

**Analysis Research & Planning for Armenia**

**Innovate Empower Transform**



**ANNUAL REPORT 2024**

**Շնորհաւոր Նոր տարի**

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<https://www.arpainstitute.org>

# TABLE OF CONTENT

President’s Message.....	3
Year in Review – Strategic highlights.....	4
Financial Highlights and 2024 Donations.....	5
Mark Your Calendar (May 10, 2025) ARPA Grand Gala Event.....	6
ARPA Institute Projects.....	7-10
ARPA Institute Adrin Gharakhani Invention Competition.....	11
ARPA Board Member Contributions in Armenia.....	12
Example Teaching Session Media.....	13
ARPA Institute Panel Discussions.....	14-28
Armenia Trip Report.....	29-33

## PRESIDENT'S MESSAGE

Innovate, empower, and transform! That is what ARPA Institute is all about.

Educating the mind, promoting innovation, and cultivating growth in science, education, healthcare and other areas of significance for Armenia to advance as a society, as a nation and as a potential global powerhouse of technology.

Technologies, innovations and even nations are built by small, everyday steps of action with dedication. In the past 32 years, ARPA institute has gone through many hurdles, but our spirit is intact. Today I can proudly claim that we are collectively and slowly forging a bright future for our compatriots and our beloved nation. When a nation persists with its unending resilience, its indomitable attitude, and is hardened by so many storms in a short period of history, the greatest asset becomes education, science and technology. These qualities, etched into our collective soul, are the very foundation upon which we are basing a brighter future. Student by student, instrument by instrument, we weld together the pillars of a country that knows how to survive with dignity.

The ARPA Institute strength and continued dedication come from the support and encouragement we get from the community and the positive feedback we receive from the institutes, the universities and, especially the students and young

scientists we work with. The ARPA Institute only works with those whose expectations and objectives are aligned with ours, so that we move forward with a unified purpose, and the road ahead is open and clear. The force that has carried us through the past 32 years will surely provide us with the right momentum to carry us right into a bright future. We all need to pitch in and strive to make our nation stronger, which the next generation can be proud of. A nation where every citizen of Armenia feels the urge to innovate, works hard to empower himself or herself and can transform the country into a global powerhouse of new and better technologies, and a place where everyone wants to live in and adopt.

Every year we renew our commitment to the ideals that have sustained the ARPA Institute for so long. The ARPA Institute Board of Directors, both current and past, affirms its duty to carry out with dedication and sacrifice the work necessary to lay a strong groundwork for future generations. This is the legacy of the ARPA Institute, Analysis, Research and Planning for Armenia, and only Armenia and our nation. Let's all work together to ensure the ever advancing, and forever resilient country of the future. Let your support make us more empowered to continue to build a nation whose people can thrive, create, inspire and innovate. This is our future. This is the legacy we want to leave behind. All for Armenia and for the united Armenian nation.

Please make a tax-deductible donation to ARPA Institute (501 c3, non-profit, charitable organization) through the website (<https://arpainstitute.org/support-arpa-institute>) or by sending in your checks to Dr. Sargis Sedrakyan, Treasurer of the ARPA Institute, 17436 Dusty Willow Ct., Canyon Country, CA 91387

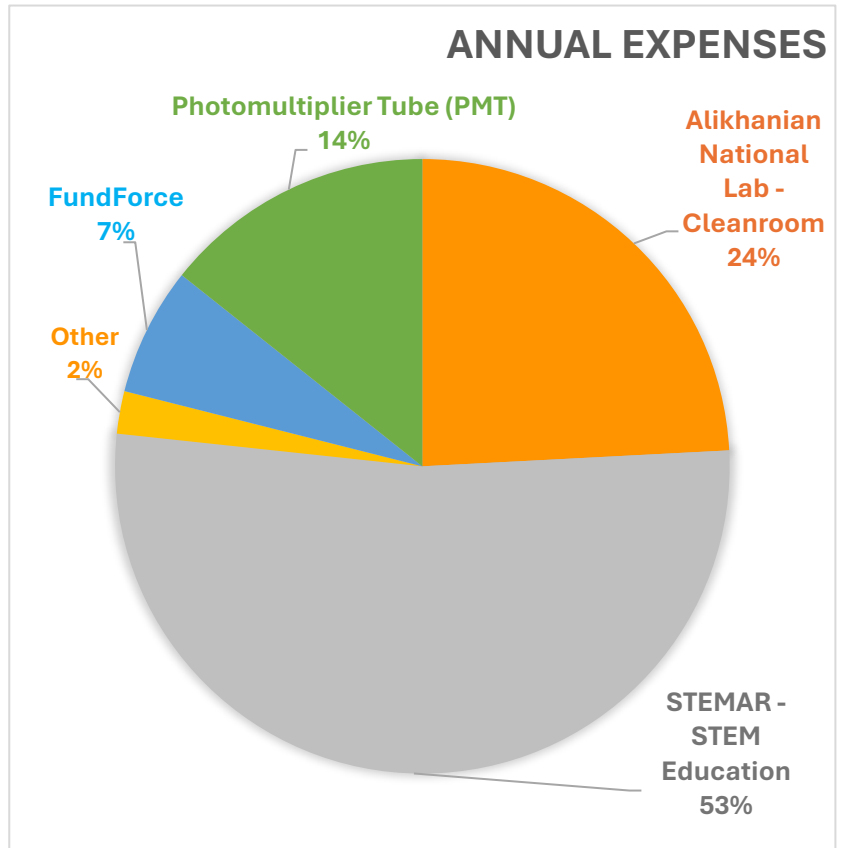
ARPA Institute is an organization of experts in various fields and its members use their expertise to provide technical and professional assistance to Armenia. ARPA needs individuals who are willing to help and even spend time in Armenia and carry out Analysis, Research and Planning for Armenia. Please contact us at [info@arpainstitute.org](mailto:info@arpainstitute.org) if you are able to participate and assist in achieving these goals .

## YEAR IN REVIEW – Strategic Highlight

- **ARPA Stemar Educational Program Expansion:** In the 2024-2025 academic year, ARPA extended its Stemar Educational Program to 19 schools in three different regions of Armenia. This expansion has been met with high praise from independent experts, governmental bodies, educators, and students alike. A major country-wide event, the EXPO is scheduled for April 2025 in Yerevan, where about 300 educators and select students will present their projects.
- **New Research Facility Launch:** Last September, ARPA Institute funded and opened a new Laboratory and Student Collaboration Center at A. Alikhanyan National Laboratory. This state-of-the-art facility enhances the capabilities for local scientists and students, fostering collaborations with prestigious institutions like Brookhaven National Laboratories and Jefferson Laboratory for the Electron Ion Collider (EIC) project. Armenia stands out as the sole participant from its region among only 13 countries globally involved in this significant scientific endeavor.
- Seven competitive invention proposals were submitted to the **ARPA Institute Adrin Gharakhani Invention Competition for Young Scientists** (with grand prize of \$10K USD) including ecology, optimizations in agriculture, security, infrastructure of Armenia, AI, and advancements in medicine. A committee of experts evaluated the proposed inventions and determined the most promising ones. The Board of Directors of the ARPA Institute, after discussing the committee's decision, decided to split the award between the two winning inventions, allocating \$5K for each.
- **Center of Excellence in Circuit Design at NPUA** (National Polytechnic University of Armenia) was established by ARPA Institute, together with CISCO and Cadence Design Systems. This center features an advanced Electronic Design Automation lab dedicated to cutting-edge circuit design. The program commenced with 18 undergraduate and 35 graduate students. The lab's construction is set to finish in early 2025, paving the way for Armenia to emerge as a key player in regional technological innovation.
- The ARPA Institute has also initiated and is supporting research on Confined Light and Advanced Photovoltaics (**Picoscience** - scientific study and manipulation of matter at scales involving picometers (pm)). An experimental effort was launched at the Alikhanyan National Laboratory, led by Dr. Narek Margaryan. This research could lead to the development of highly efficient, cost-effective thin-film silicon solar cells, significantly reducing the material and cost requirements for solar energy production. Results thus far are highly promising.
- The ARPA Institute has further modernized and equipped the ISO-6 or **Class-1000 Cleanroom** at AANL. Most recently 6 important gases were installed, with specialized pipelines, with all the necessary safety systems, to support scientific experiments. In 2023 Bazoomq worked on the first ever indigenous satellite (CubeSat Haysat 1) in the Cleanroom. The ARPA Institute is also in talks with the government for their support and a continuous budget for the staff and the facility.

# Financial Highlights and 2024 Donations

Donations to the ARPA Institute	
Donors	Amount
Armenian Education Foundation	\$ 12,000.00
Ruben Lusinyants	\$ 11,200.00
Vartkess Apkarian	\$ 5,000.00
Cadence Design Systems Matching	\$ 2,380.00
American Online Giving	\$ 362.26
Hrair Cabayan	\$ 2,367.81
Levon Minnetyan	\$ 1,500.00
Andre Yarian	\$ 1,236.00
Hagop Panossian	\$ 1,000.00
JACE Foundation	\$ 1,000.00
Ani Shabazian	\$ 800.00
Sarkis Bedrosian	\$ 650.00
Sirvart Terzakian	\$ 510.65
Armineh Koundakjian	\$ 500.00
Sara Vorganian	\$ 500.00
Harutiun Surmenian	\$ 400.00
Armen Kocharian	\$ 400.00
Gagik Parsamian	\$ 307.59
Albert D. Tomassian	\$ 300.00
Vicky Panossian	\$ 300.00
Hrayr and Lena V.Karagueuzian	\$ 250.00
Michael A. Madzoeff	\$ 250.00
Vatche Souvalian	\$ 210.00
Naira Campbell-Kyureghyan	\$ 204.56
Paul Narguizian	\$ 204.56
Sargis Sedrakyan	\$ 204.00
Armine Lulejian	\$ 200.00
Artin Petrossians	\$ 200.00
Groundswell Charitable Foundation	\$ 200.00
Lori Panossian	\$ 200.00
Mary & Ohannes Karakashian	\$ 200.00
Meher Babian DDS	\$ 200.00
Armen Der Kiureghian	\$ 200.00
Edgar Martirosyan	\$ 200.00
Minas Tanielian	\$ 200.00
Ara Minassian	\$ 180.00
Anna Ohanyan	\$ 102.53
Ara Khanjian	\$ 102.53
Anne A. Shirinian-Orlando	\$ 100.00
Dikran Aslanian	\$ 100.00
Hi-Tech	\$ 100.00
Ann Karagozian	\$ 100.00
Armen Poghosyan	\$ 100.00
Levon Marashlian	\$ 51.52
Mimi Zarookian	\$ 50.00
Zaven N and Isgouhi Demirjian	\$ 50.00
<b>Total</b>	<b>\$ 46,874.01</b>
In-kind donations to the ARPA Institute	
Ruben Lusinyants (in-kind donation)	\$ 4,189.50
Vatche Souvalian (in-kind donation)	\$ 450.00
Donations to the Armenian Bioinformatics Institute	
Aram S Adourian & Anna Ohanyan	\$ 10,000.00



We are also grateful to Professor Ara (Vartkes) Apkarian for his donation of scientific instruments to A. Alikhanyan National Lab and to Ruben Lusinyants for organizing and funding ARPA BOD offsite and for hosting/software costs of the new ARPA Institute website, as well as to Vatche Souvalian for his in-kind donation.



CONTINUE SUPPORTING ARPA (EIN 95-4423297) at:

<https://arpainstitute.org/support-arpa-institute/>

# Mark your calendar!

The ARPA Institute is organizing A Grand Gala Event dedicated to 80th Anniversary of the founder and lifetime President of the ARPA Institute, Hagop Panossian, at the Sheraton Universal Hotel, in Universal City on May 10, 2025. Please check us out on the ARPA Institute website:

<https://arpainstitute.org/event/arpa-academic-expo-and-fundraising-banquet/>  
or e-mail at [info@arpainstitute.org](mailto:info@arpainstitute.org)



# ARPA INSTITUTE ONGOING PROJECTS IN ARMENIA

## The ARPA Institute: Center of Excellence for Circuit Design in NPUA

The ARPA Institute, in collaboration with CISCO and Cadence Design Systems, has launched a groundbreaking initiative to establish a state-of-the-art electronic design automation (EDA) lab at the National Polytechnic University of Armenia (NPUA). This lab will specialize in circuit design and serve as a hub for advanced education and research in this field. Under the guidance of Vatche Souvalian, a leading expert in electronic design, this project aims to transform circuit design education in Armenia by introducing specialized courses for graduate students. These courses will focus on the application of advanced software tools developed by Cadence Design Systems, equipping students with the knowledge and skills needed to excel in the semiconductor industry and internationally accepted circuit design.

A key objective of this initiative is to strengthen Armenia's semiconductor ecosystem. The establishment of a Cadence-certified EDA lab at NPUA is a significant milestone in this direction. Certification by Cadence Design Systems will provide NPUA with international recognition, positioning it as a leader in electronic design education and research in the region. This recognition is expected to attract international partners and stakeholders, such as NVIDIA and AMD, fostering collaborations that will further advance the field of semiconductor technology in Armenia.

To bring this vision to life, the ARPA Institute provided essential hardware for the lab, including two high-performance servers, lab equipment, and computers. The ARPA Institute helped the acquisition and installation of the necessary software tools and facilitated training programs for faculty and students. Coordination with NPUA's administration will ensure the seamless integration of this lab into the university's academic and research programs.

