Davit Armen Ghazaryan

davitghazaryan@ysu.am

Նյութագիտության և նանոտեխնոլոգիաների գիտական կենտրոն
Առաջադեմ ֆունկցիոնալ մատերիալների լաբորատորիա
head of laboratory

Research Institute of Physics
Նյութագիտության և նանոտեխնոլոգիաների գիտական կենտրոն
Առաջադեմ ֆունկցիոնալ մատերիալների լաբորատորիա
head of laboratory

Institute of Physics
Chair of Materials Science and Nanotechnology
Lecturer on an hourly basis

Education

Institution	- Other -
Faculty	School of Physics and Astronomy
Date	2014 - 2018
Degree name	PhD student

Institution	- Other -
Faculty	Faculty of General and Applied Physics
Date	2012 - 2014
Degree name	Masters

Institution	Yerevan State University
Faculty	Faculty of Radiophysics
Date	2008 - 2012
Degree name	Bachelor

Language skills

English Русский

Membership

Institution	EPS member
Period of time	2026 till now

Institution	Sigma Xi member

Period of time	2026 till now

Institution	OPTICA (previously OSA) member
Period of time	2025 till now

Institution	APS member
Period of time	2018 till now

Publications

Article

Topographically-guided van der Waals epitaxy: Selective growth of AlN nanowalls on h-BN step edges

Albert M. Dautov, Vladimir G. Dubrovskii, Talgat Shugabaev, Vera V. Lendyashova, Konstantin P. Kotlyar, Alexey Kuznetsov, Prokhor A. Alekseev, Mikhail E. Popov, Igor V. Shtrom, Adilet Toksumakov, Davit Ghazaryan, Alesya V. Parfeneva, Aleksey V. Arsenin, Alexey D. Bolshakov, George E. Cirlin, Vladislav O. Gridchin

Materials Science in Semiconductor Processing 2026 110293

Article

Polyvinylpyrrolidone planarized liquid crystalline 1T-WS2/rGO hybrid nanocomposites-based humidity sensing platform

A. Vasil'ev, M. Zhezhu, S. Gyozalyan, L. Avanesyan, Y. Grigoryan, A.A. Kuzanyan, A.A. Hovhannisyan, Mohamed Aly Saad Aly, D.A. Ghazaryan, H. Gharagulyan

Journal of Science Advanced Materials and Devices 2026 101115

https://www.sciencedirect.com/science/article/pii/S2468217926000201

Article

Dynamic dielectric permittivity tensor of in-plane hyperbolic van der Waals MoOCl2 and emergent chiral photonic applications

A. V. Margaryan, M. L. Sargsyan, M. H. Hayrapetyan, D. A. Karakhanyan, K. S. Novoselov, D. A. Ghazaryan

npj 2D Materials and Applications 2026 42

https://doi.org/10.1038/s41699-026-00681-6

Article

Dielectric function of layered GaSe0.8Te0.2 and emergent all van der Waals optical elements

A. V. Margaryan, M. L. Sargsyan, I. I. Piyanzina, D. A. Karakhanyan, M. H. Hayrapetyan, M. A. Levonyan, H. A. Zakaryan, K. S. Novoselov, D. A. Ghazaryan

Scientific Reports 2026 12551

https://doi.org/10.1038/s41598-026-42182-y

Article

Photoluminescence of CdSe/ZnS quantum dots in 5CB liquid crystals: from optical characterization to data-driven spectral modeling

Gor Kharatyan, Nabil Zeiri, Zdenek Remes, Jan Lancok, Artsruni Margaryan, Davit A. Ghazaryan, David Hayrapetyan, Paytsar Mantashyan

Journal of Molecular Liquids 2026 129598

https://doi.org/10.1016/j.molliq.2026.129598

Article

Record Index–Bandgap Trade-Off: CdPS3 as a High-Index van der Waals Platform for Ultraviolet–Visible Nanophotonics

