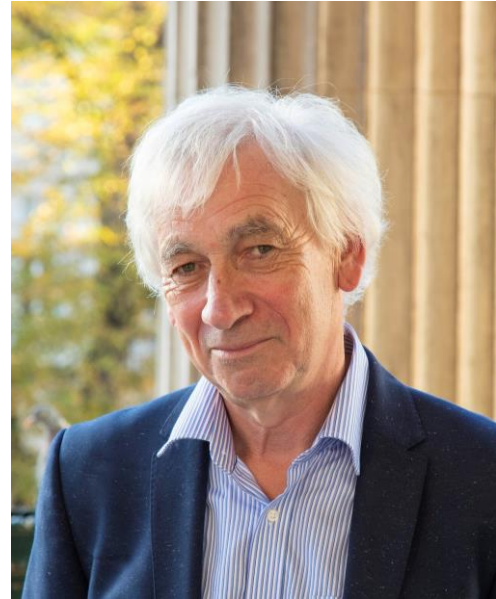
The 2023 Gruber Cosmology Prize recognises Richard Ellis of University College London for his pioneering work both studying galactic evolution dating back to the ‘cosmic dawn’ and designing innovative instruments with which to do so.

The Gruber Foundation Cosmology Prize is awarded annually to leading scientists and cosmologists who have made groundbreaking discoveries that change or challenge our understanding of the Universe.

The 2022 Gruber Cosmology Prize recognises Richard Ellis with the \$500 000 award and a gold laureate pin at a ceremony that will take place in July at the ‘Shedding New Light on the First Billion Years of the Universe’ conference organised by the Galaxies, Etoiles et

Cosmologie (GECO) team of the Laboratoire d'Astrophysique of Marseille, France. The citation highlights his “broad contributions in the fields of galaxy evolution” as well as his role as “the driver of many frontier instrumental developments in optical astronomy.”

Source: [IAU Press Release](#)



Richard Ellis

ArAS News is the electronic newsletter of the Armenian Astronomical Society. It was distributed to all ArAS members from the beginning of 2002, 4 times a year, typically at the end of each trimester. In 2009-2014, 8 issues annually and since 2015, 12 issues annually have been released.

ArASNews publishes information materials on ArAS, Byurakan Astrophysical Observatory and the Armenian astronomy in general, reports on ArAS Annual Meetings and participation of the Armenian astronomers in important international meetings, articles on occasion of anniversaries of famous Armenian astronomers and ArAS members, acceptance of new ArAS members, achievements of the Armenian astronomers, astronomical education in Armenia, Armenian archaeoastronomy, as well as science articles (reviews) on important studies.

So, if you want to share your studies with the scientific community, send us your articles to melin.asryan@gmail.com. They will be reviewed for the publication in ArAS Newsletters next issues.

[ArAS Newsletter issues](#) are available online.