CISCO's involvement in the project has added a crucial dimension by providing expertise, such as Vahe Yeghyazaryan, and training to support the adoption and teaching of advanced design tools. This partnership ensures that students and researchers at NPUA will have access to cutting-edge knowledge and resources, enabling them to stay at the forefront of technological advancements.

The Cadence software tools installed in the lab serves dual purposes. They will not only be utilized for educational activities, allowing students to gain hands-on experience in electronic design but will also support research and development initiatives. This dual focus will empower NPUA to contribute significantly to the field of circuit design, both as an academic institution and as a research center.

Overall, this initiative represents a transformative step in advancing technological education and innovation in Armenia. It holds the potential to position NPUA as a key player in the global semiconductor industry, providing opportunities for students, researchers, and industry professionals alike.

*The classroom at NPUA where the courses are being taught currently. And the rendering of the new CECD lab under construction.*

## Radio Frequency Photo-Multiplier Tube

Traditionally photons are detected in photo cathodes and converted to electrons. The electrons are multiplied and produce electrical signals with nanosecond (ns) resolution and then processed by traditional shaping electronics - amplifiers, discriminators, and time to digital converters to produce a time signal measuring the arrival of the initial photon. The challenge is in the picosecond (ps) resolution; even though modern digital circuits operate at high speeds of tens of GHz, they are not fast enough to directly count individual photons or electrons with ps resolution. Also, these devices have significant deadtimes that can be as large as 80ns. Improvements have been made by using superconducting nanowire single-photon detectors with temporal resolutions below 15ps by MIT and the Jet Propulsion Lab (JPL). The best resolution they achieved is 3.0ps and a deadtime of 100ns with a maximum data rate of 10 MHz.

Measurement of time to very high precision is a prerequisite in many fields of science and technology. A new timing processor, the Radio Frequency Timer, will be capable of ps resolution for single electron detection for high-rate electrons. Consequently, a photon sensor based on the RFT, namely the Radio Frequency Photo-Multiplier Tube (RFPMT), developed at the Alikhanyan National Laboratory (ANL) will be capable of detecting single photons with ps resolution. Currently there is no optical sensor capable of matching the combination of ultra-high timing resolution for single photons and very fast readout speed promised by the RFPMT, making it ideal for applications in ultra-high resolution optical microscopy.

The RFPMT, after some development, will be able to detect with 1 ps resolution and essentially be free from dead time, so that multiple single photons speeding, for example from a laser, the induced fluorescence could be recorded and time resolved. With fast readout from a suitably pixelated anode, the RFPMT will have enormous data throughput, potentially increasing the speed of image reconstruction by large factors.

It is expected that the RFPMT will offer major improvements to several imaging techniques. For example, in high-precision time-correlated, Stimulated Emission Depletion (STED) microscopy precise timing offers improved coordinate resolution. Similarly in time-correlated Diffuse Optical Tomography, the ability of the RFPMT to map and de-convolute scattered photon time distributions with extremely high precision would be a huge advance compared to conventional photon sensors. Ultimately, with ps resolution or better, the RFPMT offers a window of opportunity to access dynamical processes in biological molecules as they take place.

### The Radio Frequency Timing Technique

In a typical timing technique, the time interval is measured between the leading edges of two electronic pulses applied to the start and stop inputs of a time-interval meter. A typical circuit might measure the difference in arrival time of two photons. The detectors, e.g. vacuum or Silicon photomultipliers, produce close to nanosecond (ns) rise time pulses, with constant-fraction discriminators providing sub-ns, time-pick-off precision for the logic pulses fed to time-to-digital converters.

The basic principle of the RFPMT is the conversion of information in the time domain to a spatial domain by means of a high frequency RF field. Streak Cameras, based on similar principles, routinely operates in the ps and sub-ps time domain, but has substantial dead time associated with the readout system.



*The RFPMT Team with the device*



## Class-1000 Cleanroom at ANL

According to the International Organization for Standardization (ISO), a class 1000 or ISO 6 standard cleanroom is a laboratory where the number of particles of 0.5 microns and larger, in 1 cubic foot of air should not exceed 1,000.

In class 1000 Cleanroom of the Alikhanyan National Laboratory (ANL) (formerly Yerevan Institute of Physics), the construction, furnishings, provision of important gases and pipelines and most of the necessary equipment and tools for the cleanroom were fully sponsored and directed by the ARPA Institute.

ARPA Institute also provided technical and intellectual support, whereby representatives and specialists carried out projects and consultations, to significantly promote important research. Moreover, the Cleanroom is also designed to organize and coordinate the scientific activities of other research projects which require a clean environment, both for educational, research and industrial organizations in the republic of Armenia.

The cleanroom is integrated with the Nanostructures and Nanomaterials Laboratory. The latter is equipped with material science and optoelectronic research instrumentation, including plasma enrichment, modern chemical vapor deposition system, plasma etching system for graphene and other nanomaterials, a Fourier transform infrared spectrometer, an NI DAQ Data meter, and other laboratory equipment.

### Scientific and technical work carried out in ANL Cleanroom

a) The "Nanostructures and Nanomaterials Research" team of the Department of Experimental Physics of the Academy of Sciences conducted research on the production and functionalization of graphene layers by the method of liquid phase exfoliation.

b) The team also conducted research on the design and fabrication of prototype photovoltaic cells with significantly improved optical absorption. Already promising experimental results are obtained. Through the ARPA Institute, capacity building of local scientists and education of the students by well-known Diaspora Armenian scientists were achieved. The team also prepared nanostructured samples that serve as a photocathode and are currently being examined by a radio frequency device that measures ultra-short times.

c) The "Bazumk" laboratory of space research prepared the first Armenian "HayaSat-1" satellite in the ANL Cleanroom. The main goal for the future developments is to establish a quantum materials research and innovative technology development center with equipment that meets the requirements of modern materials science research. To achieve that goal, it is necessary to:

**Build a team of professional scientists, technicians and service personnel.**

**Equip the Cleanroom with material science research and innovative technology development equipment.**

**Establish and pursue dual purpose research programs.**

**Develop twisted bilayer graphene-based quantum detectors for terahertz technologies.**

**Fabricate silicon solar energy converters with significantly enhanced optical absorption.**

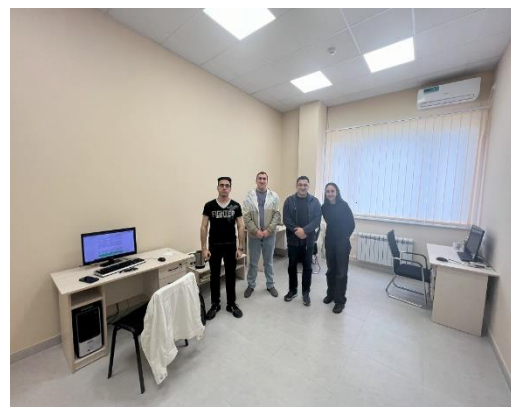
**Build capabilities for deposition of perovskite thin films by chemical sputtering and by spin coating method.**

**Carry out preparation and properties characterization of silicon-based thermosetting layers.**

**Carry out radio frequency timer development and studies.**

**Prepare aerogel detectors for elementary high energy particles.**

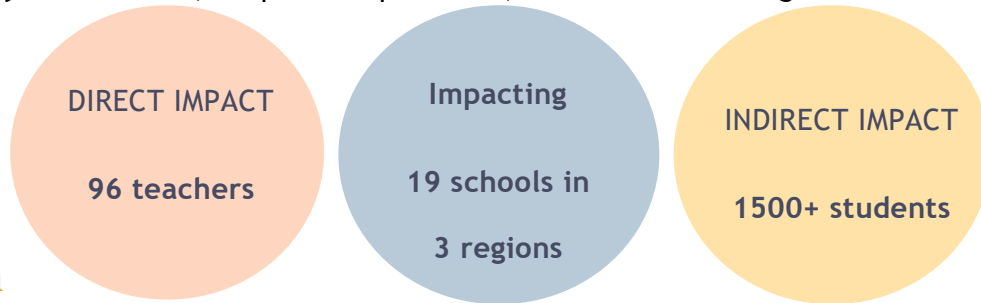
Summing up, the ANL Cleanroom guaranteed the availability of a genuine Class- 1000 Cleanroom and was an important platform that contributed both to increasing the efficiency of the ANL scientific capabilities and to the organization of new, higher quality scientific and technical research in Armenia. It also encouraged other organizations to have their own Cleanroom, introducing the culture of cleanroom research in Armenia.



*Cleanroom general view, special clean-suits, student study and research rooms*

## ARPA's STEMAR Educational Program

The program aims to shift towards inquiry-based and interdisciplinary STEM education. This will be achieved through a comprehensive project-based education model supported by educational resources, physical modules, cooperative platforms, and teacher training series.



### Mission

Our mission is to facilitate STEM experiential and problem-based collaborative education for school-aged children.

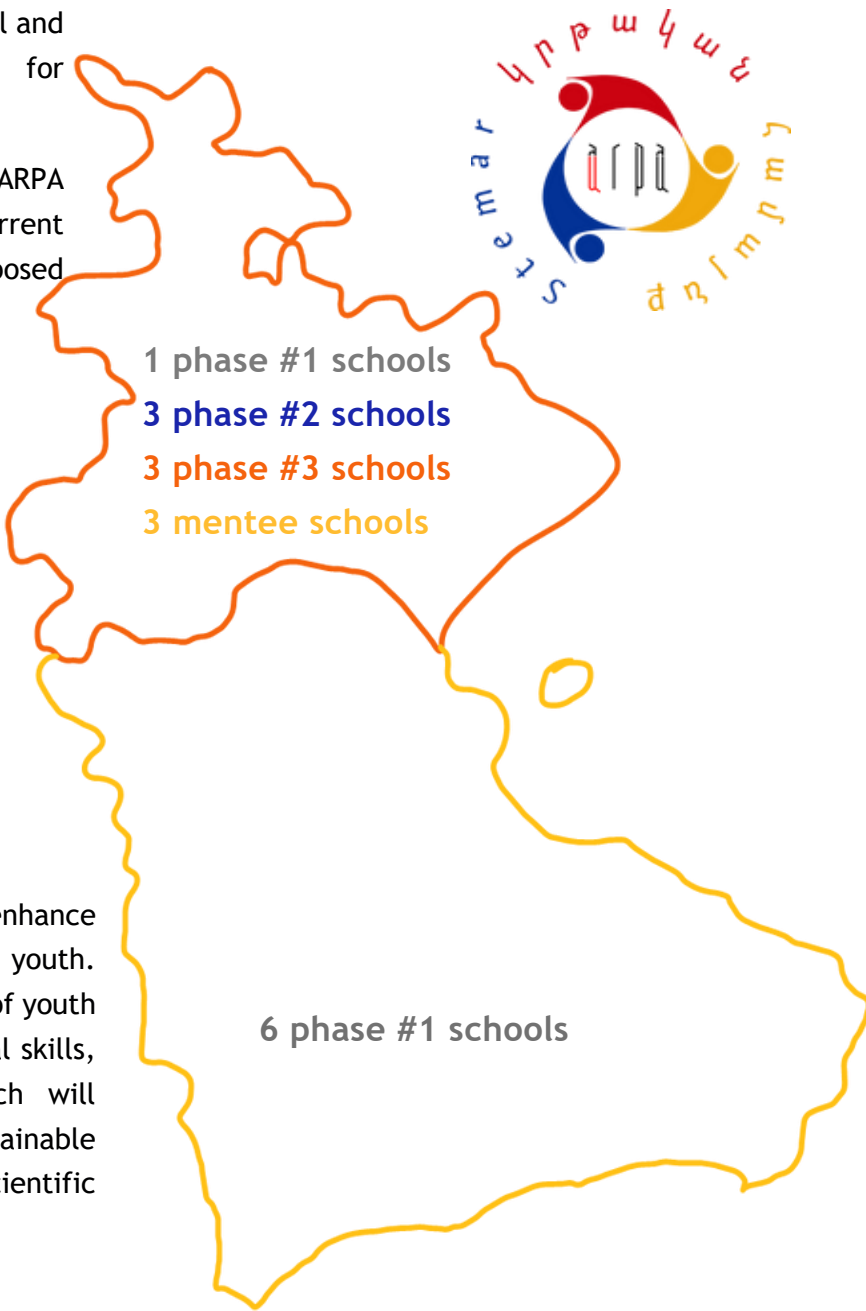
One of the cornerstone aspects of the ARPA Institute strategy is fitting into current ecosystem and connecting the dots, as opposed to competing to replace.

### Vision

We believe that the development of a contemporary strategy for STEM education will promote the enrichment of youth social values and analytical skills, resulting in high-quality production, sustainable innovation, and a collaborative scientific community.

### Goals

The primary objective of the program is to enhance project-based holistic STEM education for youth. This is aimed at fostering the development of youth social values, analytical and entrepreneurial skills, problem-solving, and imitativeness, which will ultimately result in high-quality output, sustainable innovation, and a collaborative scientific community.



## **ԱՐՓԱ Հիմնարկի 2024-ի Նորարարութեան Մրցումին Մասնակցող Ցայտեր (ARPA Institute Adrin Gharakhani Invention Competition for Young Scientists)**

1. Innovative Green Agriculture Solutions: Efficient Biodegradable Planters of Complex Effect with Antimicrobial and Growth Stimulation Activity Based on Agricultural Wastes Utilization. Bella Babayan, Tigran S. Soghomonyan, and Samvel A. Bagdasaryan.
2. GIS-Based Defense Optimization: Strengthening Armenia's Security Infrastructure. Mariam Petrosyan and Artak Piloyan
3. Detection of Security Vulnerabilities in Critical Software Programs. Hayk Aslanyan, Hripsime Hovhannisyan, Hovhannes Movsisyan, and Jora Gevorgyan.
4. Development of microbial methods for degradation of persistent organic pollutants and their determination by chromatographic methods. Ella Minasyan, Lusine Hayrapetyan, Arshaluys Verdyan, and Lusine Sahakyan.
5. Armenian Voice AI: Automatic Speech Recognition and Text-to-Speech. Karen Avetisyan, Artur Malajyan, Ani Hayrapetyan, Haykuhi Aleksanyan, and Viktoria Pogosyan.
6. System for automatic detection of heart pathologies based on neural networks. Shahane Tigranyan, Ariana Asatryan, Arman Martirosyan, and Nikolas Khachaturov.
7. Development and characterization of biocompatible and bioactive bioscaffolds for bone defect repair using stereolithography. Liana Mkhitarian, Miguel Angel Rodríguez Barbero, Viktorya Rstakyan and Lilit Baghdasaryan.

## Individual Contributions of the ARPA Institute Board Members towards the Advancement of Science, Education, Healthcare in Armenia



**Dr. Shant Shekherdimian** serves as one of the senior advisors to the Ministry of Health of the Republic of Armenia. The focus of his work within the Ministry has been on optimizing several dimensions of the healthcare system in preparation for enactment of Universal Health Coverage (UHC) within the Republic of Armenia. UHC implementation is a stated goal of the government and one of the main components of the United Nations Sustainable Development Goals, to which Armenia has committed. The detailed assessments have identified 3 major bottlenecks on the path towards

successful UHC implementation: 1- a weak primary care system, 2- delivery of poor-quality care, and 3- insufficient governance capacity needed to drive a complex reform of this magnitude. In line with these identified challenges, Dr. Shekherdimian leads a team of experts and is involved in spearheading the Primary Care Strengthening Task Force, which has developed a strategy and roadmap for primary care reform, participation in the National Quality Policy and Strategy committee, and contribution to efforts aimed at improving organizational efficiency and effectiveness within the Ministry of Health.



**Dr. Ara Keshishian** is a Board-Certified surgeon and has been in private practice since 1999. Dr. Keshishian has developed medical devices and received patents in US, Canada, and European Union. He works on a few projects in Armenia, including development of adaptive prosthetics for wounded soldiers and special eyeglasses that adjust the inadequacy of people with eye/vision issues, such as those with strabismus (crossed eyes). Special sensors inside the eyeglasses detect the imbalance between the eyes and make the necessary adjustments adaptively to provide better vision. Students in TOMO, Armenia are also working with Dr. Keshishian on the design of these eyeglasses. You can view the video in the link below for more details:

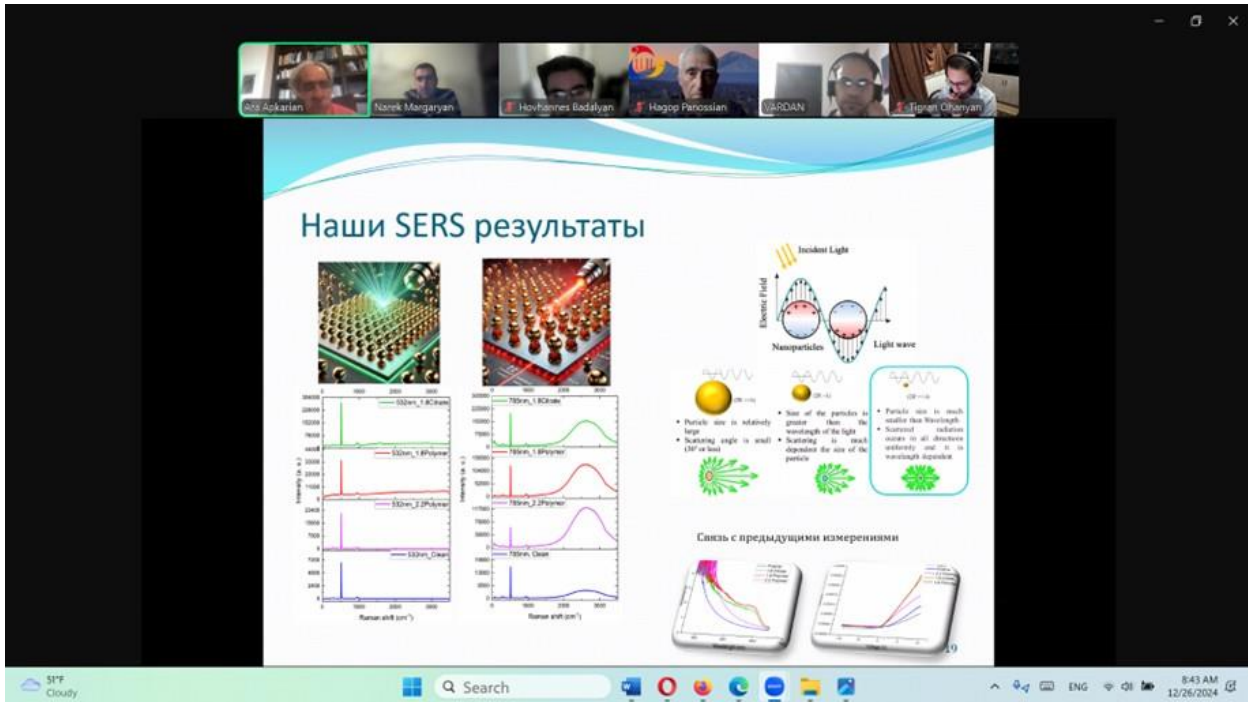
<https://youtu.be/0Aapi-ed5BvU?si=7MVGZpzDFfQu1713>



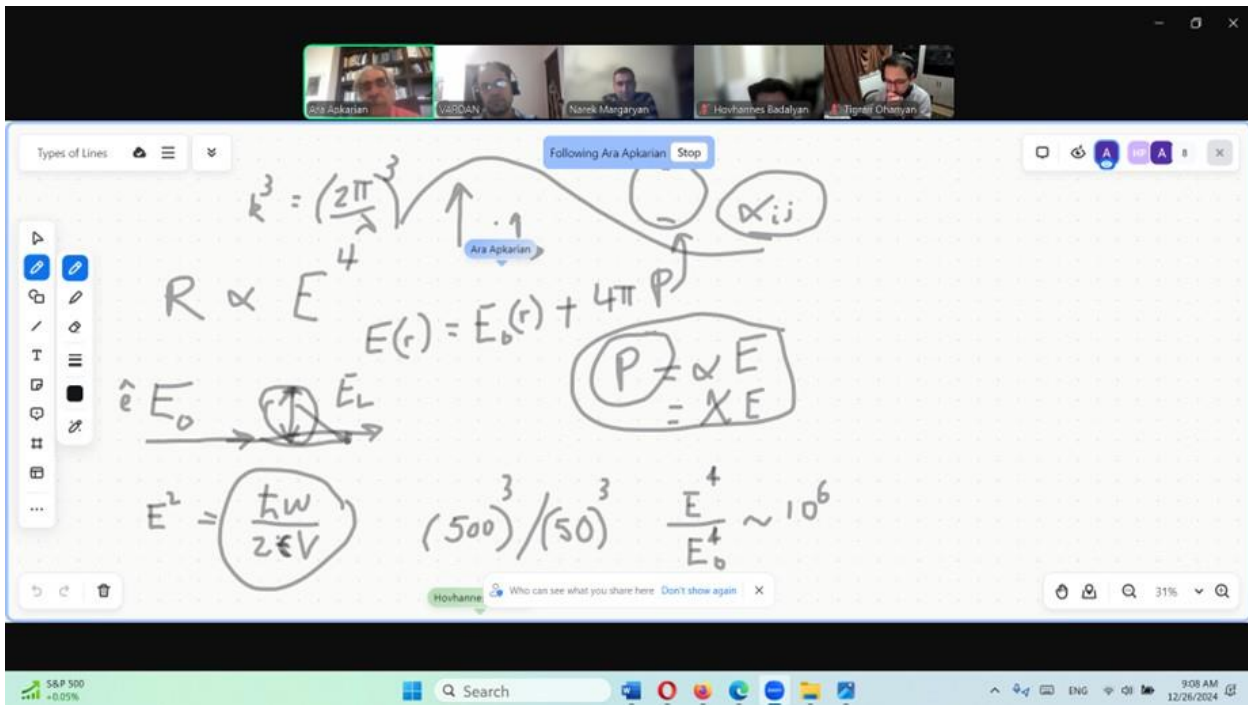
**Dr. Armine Lulejian** is Program Director for the Avetis Health Informatics Training program in Armenia and Clinical Assistant Professor in Population and Public Health Sciences at the Keck School of Medicine of University of Southern California. She is leading the Avetis Health Informatics Fellowship (AHIF), whereby Armenia can leapfrog the US and Europe with a workforce to build the necessary infrastructure for Electronic Health Records (EHR), which is already being widely implemented. AHIF is the first health informatics training program in Armenia, consisting of a bootcamp, an individualized training program, a capstone, and a scholarly project. The first cohort completed the fellowship in the summer of 2023 with much success. Some of the projects included an electronic system for tuberculosis lab supply. management, integration of laboratory data to the unified system, diabetes registry, SMS system for cardiovascular health, and health informatics tools Continuing Medical Education for healthcare. professionals in Armenia. All four fellows presented their scientific work in both national and international conferences. Most notably, Ruzanna Movsisyan presented her work at the American Medical Informatics Association's (AMIA) annual meeting in New Orleans in November. In October 2023, the second cohort of fellowship started with six new healthcare professionals.



## Examples of How Distinguished Professor Emeritus, Ara Apkarian Teaches Young Scientists and Students Confined Light Physics.



## Results of experiments of Silicon Solar Cells under various conditions.



## Ara Apkarian's physics equations that explain confined light mechanisms



# ARPA Institute Panel Discussions and Presentations in 2024

ARPA Institute organizes panel discussions and/or presentations on various topics related to Armenia or Armenians.

*If you have an interesting topic and are willing to make a presentation, please contact us at [info@arpainstitute.org](mailto:info@arpainstitute.org)*

## 1. ARPA Institute Panel Discussion

«Հայոց Պատմութեան նոր դասագիրքեր. նպատակ եւ մարտահրաւերներ»

**Քննարկման մասնակիցներ՝ Սմբատ Հովհաննիսյան, Թամարա Սարգսյան, Լիլիթ Մկրտչյան եւ Ստեփան Աստուրեան: Զրոյցը կը վարէ՝ Արա Սանճեան:**

**Շաբաթ, Յունուար 27, 2024, Ժամը 10:00 PST**

**Ամփոփում՝** Ազգային պատմութեան դասագիրքերը կարեւոր դեր կը խաղան քաղաքացի կրթելու, քաղաքացիական գիտակցութիւն ձեւաւորելու աշխատանքին մէջ: Անոնք կը նպաստեն ինքնագիտակցութեան, ինչպէս նաեւ հայրենիքի հանդէպ յարգանքի ու սիրոյ աճին: Միաժամանակ, անոնց առաքելութիւնն է աշակերտները աստիճանաբար ծանօթացնել պատմագիտութեան իբրեւ գիտակարգի, նորագոյն զարգացումներուն: Վերջերս Հայաստանի մէջ հրատարակուած հայոց պատմութեան նոր դասագիրքին յառաջացացուցած քննադատութիւններուն ու յարակից քննարկումներու ֆոնին, ԱՐՓԱն կը կազմակերպէ առցանց քննարկում Հայաստանի դպրոցներուն համար մշակուած կրթական եւ յատկապէս՝ հայոց պատմութեան ուսուցման նոր չափորոշիչներուն, անոնց ակնկալած վերջնարդիւնքներուն մասին, ներառալ՝ նոր հրատարակուած եւ յաջորդող տարիներուն հրատարակուելիք հայոց պատմութեան դասագիրքերուն բովանդակութիւնը:



**Թամարա Սարգսյան** Հայաստանի կրթութեան (ԿԳՄՍ) Նախարարութեան Հանրակրթութեան վարչութեան պետն է եւ Խ. Աբովեանի անուան Հայաստանի պետական մանկավարժական համալսարանի տարիքային եւ մանկավարժական հոգեբանութեան ամպիոնի ղոկտորական թեկնածու: «Շախմատ» գիտահետազոտական ինստիտուտի գիտաշխատող է, Երեւանի թիւ 100 հիմնական դպրոցի հոգեբան, ինչպէս նաեւ հոգեբանութեան գիտահետազոտական կեդրոնի կրտսեր

գիտաշխատող:



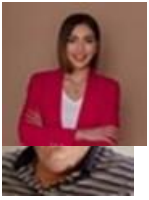
**Լիլիթ Մկրտչյան** Հայաստանի «Կրթութեան զարգացման եւ նորարարութիւնների ազգային կենտրոն» (ԿԶՆԱԿ) հիմնադրամի Կրթական նորարարութեան եւ հետազոտութեան վարչութեան պետն է եւ Երեւանի պետական համալսարանի (ԵՊՀ) համաշխարհային պատմութեան դասախօս: 2019-2020 թթ. ղեկավարել է «Հասարակութիւն եւ հասարակական գիտութիւններ» առարկայախմբի առարկայական չափորոշիչի եւ ծրագրի լրամշակման գործընթացը: Կրթութեան մասին ուսումնամեթոտական ձեռնարկներու եւ գիտական յօդուածներու հեղինակ է:



**Սմբատ Հովհաննիսյան** ԵՊՀ-ի համաշխարհային պատմութեան դասախօս է: Մասնակցած է շատ մը միջազգային գիտաժողովներու: Անդու է Հայաստանի պատմութեան թանգարանի Գիտական խորհուրդին, ինչպէս նաեւ ԵՊՀ-ի պատմութեան բաժանմունքի Մեթոտական խորհուրդին եւ պատմութեան Գիտական խորհուրդին: Հեղինակն է Հայոց Պատմութեան 7-րդ դասարանի նոր դասագիրքին եւ այլ ուսումնասիրութիւններու:



**Ստեփան Աստուրեան** Հայաստանի ամերիկեան համալսարանի «Թրփանճեան հասարակական հետազոտութիւններու կեդրոն»-ի տնօրէնն է եւ կը դասախօսէ նոյն համալսարանի ընկերային գիտութիւններու բաժանմունքին մէջ: Եղած է Պրըքի համալսարանի Ուիլիլմ Սարոյեանի անուան հայկական ուսումնասիրութիւններու բաժնի վարիչ: Այնտեղ դասաւանդած է հայոց պատմութիւն, արդի կովկասեան պատմութիւն եւ այլ նիւթեր: Հայկական ու միջազգային բազմաթիւ կազմակերպութիւններու խորհուրդի եւ այլազան հանդէսներու խմբագրական կազմի անդամ է:



Յեղիակ ու խմբագիր է հայոց ցեղասպանութիւնը, Թուրքիոյ եւ յետխորհրդային աշխարհի պատմութիւնն ու քաղաքականութիւնը ուսումնասիրող գիրքերու եւ յօդուածներու։

**Արա Մանճեան** Միջինընի Համալսարանի (Տիրպոն) հայագիտական հետազոտութիւններու կեդրոնի վարիչն է եւ պատմութեան դասախօս՝ նոյն համալսարանին մէջ (2006-էն)։ Պատմութեան մագիստրոսի վկայականը ստացած է ԵՊՀ-ի պատմութեան ֆակուլտետէն եւ ապա Միջին Արեւելքի արդի պատմութեան գծով դոկտորական վկայականը՝ Լոնտոնի Համալսարանէն։ Եղած է Պէրթոնի Հայկազեան համալսարանի հայագիտութեան, պատմութեան եւ քաղաքական գիտութիւններու բաժանմունքի վարիչ։ Հետազոտական աշխատանքին կիզակէտը կը կազմեն Հայաստանի ու հայութեան, Թուրքիոյ եւ արաբական աշխարհի պատերազմի պատմութիւնը՝ Առաջին համաշխարհային պատերազմէն ետք։ Հեղինակած է մէկ գիրք եւ անգլերէնով, հայերէնով, ռուսերէնով ու ֆրանսերէնով լոյս տեսած բազմաթիւ յօդուածներ։

## 2. ARPA Institute Panel Discussion

### «Նախագծահէն ուսումնառութիւնը՝ որպէս STEM համապարփակ ուսուցման միջոց»

Քննարկմանը մասնակիցներ՝ Սերինե Ավետիսյան, Արթուր Խալաթյան, *Լիլիթ Մկրտչյան, Աննա Գևորգյան, Ավագ Սայան*, Արմինե Զակոբյան և Սերգեյ Կոնջոռյան։ Քննարկումը վարող՝ Ելենա Ղուկասյան

**Շաբաթ, Փետրուար 24, 2024, ժամը 9:00 AM PST, 21:00-ին (Երևան)**

**Ամփոփագիր**՝ Այժմեական հասարակութեան պահանջներն օրըստօրէ ավելի են շեշտադրում առանցքային կարողունակութիւնների զարգացմանը միտուած STEM որակեալ կրթութեան անհրաժեշտութիւնը։ Կարևորելով հարցի համագործակցային կառուցողական քննարկումը՝ ARPA Յիմնարկը կազմակերպում է «STEM կրթական Էկոհամակարգը դպրոցահասակների համար» խորագրով քննարկումների շարք՝ հիմնուած STEMAR ընկերութեան կողմից պատուիրուած և BSC կազմակերպութեան կողմից իրականացուած ՀՀ STEM կրթական Էկոհամակարգի հետազոտութեան արդիւնքների վրայ։ Առաջին քննարկմանը՝ «Նախագծահէն ուսումնառութիւնը՝ որպէս STEM համապարփակ ուսուցման միջոց» խորագրով, պիտի վերլուծուին հանրակրթական համակարգում նախագծահէն ուսումնառութեան դերը, STEM համապարփակ կրթութեան յաջողման նախադրեալները և հնարաւորութիւնները։ Այս քննարկումը նպատակ ունի խօսակների հետ խորհրդակցել ներկայումս հանրակրթական համակարգի վրայ STEM կրթութեան համակարգի ներազդեցութեան և զարգացման ուղիներու մասին։

**Սերինե Ավետիսյանը** հանրակրթական մասնագիտությամբ կրթության մասնագետ է։ Նրա կարևոր ձեռքբերումներից են մասնակցությունը հանրակրթության պետական չափորոշիչի և առարկայական ուսումնական ծրագրերի դասավանդման և ուսումնառության կրթության մշակման գործընթացին, ակտիվ ներգրավվածությունն աշակերտական խորհուրդների հզորացման և հասարակագիտության ուսուցչների համար խաղաղաշինական կրթության ուսումնաստանողական ձեռնարկի մշակման ծրագրերում։



**Արթուր Խալաթյանը** կրթության կառավարման և համակարգային վերափոխման փորձագետ է։ Հանդիսանում է Հայաստանի Ամերիկյան Համալսարանի դասախօս, Արդյունաբերական Ճարտարագիտության և Համակարգերի Կատարման մագիստրոսական ծրագրի ղեկավար։ 2019 թ.-ից ղեկավարում է ԳիտՍԵՐՈւնդ ծրագիրը։ Զբաղեցրել է Այբ դպրոցի ուսումնական գծով փոխտնօրենի պաշտոնը։ Մասնակցել է Կրթության Գերազանցության Ազգային Ծրագրի մշակման աշխատանքներին։



**Լիլիթ Մկրտչյանը** Հայաստանի «Կրթության զարգացման ազգային կենտրոն» (ԿԶՆԱԿ) հիմնադրամի Կրթական Նորարարության և հետազոտության վարչության պետն է և Երևանի պետական համալսարանի համաշխարհային պատմության դասախօս։ 2019-20թթ. ղեկավարել է «Հասարակություն և հասարակական գիտություններ» առարկայախմբի առարկայական չափորոշիչի և ծրագրի լրամշակման գործընթացը։ Հանդիսանում է կրթության մասին ուսումնասնաթղթական ձեռնարկների և հոդվածների հեղինակ։



**Աննա Գևորգյանը** «Բի Էս Սի» Բիզնեսի Աջակցման Կենտրոն խորհրդատվական ընկերության օպերացիոն մենեջերն է։ Աննան ունի 8+ տարվա աշխատանքային փորձ ծրագրերի կառավարման, հետազոտությունների իրականացման և խորհրդատվության ոլորտում։ Աննան ներգրավված է եղել «Բի Էս Սի»-ի կողմից իրականացված Հայաստանի STEM կրթական Էկոհամակարգի ուսումնասիրության հետազոտական թիմում։



**Ավագ Սայանը** հանդիսանում է տեխնոկրթության ոլորտի փորձագետ և վառ ներկայացուցիչ: Ավագը զբաղեցնում է «Ֆասթ» հիմնադրամի «ԱԲ» սերունդ ծրագրի բովանդակային մենեջերի պաշտոնը: 2016-23թթ. Ավագը հանդես է եկել որպես Առաջատար Տեխնոլոգիաների Ձեռնարկությունների Միության «Արմաթ» ծրագրի մեթոդաբանության և բովանդակության մշակման ղեկավար:



**Արմինե Հակոբյանը** Այրումի միջնակարգ դպրոցի տնօրենն է: Հանդիսանում է 2021թ.-ին հաստատված հանրակրթության պետական չափորոշչով վերապատրաստված և դասավանդող ֆիզիկայի ուսուցիչ: 2023-24թթ. ուսումնական տարում ստանձնել է Այրումի միջնակարգ դպրոցում STEMAR հանրակրթական ծրագրի ընթացքի համակարգողի և STEM համապարփակ նախագծահեն ուսումնառության իրականացնողի դերը:



**Սեթեյ Կոնջոյանը** 2022-23թթ. և 2023-24թթ. ուսումնական տարիներին STEMAR հանրակրթական ծրագրի մասնակից և մենթոր աշակերտ է: STEM EXPO 2023թ.-ին նա հանդես է եկել որպես դպրոցական քննարկման խոսնակ և «STEM ոլորտի մասնագիտական առանձնահատկությունները» պանելային քննարկման վարող: 2023թ.-ից հանդիսանում է Իջևանի վարժարանում STEM համապարփակ ուսումնառության նախագծերի աշակերտական

նախաձեռնությունների թիմի առաջնորդ:



**Ելենա Ղուկասյանը** ARPA Institute-ի Stemar կրթական ծրագրերի մեթոդաբանության համահեղինակ է և FS&U համապարփակ նախագծահեն ուսումնառության բովանդակային մշակման առաջնորդ: 2021-22թթ. հանդիսացել է «Դասավանդի՛ր, Հայաստան»-ի «Սերունդ» ծրագրի առաջնորդության զարգացման ղեկավար և մաթեմատիկայի մակարդակավորված գնահատման մեթոդաբանության ու թեստերի մշակող: Ունի FS&U ուղղվածությամբ կրթական նյութերի կազմման և ադապտացման յոթ

և ուսուցիչների վերապատրաստման չորս տարվա փորձ:

### 3. ARPA Institute Panel Discussion

#### The Metsamor Nuclear Power Plant and New "Advanced" Reactor Technologies for Armenia

**Panelists: Koroush Shirvan, Robert J. Budnitz, and Areg Danagoulian.**

**Moderator: Ani Aprahamian**

**Sunday, March 10, 2024, at 10:00 AM PDT**

**Abstract:** Major nuclear vendors are designing both large and small water-cooled reactors for different capacity needs. Small reactors feature power ratings of 100-400 MWe and have lower costs. Large reactors benefit from economies of scale, particularly for operation and maintenance at 1 to 1.6 GWe. A growing number of companies are developing non-water reactors to leverage public-private support reserved for "advanced" reactor technologies. As Armenia has set 2036 as the deadline to shut down Metsamor Nuclear Power Plant (NPP), it must decide what to replace it with. The panelists will discuss nuclear power, its physics, engineering and economics, the current state of Metsamor, the situation for small reactors and their applicability for Armenia.



**Areg Danagoulian** is an Associate Professor of Nuclear Science and Engineering at MIT. He received his PhD in Experimental Nuclear Physics at the University of Illinois at Urbana-Champaign with a thesis on experiments that used real Compton scattering on the proton at 2-6 GeV, allowing to probe the proton's internal structure and to understand how it couples to external excitations. Areg worked at Los Alamos as a postdoctoral researcher, and then as a senior scientist at Passport Systems, Inc. (PSI). At PSI, Areg developed the Prompt Neutron from Photofission (PNPF) technique, which allows the rapid detection of shielded fissionable materials in commercial cargo traffic. Dr. Danagoulian's research centers around the security of nuclear physics applications, nuclear nonproliferation, technologies for treaty verification, nuclear safeguards, and cargo security.



**Pr. Koroush Shirvan** is a professor of nuclear science and engineering at Massachusetts Institute of Technology and Co-Director of Reactor Technology Course for Utility Executives by National Academy for Nuclear Training, Director of Accident Tolerant Fuel Integrated Research Project and PI of MIT ARC-20 project. His research focuses on innovations in reactor design and fuel engineering. In 2021, Prof. Shirvan released the first open-source tool for cost estimation of existing and advanced nuclear architectures which

is utilized by policy makers and the energy community worldwide. He is a consultant to the nuclear industry on digital engineering, cost, safety, use of AI/ML, and fuel technology. Koroush received his PhD from MIT in 2012. He has supervised over 50 graduate theses and is supervising 17 graduate students. He is the recipient of multiple awards in Reactor Technology.



**Dr. Robert J. Budnitz** is an expert in nuclear-reactor and radioactive-waste safety, a member of the National Academy of Engineering and is still active, although retired from the University of California (UC), Lawrence Berkeley National Laboratory. Robert has worked at the UC Lawrence Livermore National Laboratory, and in Washington, DOE Office of Civilian Radioactive Waste Management to develop a Science/Technology Program. Dr. Budnitz has also worked as a private consultant in Berkeley CA, in the U.S. Nuclear Regulatory Commission as Deputy Director and Director of the NRC Office of Nuclear Regulatory Research. His Ph.D. is in experimental physics from Harvard, and he is the author of hundreds of articles and publications and a member of numerous technical and professional organizations. He was deeply involved in the restart in 1995 of the Metsamor NPP. He served 1997-2017 as the US member of the Nuclear Energy Safety Council of the President of Armenia.



**Prof. Ani Aprahamian** is a Freimann Chair of Physics & Astronomy and Concurrent Professor of Chemistry and Biochemistry at the University of Notre Dame. Her research spans explosive nuclear astrophysics fission, nuclear structure, and applications of nuclear science to medicine, energy, fission, and stockpile stewardship. Dr. Aprahamian has published over 235 articles in refereed journals and presented over 285 invited addresses. She is a member of the council of the prime minister of the Republic of Armenia on science and technology issues and was the director of the A. Alikhanyan National Science Laboratory of Armenia, the Program Director of Nuclear Physics and Nuclear Astrophysics at the US National Science Foundation, chair of the physics department, and the director of the nuclear science laboratory at the University of Notre Dame. Ani has co-chaired two NRC committees, “The Science of the Electron Ion Collider” and the decadal survey of Nuclear Physics “The heart of matter”. She also was a part of the preparation of the recent 2023 US Long Range Plan for Nuclear Physics mapping out priorities for Nuclear Science in the USA for the next ten years.

### 4. ARPA Institute Presentation

« ՀԱՅԵՐԸ ՊԱՂ ՊԱՏԵՐԱԶՄԻ ՏԱՐԻՆԵՐՈՒՆ (1940ԱԿԱՆՆԵՐ-1991)»

Կը ներկայացնէ՝ Արա Սանճեան

**Շաբաթ, Ապրիլ 13, 2024, Ժամը 11:00 PDT**

**Ամփոփում՝** պիտի ներկայացուի Պաղ Պատերազմի համաշխարհային գործընթացներուն մէջ Խորհրդային Հայաստանի եւ սփիւռքահայութեան ընդգրկուածութեան մասին իր ընթացիկ, երկարաժամկետ ուսումնասիրութեան հանգրուանային արդիւնքները, ինչպէս նաեւ՝ տակաւին յաւելեալ հետազոտութեան կարօտ խնդիրները: Ե՞րբ սկսաւ «Հայկական Պաղ Պատերազմը»: Ինչպէ՞ս պարբերացնել անոր աւելի քան չորս տասնամեակ երկարած ընթացքը: Ի՞նչ փոփոխութիւններ կրած են անոր հիմնական մասնակիցներուն դիրքորոշումներն ու գործողութիւնները: Ինչպիսի՞նք անոր ուսումնասիրական ուղղութիւններ կրնան օժանդակել, որ աւելի լաւ ըմբռնենք ու մեկնաբանենք հայոց պատմութեան այս ժամանակահատուածը:



**Արա Սանճեան** Միշիկընի Համալսարանի (Տիրպոն) հայագիտական հետազոտութիւններու կեդրոնի վարիչն է եւ պատմութեան դասախօս՝ նոյն համալսարանին մէջ (2006-էն): Պատմութեան մագիստրոսի վկայականը ստացած է ԵՊՀ-ի պատմութեան ֆակուլտետէն եւ ապա Միշին Արեւելքի արդի պատմութեան գծով դոկտորական վկայականը՝ Լոնտոնի Համալսարանէն: Եղած է Պէրոյթի Հայկազեան համալսարանի հայագիտութեան, պատմութեան եւ քաղաքական գիտութիւններու բաժանմունքի վարիչ: Հետազոտական աշխատանքին կիզակետը կը կազմեն

Հայաստանի ու հայութեան, Թուրքիոյ եւ արաբական աշխարհի երկիրներու պատմութիւնը՝ Առաջին համաշխարհային պատերազմէն ետք: Հեղինակած է մէկ գիրք եւ անգլերէնով, հայերէնով, ռուսերէնով ու ֆրանսերէնով լոյս տեսած բազմաթիւ յօդուածներ:

### 5. ARPA Institute Panel Discussion

## Armenia in the South Caucasus: Geopolitical Challenges and Opportunities Over the Coming Decade

**Panelists: David Akopyan, Anna Gevorgyan, Nzhdeh Hovsepyan, Alexander Iskandaryan, Nerses Kopalyan, Yeghia Tashjian, Sossi Tatikyan. Moderator: Hriar Cabayan**  
**Saturday, April 27, 2024, at 11:00 AM PDT**

**Abstract:** Armenia is in the eye of a perfect storm under Türkiye, Azerbaijan, and Russia. Its location between Asia, Europe, and the Middle East, significant dependence on Russia and danger of war from its eastern neighbor gives it both vulnerability and strategic importance. It is currently facing a challenging situation with no easy solutions. Armenia can leverage its strategic location to enhance regional cooperation initiatives, fostering stability and economic development in the region. Moreover, Armenia can benefit from higher diaspora engagement, energy partnerships and diplomatic diversification. The panelists will assess the impact of these challenges over the next decade and advance strategies on how best to move forward to meet those challenges.



**Dr. David Akopyan** had dual careers- he has a PHD in physics, studied complex systems for 26 years and then worked for the UN in 15 countries across many regions. During the last 10 years of his UN career, he spent in Afghanistan, Somalia and Syria, and other worst crisis affected countries and held leadership positions as UN Development Program Deputy Director, Country Director, and Resident Representative. He is an American University of Armenia (AUA), 2019 distinguished alumnus. In 2021 David retired from the UN and joined the Artsakh Government as the Principal advisor to State Minister helping to coordinate humanitarian and development assistance. He is also an ex officio advisor to the President of Armenia, the Chair of the Board of Trustees of reArmenia foundation, member of APRI (Applied Policy Research Institute/AGBU) Board of directors and the Insurance Foundation of servicemen.



**Ms. Anna Gevorgyan** received her MA degree in Iranian Studies from the Chair of Iranian Studies in 2009 (Department of Oriental Studies, Yerevan State University (YSU)). Since September 2009 she has been a researcher at the YSU and at the Center for Civilization and Cultural Studies. In 2013, she was a visiting scholar at Arizona State University School of Social Transformation. She has been teaching at YSU Department of Applied Sociology from 2014 till 2016. She was the head of the Scientific-Educational Center at the National Defense Research University, MoD, RA, from December 2016 to June 2018 and co-authored and coordinated an inter-agency executive course for Armenian military personnel. 2018 to 2018 she served as an adviser to the Secretary of the Security Council, RA. She has authored several articles on the internal politics of contemporary Iran, Iran's regional policy, Armenia-Iran relations, regional security issues, as well as women's issues in Iran, women's rights in Islam et cetera.



**Dr. Nzhdeh Hovsepyan** is a historian. He received his PhD degree from YSU. He studied Public Policy and Administration at the Fletcher School of Law and Diplomacy at Tufts University as well as Diplomacy and International Affairs at the Diplomatic Academy of Armenian MFA. He is currently the Director of the "Radar Armenia" News Agency and at the same time has been chairing the History Department at "Gazprom-Armenia" educational center for last 5 years. He served as the Head of the Information Center of the Armenian Government and as the Press Secretary to the Deputy Prime Minister of Armenia. His research focused on the post-Soviet history and transition, Nagorno-Karabakh conflict, foreign policy and security, political parties, state institutions, etc. In 2023 he published a monograph on Nagorno-Karabakh conflict: "The Armenian Architecture of the Status-Quo" ("Antares", 2023).



**Dr. Alexander Iskandaryan** is a political scientist, the Director of the Yerevan-based Caucasus Institute. His areas of study are ethnopolitical conflicts, post-Communist transformations and nation building in the former USSR in general and in the Caucasus in particular. He has published and spoken on the emergence of post-Soviet institutions, elites, & identities; he has conducted research on conflicts, migrations, discourses, media development & cross-border integration.



**Dr. Nerses Kopalyan** is an associate professor-in-residence of Political Science at the University of Nevada, Las Vegas, specializing in international security, geopolitics, political theory, and philosophy of science. He has researched polarity, superpower relations, and security studies. He is the author of World Political Systems After Polarity (Routledge, 2017), the co-author of Sex, Power, And Politics (Palgrave Macmillan, 2016), co-author of Latinos in Nevada: A Political, Social, and Economic Profile (Nevada University Press, 2021), and co-author of Armenia, Azerbaijan, and the 2020 Nagorno-Karabakh War (Taylor and Francis, forthcoming 2023). He is also a



regular contributor to the EVN Report with over 50 articles and contributed publications to Le Figaro, The Times of Israel, and The National Interest. His research and academic publication concentrate on geopolitical and great power relations within Eurasia, its impact on small state security, and the broader implications for democratic breakthroughs within authoritarian orbits. He has conducted extensive field work in Armenia on the country's security architecture and its democratization process. He has authored policy papers for the Gov. of Armenia and is a volunteer advisor to various state institutions.



**Yeghia Tashjian** is a Lebanese-Armenian regional political analyst and researcher. He graduated from the American University of Beirut in Public Policy and International Affairs, participated in, and graduated “Strategic Leadership in Global Societal Security Programm” (2022). He pursued his BA at Haigazian University in political science in 2013. His MA thesis topic was on China's geopolitical and energy security interests in Iran and the Persian Gulf, currently, he is researching the Turkish-Russian “co-opetition” in the MENA+ Caucasus region and Russia's role in the International North-South Transport Corridor. He is a contributor to various local and regional newspapers and a columnist in the Armenian Weekly. Currently, he is the Regional and International Affairs Cluster Coordinator at the Issam Fares Institute for Public Policy and International Affairs at the American University of Beirut and a part-time instructor in International Affairs at the American University of Science and Technology-Beirut.



**Sossi Tatikyan** received her YSU Diploma, Harvard MPA, ESCP Business School EMBA, and currently is a PhD Researcher in Sorbonne Nouvelle university. She has been a diplomat, representing Armenia in NATO, UNODC, IAEA and OPCW. Sossi has worked as a Political and Security Sector Reform Adviser in the OSCE and UN political and peacekeeping missions in Kosovo, Timor-Leste, Central African Republic, African Union and Gambia, and is a member of the UN Senior Women Talent Pipeline. Tatikyan has coordinated UNDP and US Freedom House and has consulted DCAF good governance projects in Armenia. Since 2020, she has been providing policy advice on foreign and security policies of Armenia, peacekeeping through policy articles, TV interviews and public diplomacy activities.



**Dr. Hriar Cabayan** is a Visiting Scientist at the Lawrence Livermore Laboratory. He joined the Laboratory in 1977. In 1997 he joined the Joint Staff (Pentagon) where he managed a program to support operational planning. Hriar received the Joint Meritorious Civilian Service Award from the Office of the Chairman, Joint Chiefs of Staff in 2007 and again in 2019. Dr. Cabayan returned to Lawrence Livermore Laboratory in October 2019. He received his Doctorate Degree from the University of Illinois in Urbana. After graduating, he taught mathematical physics for four years at New York University's Courant Institute of Math Sciences & at McGill U before joining Lawrence Livermore laboratory.

## 6. ARPA Institute Panel Discussion

### **Authoritarian Unveiled: A Socio-Political Assessment of Turkish and Azerbaijani Presidents Recep Tayyip Erdoğan and Ilham Aliyev**

**Panelists: Ionnis N. Grigoriadis, Anahit Kartashian, Sevinj Samadzade, and Naira Sahakyan**  
**Discussant: Sara Crombach. Moderator: Naira Sahakyan**

**Saturday, May 25, 2024, at 11:00 AM PDT**

**Abstract:** To overcome the ongoing conflict and establish a peaceful coexistence in the South Caucasus in the foreseeable future is a goal that will benefit all countries of the region. In this complex and turbulent situation, a key requirement for leaders is to have a good understanding of the thought processes of their interlocutors. Socio-political

assessment of the leaders needs in depth and interdisciplinary research to analyze that thought process and go beyond the rhetoric. The panelists will focus on the Presidents of Türkiye, Recep Tayyip Erdoğan and of Azerbaijan İlham Aliyev for a thorough socio-political evaluation of their behaviors from several perspective.



**Dr. Ioannis N. Grigoriadis** is Associate Professor and Jean Monnet Chair of European Studies at the Department of Political Science and Public Administration, Bilkent University, Senior Fellow and Head of the Program on Türkiye at the Hellenic Foundation for European and Foreign Policy, Editor-in-Chief of the SSCI-indexed Southeast European and Black Sea Studies journal, and a member of the Greek Turkish Forum (GTF). He has been Visiting Professor at the Keyman Modern Turkish Studies Program, Buffett Institute for Global Studies, Northwestern University, IPC-Stiftung Mercator Senior Research Fellow at the German Institute for International and Security Affairs in Berlin and Stanley J. Seeger Research Fellow at Princeton University. Dr. Grigoriadis' research interests include comparative, European, Greek, and Turkish politics, and history with a focus on nationalism and democratization.



**Anahit Kartashyan** is a lecturer at the Institute of Oriental Studies in the Russian-Armenian University and a PhD candidate at St Petersburg State University on Ottoman Studies, focusing on Empire and Nationalism within the Ottoman and Russian Empires. Her Ph.D. research is on the formation and political development of the Ottoman Armenian elite during the Tanzimat. She has a master's in Ottoman Studies from YSU. Anahit is investigating political discourses on the Nagorno-Karabakh conflict with ANSEF funding, in Armenia, Türkiye, and Azerbaijan to expand the scope of her research.



**Sevinj Samadzade** is a feminist researcher and an activist in the field of Feminist International Relation and security, with particular interest in post-Soviet geopolitics, social work, and movements in the South Caucasus region. Sevinj holds a master's degree on the Middle East, Caucasus, and Central Asian Security from the University of St. Andrews in Scotland. She studies gender, peace, and security nexus in the South Caucasus working in various civil-society groups in Azerbaijan and Georgia. She has studied the past and an alternative history, politics of the Nagorno-Karabakh conflict, and implementing gender and peace education. Samadzade is the co-founder of Feminist Peace Collective, she is involved in conceptualizing and practicing feminist peace resistance across the South Caucasus, by connecting feminist theories and practice. She is working on her PhD at Ghent University on the interaction between global and local social welfare provisions to women in Georgia.



**Dr. Sara Crombach** is a professional musician and a lecturer at the Department of East European Studies at the University of Amsterdam. She studied piano at the Amsterdam Sweelinck Conservatory, and the Royal Conservatory in The Hague with Naum Grubert and graduated in 1991. She gives concerts in many European countries. Dr. Crombach studied Russian, as well as East European studies at the University of Amsterdam. After spending time in Russia and the Caucasus, working with refugees from Nagornyi Karabakh she devoted her PhD research to the impact of history-writing on politics, mythmaking, and nation-building and, ultimately, accompanying conflicts. Sara Crombach gives concerts, and concert lectures on music from the former Soviet Union, Russia, the Caucasus, Central Eastern Europe, and Türkiye.



**Dr. Naira Sahakyan** is an Assistant Professor in History at the American University of Armenia. Her research focuses on ethno-religious nationalism and political discourses in the Caucasus and the Middle East. She earned her Doctor of Philosophy degree in Humanities from the University of Amsterdam (Netherlands) and a master's degree in Islamic studies from the Yerevan State University (YSU). Dr. Sahakyan served as a Visiting Scholar at the University of Cambridge for the academic year 2022-2023, a library-affiliated scholar at the University of Illinois from 2022 to 2024, and a visiting scholar at the University of Washington in 2018. She is the author of *Muslim Reformers and the Bolsheviks: The Case of Daghestan* (Routledge, 2022) and *Armenian Price of Peace: The Revolutions of 1917 and the Future of Armenia in the Perception of the Armenian Intelligentsia* (Newmag, 2023, in Armenian). Sahakyan's research has been published in high-ranked journals, including *Southeast European and Black Sea Studies*, *Central Asian Survey*, *Revolutionary Russia*, and *Caucasus Survey*.

## 7. ARPA Institute Panel Discussion

### Armenia's Energy Independence Roadmap

**Panellists: Artur Alaverdyan, Armen Danielian and Suren Shatvoryan**

**Moderator: Astghine Pasoyan**  
**Saturday, July 6, 2024, at 11:00 AM PDT**

**Abstract:** The Foundation for Armenian Science and Technology (FAST), in collaboration with Soloron, developed Armenia’s Energy Independence Roadmap (AEIR). The program presents a comprehensive roadmap for a transformational path from the current energy infrastructure towards energy independence through carbon neutrality in the energy and transportation fields. The roadmap will be used for making policy recommendations to the government and to evoke interest in investment. Aiming to propose precise scenarios with the cost estimation and investment opportunities, the roadmap deeply analyzes the opportunities and obstacles related to significantly reducing energy dependence and scaling the share of various renewable energy sources, including solar, wind, hydro, and biomass. The roadmap was presented to the stakeholders and interested groups for in-depth discussion and coordination of steps to be undertaken by 2040 to increase energy independence. It analyses factors that can enhance energy independence, use of best practices, existing and developing technologies, power regime modeling, as well as regulatory tools. It also provides scenarios for energy systems of the country and highlights areas for future research and analysis.



**Artur Alaverdyan** is an engineer-physicist, manager, serial entrepreneur, philanthropist, and high-tech investor. He has degrees from National Research Nuclear University, an ExMBA and from École Polytechnique and Rotterdam U. Artur returned to Armenia to have an impact on the development of the country and has invested and run successful ventures in recreational and production of renewable energy. He founded SolarOn- the first solar panel production company in Armenia, is the owner and chairman of ProfHolod, producer of insulated panels, which is the largest manufacturer in the EURASEC market. Mr. Alaverdyan is co-Founder, Board Member of FAST, Trustee of Arar Foundation, member of ASOF and a co-initiator of FUTURE ARMENIAN. He has contributed as founder, board member and/or chairman of PU Europe, NAPPAN, Ayb Educational Foundation. His interests are alternative energy, impact investing, and innovation.



**Mr. Armen Danielian** is an energy analyst with a focus on the regulatory and economic aspects of energy systems. He holds a BBA from Business School Lausanne and an MSc in Energy Systems from the University of Oxford. Following his education, he worked with the United Nations Industrial Development Organization in the areas of electric mobility and climate change adaptation. He is currently an Adjunct Lecturer in Sustainable Energy at the American University of Armenia, and researcher at the Acopian Center for the Environment.



**Mr. Suren Shatvoryan** is a Senior Staff Scientist at the Scientific Research Institute of Energy. He holds an MSc in Energy Systems and Grids from Yerevan Polytechnic University. His activities focus on studies of resources, market, institutional framework and legislation, as well as technical and economic aspects of renewable energy development. He has participated in and led numerous EU and international projects in Armenia. As a research engineer, he researched renewable energy policy at the California Energy Commission. As the founder and executive secretary of the Public Council for Renewable and Clean Energy, he initiated and successfully conducted international conferences, which resulted in the publication of more than 250 scientific and practical papers. Since 2005, Mr. Shatvoryan has been a member of the International Editorial Council of the International Journal “Alternative Energy and the Environment” (ISJAEE, Russian Federation).



**Astghine Pasoyan** is an expert in energy efficiency and environmental economics, a skilled project manager in CEE & CIS with over 20 years of experience, over \$50 million fundraising record and managed project portfolio. Astghine has managed energy efficiency planning and legal reform efforts, market assessment and investment identification in various sectors of economy, developing sustainable energy financing schemes, housing policy, capacity building, residential and public building energy efficiency programs and financing, and public outreach. Ms Pasoyan has managed regional projects funded by various donors and IFIs in over 20 countries. Experience includes climate change mitigation, buildings energy efficiency, urban heating reform, building renovation strategies, renewable energy business models, market assessments, design financing, and many other areas. Astghine also serves as adjunct lecturer at the American University of Armenia and International Center for Agribusiness Research and Education. She is a graduate of the Brown University, Providence, RI and the Yerevan State Economic University.

## 8. ARPA Institute Panel Discussion

## The current situation, future growth potential, and sustainability of the economy of Armenia

**Panellists: Aleksandr V. Gevorkyan, Ruben Indjikian and Vahan Kerobyan. Moderator: David Joulfaian**

**Saturday, August 17, 2024, at 10:00 AM PDT**

**Abstract:** Armenia has seen impressive economic growth with strong macroeconomic indicators in the past few years, showing resilience despite the multiple shocks of the pandemic and the aftermath of the 44-day war, absorbing over 120,000 Artsakh refugees. There are hopeful developments in the high-tech, construction, and services sectors, as well as relative stability in banking. Yet, growth is forecast to slow down in the near term, as capital inflows decline and business activity moderates. Structurally, incentivizing balanced and inclusive growth should be the key to generating well-paid jobs and reducing regional inequalities. Externally, Armenia is subject to geopolitical and geo-economic uncertainties, affecting foreign investment and diaspora engagement. Domestic market growth would play a role in the longer-term sustainability. Leveraging the current capacity and sustaining the growth momentum, a pragmatic long term development model may be needed.



**Aleksandr V. Gevorkyan**, Ph.D. is Henry George Chair in Economics and Professor of Economics at the Department of Economics and Finance of the [Peter J. Tobin College of Business at St. John's University in New York City](#). Dr. Gevorkyan specializes in open economy macroeconomic development, post-socialist economies, and diaspora economics. He is a Board Member at the [Armenian Economic Association](#) and serves as Economics Expert for the [Permanent Observer Mission of the Holy See To the United Nations](#). He is on editorial boards at the [Review of Political Economy](#), [Review of Keynesian Economics](#). Dr. Gevorkyan is the author of [Transition Economies: Transformation, Development, and Society in Eastern Europe and the Former Soviet Union](#) (Routledge, 2018).



**Dr. Rouben Indjikian** is a renowned expert on economic development and international trade & finance issues. He is a professor of economics, business and management, at Webster University Geneva. Rouben speaks and moderates at international conferences and seminars on digital economy, trade & finance. Dr. Indjikian has nearly 30 years' experience at UN Trade and Development in Geneva, leading trade, finance, digital economy, and commodity programs and has authored numerous reports and articles. After retirement from the UN, he continues to give his policy and management advice and consult on multiple economic issues. He has also provided economic policy advice to the government of Armenia, on export led economic development strategies and exports of services of emerging digital economy.



**Vahan Kerobyan** was the former Minister of Economy of Armenia. He is an experienced Chief Executive Officer, with a demonstrated history of working in the food & beverages industry. Skilled in Negotiations, Business Planning, Customer Service, Retail, and E-commerce. Strong business development professional with a Diploma of distinction in Mathematics from Yerevan State University.



**David Joulfaian**, Ph.D., is a Washington based economist and an adjunct professor of economics at Georgetown University. He has worked in diverse areas of economics and public policy. His research on the behavioral effects of taxes, and on entrepreneurship, philanthropy, intergenerational transfers, savings, labor and work effort, and other topics, is widely published in scholarly Journals and books. He has previously taught at George Washington University, Middlebury College, and Yerevan State University (Fulbright), and very briefly served as a Treasury technical advisor at the Ministry of Finance of Armenia.

Shortly after teaching at YSU, he co-founded the Armenian Economic Association (with Shushanik Hakobyan).

## 9. ARPA Institute Panel Discussion

### Cybersecurity of Armenia and the benefits of Adopting Starlink Satellite Internet

**Panelists: Armen Kherlopian, Armen Derderian, and AI Eisaian. Moderator: Ruben Zadoyan**  
**Sunday, September 1 at 10:00 AM PDT**



**Abstract:** Armenia’s growing need for reliable and high-speed internet connectivity has become increasingly critical, particularly in light of its evolving geopolitical landscape and digital economy. Starlink, SpaceX’s satellite-based internet service, offers a solution to Armenia’s connectivity challenges, especially in rural and remote areas where traditional infrastructure is lacking. Explored will be the potential benefits of adopting Starlink in Armenia, with a focus on enhancing the nation’s cybersecurity. The availability of high-speed internet across the country can bolster cybersecurity defenses for Armenia by enabling more robust and decentralized communication networks, reducing the risks of single points of failure in critical infrastructure. Moreover, the low latency and global reach of Starlink can enhance the ability of the country to respond to cyber threats in real-time, ensuring a more resilient and secure digital environment. The adoption of Starlink could better support the development of tech the sector of Armenia, providing a foundation for innovation and economic growth while safeguarding national security in the digital age.



**Armen R. Kherlopian, Ph.D.** As a Scientist-CEO Dr. Kherlopian leads Covenant Venture Capital, New York City, is Founding Partner of the BAJ Accelerator, serves on the Scientific Advisory Board of the Translational Research Institute for Space Health (TRISH), serves as a BoD at Scylla and is an advisor to CognaiZe and Embodied. He has served as Chief Science Officer at Genpact, and has worked at Booz Allen Hamilton. Armen is an awardee of the U.S. National Science Foundation Graduate Research Fellowship, U.S. Department of Energy Computational Science Graduate Fellowship, is a Coca-Cola Scholar and a U.S. Delegate to the Lindau Nobel Laureates Meetings. He holds a BS and MS in Biomedical Engineering with a focus on Algorithms from Columbia University, a PhD in Biophysics with a focus on Machine Learning from Cornell University. He also completed a fellowship in High Performance Computing and Artificial Intelligence at Princeton University.



Armen Derderian is a retired staff member of the European Space Agency (ESA). For 35 years he has been working in the space industry developing, designing and producing Radio Frequency equipment for communication, navigation and remote sensing satellites for Canada, Europe and USA. From 1998 to 2018 he was the head of Radio Frequency Payload Laboratory for ESA. Presently he is advising small startup companies involved in space industry as well as providing consulting services for major companies developing new satellite navigation systems. He is an investor in the Armenian investment platform Eqwefy. He is certified ISO 9001 Q management system internal auditor.



**Al Eisaian** is CEO and Board Member of CognaiZe Holdings Inc., Co-Founder and Board Member of IntelinAir. Formerly, Eisaian led several startups with successful exits and worked on a string of startups, Integrien (acquired by VMWare, 2010), IconApps (acquired by Science Inc., 2014). Al is a multiple-exit serial entrepreneur who specializes in people. He has built several innovative, collaborative teams around scientific breakthroughs and has then helped them achieve greatness. Mr. Eisaian is a committed servant leader for over 30 years and believes in the human potential as an infinite resource. Mr. Eisaian earned his BSEE, Oklahoma State U. & MBA, Pepperdine University.



**Ruben Zadoyan** is a senior R&D professional with over 40 years of experience in Photonics, has twenty patents and over sixty publications in peer reviewed journals. Ruben graduated from the Yerevan State university with a B.S. degree and the Moscow State university with a Ph.D. in Physics. Dr. Zadoyan is a Board member of the Center for Scientific Innovation and Education, Chief Technical Adviser and Board Member at Aerodynamics, Armenia. He has been the Chief Technology Officer at MKS Instruments, Senior Director at Newport, Director of laser development at Intralase, and Sr. Staff Scientist at the university of California, all in Irvine, CA. Previously Ruben was Director at the Institute of Laser technology in Armenia.

## 10. ARPA Institute Panel Discussion

### Technological Development Factors for Armenia’s Security

**Panelists: Berge Ayvazian, Satenik Mnatsakanyan, Artak Sahakyan, Armen Danielian, and Arsen Arakelyan**  
**Moderator: Hriar Cabayan**

**Saturday, October 26 at 10:00 AM PDT**

**Abstract:** “Cyber Capacity Building in Armenia,” is essential, because it stands at a critical juncture where advancing its cybersecurity capabilities could yield significant national security and economic development benefits. On the other hand, “The Role of AI in Armenia’s Economic Transformation,” is also crucial in positioning itself to become a leader in the future of Generative AI, in big data analytics, manufacturing, defense, and economics. Moreover, “Technologies for Energy Security of Armenia,” is one of the central pillars for the economic development of Armenia, and there isn’t any single



solution that can provide such high energy security. “Biosecurity and Public Health Threats,” are not often considered as highly important, but it is of paramount importance in the overall security umbrella of a country. Presented will be an overview of the above mentioned topics. In addition, the global response to the COVID-19 pandemic, and Armenia’s response capabilities in emergency situations will be presented and discussed.



**Berge Ayvazian** is a senior ICT industry analyst and consultant, and with a long career and CEO at Yankee Group. Berge is a Partner, Senior Analyst and Consultant with Wireless 20/20, which has a team of software developers and GIS Data Analysts in Armenia. Berge has been active in the Armenian tech market since 2000 and was co-founder of the Armenian High Tech Council (ArmTech) with other diasporan Armenians, in the Angel Investor Club of Armenia, serves as a Board Member of EQWEFY and is Managing Director of Distrikt Ventures. Ayvazian has an MA in Telecom Policy Research, and is a former member of the adjunct faculty at Boston University’s College of Communication.



**Artak Sahakyan** has a PhD in economics, delivers lectures in Public Administration Academy and having more than 22 years of work experience in financial sector. Artak is a tech blogger that makes posts and writes articles about tech sector of Armenia in his social media channels (t.me/armtechblog, www.linkedin.com/in/artakng, etc.) He is an active networker, connecting people.



**Armen Danielian** is an energy analyst with a focus on the regulatory and economic aspects of energy systems. He holds a BBA from Business School Lausanne and an MSc in Energy Systems from the University of Oxford. Following his education, he worked with the United Nations Industrial Development Organization in the areas of electric mobility and climate change adaptation, as well as co-authored Armenia’s Energy Independence Roadmap report. He is an Adjunct Lecturer in Energy at the American University of Armenia, and a researcher at the Acopian Center for the Environment.



**Arsen Arakelyan**, Ph.D., D.Sc., is the director of the Institute of Molecular Biology (IMB), and the director of the Institute of Biomedicine and Pharmacy of the Russian Armenian University (RAU). He has 25+ years of experience in experimental molecular biology/genetics and bioinformatics. He was the first to establish the research direction of genome bioinformatics in Armenia in 2011. Currently, he coordinates several large genomics projects in Armenia. He also teaches courses at RAU.



**Satenik Mnatsakanyan** has 24 years of experience in Technology Education and Engineering. She has worked with advanced data analytics companies in the USA and Armenia, focusing on building distributed and cloud applications for innovative businesses, media distribution platforms and peer-to-peer networks. After repatriating to Armenia in 2013, Satenik has contributed to the development of the country’s technological and engineering education systems, both in Yerevan and the regions. She is currently the Engineering Sciences Program Chair at the American University of Armenia (AUA). Satenik co-founded the ArmSec Foundation and is a founding member of several other national initiatives, including Armath Engineering Laboratories, the Real School Foundation, and ISRC’s development teams. Additionally, Satenik is a founding member of an NGO focused on a national comprehensive defense and security system development and plays a key role in moderating cybersecurity efforts in the “Vogezen” pan-Armenian platform



**Dr. Hriar Cabayan** is a Visiting Scientist at the Lawrence Livermore Laboratory. He joined the Laboratory in 1977. In 1997 he joined the Joint Staff (Pentagon) where he managed a program to support operational planning. Hriar received the Joint Meritorious Civilian Service Award from the Office of the Chairman, Joint Chiefs of Staff in 2007 and again in 2019. Dr. Cabayan returned to Lawrence Livermore Laboratory in October 2019. He received his Doctorate Degree from the University of Illinois in Urbana. After graduating, he taught mathematical physics for four years at New York University’s Courant Institute of Mathematical Sc. & at McGill University before Lawrence Livermore laboratory.

## 11. ARPA Institute Panel Discussion

### Operational Development Factors for Armenia’s Security

**Panelists: Scott Fisher, Hriar Cabayan, Robert Ghazaryan, Haykuhi Muradyan, and Nerse Kopalyan. Moderator: Hriar Cabayan**

## Saturday, November 2 at 10:00 AM PDT

**Abstract:** Armenia navigates a complex and rapidly evolving security landscape and has no choice but to pursue defense diversification with a wide range of countries and supranational organizations. For security assistance, impressive diplomatic skills and clear needs assessment will be required. The Diaspora can play a key role in countering Azerbaijan's military advantage and exploiting its authoritarian weaknesses through its reliance on information control to maintain power. Armenia should develop an effective counter-messaging capability through rapid and effective formulation and dissemination of information, to not only combat misinformation, but also counter the systematic falsification of historical narratives, targeting erasure of Armenian history and heritage. The interactive complexity in geopolitics is accelerating and an effective strategy and planning is required for national security, through meticulous comprehensive diagnoses. Armenia cannot have security without technological development and innovation; but it also cannot address its security problems without the support of the social sciences. National Security is not simply physical security or hard power, social sciences is crucial in offering solutions and guidance for comprehensive security and resilience.

**Scott Fisher, Ph.D.**, is an Assistant Professor in the Security Studies Department at New Jersey City University (NJCU). Prior to his PhD studies at Rutgers University, he received an MA in Security Studies from Georgetown University and an MA in Korean and International Studies from Seoul National University in South Korea. His research focus is information warfare, U.S. security challenges in Asia, and open-source intelligence. His research has been published by organizations including Foreign Policy Analysis, RAND, Demokratizatsiya, the Journal of Information Warfare, and West Point's Modern War Institute. He has presented at conferences for organizations including the International Studies Association, the American Political Science Association, the Midwest Political Science Association, NATO, and other professional and academic organizations. In addition to his work at NJCU, Dr. Fisher has worked for the U.S. Department of Defense at Pentagon, and in Iraq, Afghanistan, East Africa, and Germany.



**Dr. Hriar Cabayan** is a Visiting Scientist at the Lawrence Livermore Laboratory. He joined the Laboratory in 1977 and then, in 1997 he joined the Joint Staff (Pentagon) where he managed a program to support operational planning. Hriar received the Joint Meritorious Civilian Service Award from the Office of the Chairman, Joint Chiefs of Staff in 2007 and in 2019. Dr. Cabayan returned to Lawrence Livermore Laboratory in 2019. He received his Ph.D. from the University of Illinois, Urbana. Hriar has taught

mathematical physics at the Courant Institute of Mathematical Sciences, New York University, and at McGill University before joining Lawrence Livermore laboratory.



**Robert Ghazaryan, PhD**, is an Associate Professor at the Institute of Oriental Studies (IOS), NAS RA. Formerly he was a Leading researcher, Scientific Secretary, Deputy Director, and then Director of the IOS. He has also served as Director of the "Geghard" Scientific and Analytical Foundation, as Editor-in-chief of the journal Bulletin of the Institute of Oriental Studies, and on the editorial board of the "Fundamental Armenology", and Chairman of "World History" at the IOS. Currently he is Associate Professor at the Yerevan State University, Armenia. He has authored 40 scientific articles.



**Haykuhi Muradyan** PHD in Cultural Studies Her research interests focus on cultural anthropology, applied anthropology, anthropology of politics and heritage management. She is lecturing in the department of Cultural Studies, YSU. She teaches the courses Theory of Cultural Studies, Cultural policy, and Armenian culture of the Modern period. She also teaches a course on theories of Cultural Genocide at the Department of Genocide Studies at the Institute of Armenian Studies, YSU.



Dr. Nerses Kopalyan is an associate professor-in-residence of Political Science at the University of Nevada, Las Vegas. His fields of specialization include international security, geopolitics, political theory, and philosophy of science. He has conducted extensive research on polarity, superpower relations, and security studies. He is the author of World Political Systems After Polarity (Routledge, 2017), the co-author of Sex, Power, And Politics (Palgrave Macmillan, 2016), co-author of Latinos in Nevada: A Political, Social,

and Economic Profile (Nevada University Press, 2021), and co-author of Armenia, Azerbaijan, and the 2020 Nagorno-Karabakh War (Taylor and Francis, forthcoming 2023). He is a contributor to EVN Report. He has contributed publications with Le Figaro, The Times of Israel, and The National Interest. His current research and academic publication concentrate on geopolitical and great power relations within Eurasia, its impact on small state security, and the broader implications for democratic breakthroughs within authoritarian orbits. He has conducted extensive field work in Armenia on the country's security architecture and its democratization process. He has authored several policy papers for the Government of Armenia and served as voluntary advisor to various state institutions.

## 12. ARPA Institute Panel Discussion

## American University of Armenia: Plans for the Future.

**Panelists: Alina Gharabegian, Bruce Boghosian and Paul Agbabian. Moderator: Ani Shabazian**

**Saturday, November 23, 2024, at 10:00 AM PDT**

**Abstract:** World-class academic programs at American University of Armenia (AUA) allow students to get the education they need to succeed in their careers and to realize their potential. AUA's accreditation by the WASC Senior College and University Commission, one of the seven regional accrediting organizations recognized by the U.S. Department of Education, ensures that the highest of American education standards are met. The AUA is a private institution offering global education. Affiliated with the University of California, it is accredited by the WASC Senior College and University Commission. Founded in 1991, AUA provides high-quality graduate and undergraduate education encouraging civic engagement, promotes democratic values, and fostering scholarships in a setting that values and develops academic excellence, free inquiry, integrity, scholarship, leadership, and service to society. The University offers a total of 19 programs. Discussed will be the current status and future direction of the university and its impact on Armenia and the nation.



**Alina Gharabegian** is provost of the American University of Armenia (AUA). She received her PhD in English from the City University of New York. Dr. Gharabegian was a Professor in the English Department at New Jersey City University, where she served as department Chair from 2014-2017. In 2018-2019, she served as the Interim Dean of the College of Humanities and Social Sciences at the AUA, on a Fulbright scholarship organized and chaired the international conference, "Armenia's Transformation in a Comparative Context: Restarting Democratization?" She has also served as Advisor on Academic Affairs at the Zoryan Institute. Alina has 25 years of teaching and academic leadership experience in institutions in California, New York, and New Jersey. Her numerous scholarly publications and creative essays can be found in journals.



**Dr. Bruce M. Boghosian** is the sixth president of the AUA and served as the third president, when he oversaw the creation, accreditation and inauguration of AUA's undergraduate program – the first American-accredited bachelor program in the former Soviet Union. Bruce was a Professor of Mathematics at Tufts University and has served as chair of Mathematics there. He also was simultaneously with the Physics and Computer Science departments. Dr. Boghosian is a fellow of the American Physical Society has received Tufts' Distinguished Scholar Award, is a Diasporan member of the NAS, Armenia, a recipient of the "Order of the Republic of Armenia" from the Prime Minister, a recipient of the "Gold Medal" from the Ministry of Education and Science, and many others. Dr. Boghosian's interests include mathematical fluid dynamics and kinetic theory, and their application in the social sciences, including wealth distribution, wealth inequality, the onset of oligarchy, and opinion dynamics. He is on the editorial boards of 3 journals and has held visiting positions in many EU universities and at the Central Bank of Armenia.



**Paul Agbabian** is vice president and distinguished engineer at Splunk Corporation in San Francisco. He has held various positions at Symantec Corporation as global chief technology officer and chief architect for its various business units. He holds 15 patents in security and systems management. Paul has various industry and board affiliations, such as Board observer, Mocana Corporation; board member, Open Identity Foundation; member, Advisory Board of Standard Bank; and member, Development Committee of the Board of the American University of Armenia. Agbabian holds a BS in Mechanical Engineering from UCLA and a MS in Mechanical Engineering and Applied Mathematics from the California Institute of Technology.



Ani Shabazian, Ph.D., B.A., History and Psychology, UCLA; M.A. Human Development and Psychology, Harvard University, 2ed M.A. UCLA, PhD, Urban Schooling. Ani has served on the faculty of several universities, trained in orphanages in Budapest, Hungary and Reggio Emilia, Italy. She has been the Executive Director of the UCLA Infant Development Program and now she is a Loyola Marymount University tenured Professor in the School of Education and Director of the Children's Center. Dr. Shabazian has received the UCLA Distinguished Faculty Teaching Award and the LMU Crimson and Blue Distinguished Teaching Award. She has done training, conference presentations, and has peer-reviewed journal publications. Ani has authored three books and co-authored an international orphanage assessment, that is an

international research tool and developed into an APP by Duke University. Further, Ani has traveled with Whole Child International, UK, developing training programs for vulnerable children. Ani has served as a Governance Board member for the Ararat Charter School, the Paros Foundation, the Society for Orphaned Armenian Relief, and with the Ministry of the Diaspora for vulnerable children in Yerevan and Gyumri. She has served on many university committees, now serves on the Board of Trustees of the Hovnanian School and on the Board of Directors of Child360, as well as on the Board of the ARPA Institute.

## 13. ARPA Institute Panel Discussion

### Seismic Resilience of Yerevan & Other Cities in Armenia

**Panelists: Armen Minassian, Petros Keshishian, Shahan Akelyan, Larry Galstian, Tigran Dadayan, Martin Eskijian and Armen Martirosyan. Moderator: Armen Der Kiureghian**  
**Saturday, December 21, 2024, at 10:00 AM PDT**

**Abstract:** Seismic resilience refers to the capacity of communities, structures, and systems to anticipate, withstand, respond to, and recover from the impacts of seismic activities such as earthquakes. This concept integrates elements of engineering, urban planning, and social dynamics to minimize loss of life, economic disruption, and infrastructure damage. Recent advancements emphasize designing earthquake-resistant structures, retrofitting existing buildings, and implementing early warning systems to enhance resilience. Additionally, community preparedness and education are pivotal for effective response and recovery. The resilience of seismic activities is influenced by geological factors, urban density, and the socio-economic characteristics of affected regions. The discussion will explore the interplay of these factors and highlight strategies for improving resilience through technological innovation, policy development, and community engagement. Enhanced seismic resilience is critical for mitigating long-term impacts and fostering sustainable development in seismically active regions.



**Armen Minassian** is an expert in seismic implications in Architecture, urban planning, and architectural design for earthquake-resistant buildings. Armen is an Assistant Professor, and international advisor to the NUACA, Member of EERI and ASCE, AESA-NE, Aff. Intl. M. RIBA and Full member of the Engineering Academy of Armenia. He has served as an Advisor to the Minister of Urban Development at the Urban Development Committee of Armenia.



**Petros Keshishian, Ph. D.**, is an expert in risk analysis and seismic retrofit. Petros is the Head of Model Engineering, Insurance Risk, a Member of EERI, ASCE, Project Manager of International Expert team of Armenia's School Seismic Protection Program. Dr. Keshishian has 20 years of experience in building predictive models and has led teams in building predictive models for decision making. He has a BS in Structural Engineering from Yerevan Polytechnic Institute, an MS in Earthquake Engineering from American University of Armenia and a Ph.D. in Civil Engineering from the University of California at Berkeley.



**Shahan Akelyan** is an expert in design and retrofit codes and seismic retrofit practices. Shahan is Assistant Deputy Superintendent of Buildings with the Department of Buildings and Safety, City of Los Angeles (representing himself); former Chief of High-Rise and Seismic Retrofit Programs of the City of Los Angeles. Shahan is serving in the Code Advisory Committee with the Building Standards Commission of Structural Design/Lateral Forces. Shahan served as the president of the Los Angeles Basin Chapter of the International Code Council. He is also a board member of the Los Angeles Tall Building Seismic Design Council.



**Larry Galstian** spent 32 years managing the largest Inspection Bureau in the USA, Department of Building and Safety of the city of Los Angeles. Mr. Galstian assisted many complex high-rise projects, such as LA Live, Wilshire Grand, Metropolis, Cedar Sinai Medical Center and Westfield malls. Currently, Mr. Galstian provides Building and Safety Permit and Inspection Consulting services for major residential and retail high-rise construction developments in the City of Los Angeles.





**Tigran Dadayan, Dr. Sci.**, is a Structural & Earthquake Engineer, and an expert in current design practices in Armenia. He is a Professor and Head of the Chair of Building Structures at the National University of Architecture and Construction of Armenia for the past 12 years.



**Martin Eskijian** is an expert in seismic design codes and retrofit. Mr. Eskijian is an engineer with 41 years of experience in structural dynamics, reservoir engineering, and structural engineering/code development.

Martin worked for the California State Lands Commission, for 28 years as a petroleum reservoir engineer, civil/structural engineer and leader of a marine oil terminals. He was responsible for Chapter 31F of the California Building Code "Marine Oil Terminals", commonly known as "MOTEMS". Martin retired from state service in December 2011 and has taught graduate classes at the University of Southern California, the University of California, San Diego and California Baptist University. In 2024 Martin Eskijian has been selected by the American Society of Civil Engineers' Coasts, Oceans, Ports and Rivers Institute (COPRI) to receive the 2024 John G. Moffatt-Frank E. Nichol Harbor and Coastal Engineering Award for his advancement of seismic design, behavior, and performance of lifeline marine structures, and the co-development of ASCE-COPRI's Port Certificate Program curriculum.



**Armen Martirosyan, Ph.D., PE**, an expert in design, seismic codes and seismic retrofit with 20 years of experience in structural design, construction inspection and monitoring. He is the Principal of the ARPA Technology Group; Member of EERI, ASCE, ACI, ICC; Chief Engineer of International Expert Team of Armenia's School Seismic Protection Program. Armen is a Certified Professional Civil Engineer in California. He holds a BS in Structural Engineering from Yerevan Polytechnic Institute, a MS in Earthquake Engineering from American University of Armenia and a Ph.D. in Civil Engineering from the University of Southern

California.



**Shant Minas** is the principal engineering geologist and managing director of Applied Earth Sciences. He oversees all field exploration, conducts detailed geologic investigations, including methane testing and mitigation design, percolation testing, feasibility studies and design for septic systems, water quality testing, fault studies, inspection, and environmental investigations and prepares reports and geologic maps. Shant holds degrees in economics and financial mathematics from USC and is the Chair of the Association of

Engineering Geologists' Southern California section.



**Armen Der Kiureghian** is Taisei Professor of Civil Engineering Emeritus at the University of California Berkeley, and co-founder and President Emeritus of the American University of Armenia. He is an elected foreign member of the National Academy of Sciences of Armenia and an elected member of the U.S. National Academy of Engineering. He has been honored as a Distinguished Alumnus of both his alma maters: the University of Tehran, Iran, and the University of Illinois at Urbana-Champaign.



## Armenia Trip Report - The President and Members of the ARPA Institute travel to Armenia every year to work on various projects that is currently being implemented in Armenia:

1. **September 5, 10 AM**, Mrs. Sara Baylouzian and I had a meeting with the Rector of the National Polytechnic University of Armenia, Mr. Gor Vardanyan, and he spent around 90 minutes discussing their new ventures at the university, their initiatives and successes, the Center of Excellence in Circuit Design, the computers and the servers the ARPA Institute had donated, and the teaching of Circuit Design at the NPUA. Mr. Vardanyan was informed that the reason why we decided to purchase refurbished computers is that they will have no special functionality, other than connecting them to the servers to work with the algorithms in the CADENCE software housed in the servers. He replied positively and said he would discuss it with their technical experts and get back to us.



From L to R Gor Vardanyan, Rector of NPUA, Sargis Asatryan, Deputy Rector, Sara Baylouzian and Hagop Panossian.

2. **September 5 at 4:30 PM**, Naira Giuyreghyan-Campbel, Vatche Souvalian, the Director of the CEDC Project, and I met with Mr. Gor Martirosyan, the Executive Director of Operations of the NPUA. He gave us a tour of the renovated rooms, where the circuit design courses were supposed to be taught, as well as the future rooms, on the 5<sup>th</sup> floor of Building 5, the Electrical Engineering building. The plan is to move the CEDC to the 5<sup>th</sup> floor of the building to make the courses more accessible to Electrical Engineering students. They expect to start renovations immediately.

3. **September 24, 2024**, I received a call from the Defense Ministry asking for a meeting. I met with Two young men, Mr. Gazaryan and Mr. Tigranyan. They wanted to know what kind of help ARPA Institute can provide the ministry. They were presented with the most promising project, initiated by Dr. Hriar Cabayan, related to fake news and how Armenia should and can fight back misinformation. They liked the idea. They were asked to find qualified people who would then be trained by our experts and start the process.
4. **September 25, 2024**, Naira Giureghyan-Campbel, Hasmig Baran, Dikran Babikian, and I had a nice and productive meeting with Dr. Bruce Boghossian, President of AUA. Discussed were issues related to possible cooperation, exploring AUA student participation in the ARPA-initiated research projects, and the potential for AUA students to participate in the circuit design courses at NPUA. Dr. Boghossian was open to all and asked to meet with the new Provost, Dr. Alina Gharabegian to discuss these issues.



From L to R Dr. Bruce Boghossian, President of AUA, Naira Giureghyan-Campbel, Hasmig Baran, Hagop Panossian, and Dikran Babikian

5. **On Friday, September 27, at 3:00 PM**, I had a 1-hour meeting with the President of Armenia, Hon. Mr. Vahagn Khachatouryan and his chief of staff, Mr. Robert Khachatryan. Discussions were on the Cleanroom issues and Budget for Management/Marketing, the Research and Experimental work on Confined Light, Center of Excellence for Circuit Design, RFPMT and photon detection/counting, its potential applications and commercialization, Detection Room and Applications in Nuclear Systems, STEMAr project in 19 schools and Budgeting, New Initiative with Mushegh Rafayelyan and Gagik Buniatyan on Laser beam strengthening, Fake News and how to Fight misinformation, digitization of healthcare system in Armenia by Dr. Armine Lulejian, the improvements in the public health system of Armenia by Dr. Shant Shkherdimian, and the Adaptive Eyeglasses for hawkeyed individuals by Dr. Ara Keshishian.



Hagop Panossian with President of Armenia, Honorable Mr. Vahagn Khachadouryan

6. **September 28, 2024**, I had a meeting with Mushegh Rafayelyan and Gagik Buniatyan in the Optical Lab of the YSU, which Mushegh directs. Based on our previous discussions, an article describing a practical way of increasing the useful optical power of lasers up to 10 times, that can be delivered with multimode fibers and can be valuable in a variety of applications. Mushegh and Gagik agreed that, as a first step Mushegh and his team of students would work on a project to recreate what is reported in the article. We will decide on the applications later.
7. **On Sunday, October 6, 2024**, Ruben Lusinyants and I attended the World Congress of Innovation and Technology, the session devoted to Robotics and Autonomous Systems organized by the Center for Science, Innovation, and Engineering. Very well-organized lectures were presented, and various innovative ideas were discussed by leading experts in their fields.
8. On Monday, October 7, Ruben Lusinyants and I met with Lena and Maria Ghazaryan, The Leader of the ARPA Institute STEMAr project to discuss the STEMAr ARPA Project, the upcoming activities, and the progress on the development of the new ARPA Institute website. Maria informed us that they are now developing software for easy website access on the phone.
9. **October 8, Tuesday**, Ruben Lusinyants, Armine (his wife), and I visited the Engineering City in Yerevan's Masive district. Marine Saginian, the Executive Director of EC gave us a tour of the various activities in their facilities, the plans for the newly built buildings to house all engineering activities, and the land next door that should be developed as a manufacturing compound. Then we met with the Director, Aram Salatian, who was briefed on the ARPA STEMAr activities and the basics of the curriculum.
10. **October 9, Wednesday**, Ruben Lusinyants, Lena Gazaryan, Sara Bailouzyan and I met with the Minister of Education, Science, Culture and Sports, the Honorable, Ms. Zhanna Andreasyan. Discussed were issues related to the Alikhanyan National Lab, Cleanroom budget, research on confined light, detection room, and RFPMT. She was asked to write a letter regarding additional funding for the Cleanroom to provide personnel for management and marketing. The detection room success story and the RFPMT should be told to the public. Moreover, more funding is needed to advance research and train new young scientists. Similarly, the story of the NPUA CECD should be

publicized, which can have a huge impact on the economy of Armenia, prepare young and knowledgeable scientists in the most advanced and widely used software design tool, and provide the much-needed workforce for large companies, like NVIDIA and AMD. Regarding the invention competition's low participation, she assigned a liaison with whom we should work to distribute the advertisement for the invention competition. The most important current project of the ARPA Institute in Armenia, the STEMAr, was presented by Lena Gazaryan, the Director of the STEMAr ARPA Project. It was stressed that there should be a letter of approval from the ministry to encourage the schools' participation and continuity. Moreover, the expansion of the project to 19 schools, the importance of project-based learning and training of teachers to effectively teach STEM education, as well as the encouragement of science fairs and community involvement.



From L to R Ruben Lusinyants, Helen Ghazaryan, Honorable Ms. Zhanna Andreasyan, Minister of ESCS and Sara Baylousyan.

11. **October 15, 2024, at 11:00 AM** I visited the "Green Energy Lab" of the Yerevan State University, Research Institute of Biology, Director, Dr. Karen Trchounian. ARPA Institute has formerly helped Karen purchase key instrumentation and materials for the lab. However, the status of the research center is impressive, with all the latest modern equipment and devices necessary for green energy research. Karen and his team of students and researchers, around 40 members, carry out hydrogen generation from waste.



Karen Trchounyan and Hagop Panossian.



12. **October 15, 2024, 2:00 PM**, I met with Gor Martirosyan, the Executive Director of facilities of the National Polytechnic University of Armenia (NPUA), who led me to the electrical engineering department's Chairman, Dr. Oleg Petrosyan. We discussed with Oleg issues related to the courses in circuit design that is currently being taught by Vahe Yeghiazaryan, Manager at CISCO Armenia, in a "temporary lab" (which is essentially a small room with a few computers). Also discussed were the renovations of the future lab, which according to Oleg, will be completed by November, while according to Gor, the earliest completion date will be the end of the year or, more likely in February. The future lab is composed of 4 rooms, side-by-side on the 8th floor of the 5th building at NPUA, which will all be combined into what will be the new lab. He also showed the design details and the budget for the lab, as well as all the courses they have listed as part of their curriculum. I asked him to send both the design and the list of courses with the number of students enrolled in each course. He promised he would.