Maksim R. Povolotskiy, Aleksandr S. Slavich, Georgy A. Ermolaev, Dmitriy V. Grudinin, Nikolay V. Pak, Ilya A. Zavidovskiy, Konstantin V. Kravtsov, Anton A. Minnekhanov, Mikhail K. Tatmyshevskiy, Alexander V. Syuy, Dmitry I. Yakubovsky, Arslan Mazitov, Liudmila A. Klimova, Adilet N. Toksumakov, Alexander V. Melentev, Elena Zhukova, Davit A. Ghazaryan, Gleb Tselikov, Ivan Kruglov, Sergey M. Novikov, Andrey Vishnevyy, Aleksey Arsenin, Kostya S. Novoselov, Valentyn Volkov

Nanophotonics 2026 e70142

https://onlinelibrary.wiley.com/doi/10.1002/nap2.70142

Article

Artificial intelligence guided search for van der Waals materials with high optical anisotropy

Liudmila A. Bereznikova, Ivan A. Kruglov, Georgy A. Ermolaev, Ivan Trofimov, Congwei Xie, Arslan Mazitov, Gleb Tselikov, Anton Minnekhanov, Alexey P. Tsapenko, Maxim Povolotsky, Davit A. Ghazaryan, Aleksey V. Arsenin, Valentyn S. Volkov, Kostya S. Novoselov

Materials Horizons 2025 1953 - 1961

Article

Optical Properties of Biaxial van der Waals Crystals for Photonic Applications

A. Slavich, G. Ermolaev, I. Zavidovskiy, D. Grudinin, M. Tatmyshevskiy, A. Toksumakov, A. Syuy, A. Vyshnevyy, D. Yakubovsky, S. Novikov, D. Ghazaryan, A. Arsenin, V. Volkov

Bulletin of the Russian Academy of Sciences Physics 2025 S433 - S438

Article

Inelastic resonant tunnelling through adjacent localised electronic states in van der Waals heterostructures

E. E. Vdovin, K. Kapralov, Yu. N. Khanin, A. Margaryan, K. Watanabe, T. Taniguchi, C. Yang, S. V. Morozov, D. A. Svintsov, K. S. Novoselov, D. A. Ghazaryan

npj 2D Materials and Applications 2025 7

Article

In-Plane Directional MoS2 Emitter Employing Dielectric Nanowire Cavity

Alexey Kuznetsov, Maria Aleksandrovna Anikina, Adilet Nurlanbekovich Toksumakov, Artem Nikolaevich Abramov, Vyacheslav Vsevolodovich Dremov, Eseniya Zavyalova, Valeriy Mikhailovich Kondratev, Vladimir Victorovich Federov, Ivan Sergeevich Mukhin, Vasily Kravtsov, Kostya Sergeevich Novoselov, Aleksey Vladimirovich Arsenin, Valentyn Sergeevich Volkov, Davit Armenovich Ghazaryan, Alexey Dmitrievich Bolshakov

Small Structures 2025 2400476

Article

Stacking and Layer Parity Dependent Photoluminescence in ReS2

Saroj Poudyal, Prahalad Kanti Barman, Rabindra Biswas, Konstantin Kravtsov, Bubunu Biswal, Renu Yadav, Varun Raghunathan, Ivan Kruglov, Davit A. Ghazaryan, Abhishek Misra

Advanced Optical Materials 2025 2403265

Article

Germanium disulfide as an alternative high refractive index and transparent material for UV-visible nanophotonics

Aleksandr S. Slavich, Georgy A. Ermolaev, Ilya A. Zavidovskiy, Dmitriy V. Grudinin, Konstantin V. Kravtsov, Mikhail K. Tatmyshevskiy, Mikhail S. Mironov, Adilet N. Toksumakov, Gleb I. Tselikov, Ilia M. Fradkin, Kirill V. Voronin, Maksim R. Povolotskiy, Olga G. Matveeva, Alexander V. Syuy, Dmitry I. Yakubovsky, Dmitry M. Tsymbarenko, Ivan Kruglov, Davit A. Ghazaryan, Sergey M. Novikov, Andrey A. Vyshnevyy, Aleksey V. Arsenin, Valentyn S. Volkov, Kostya S. Novoselov

Light Science & Applications 2025 213

Article

L-cysteine polymorph coatings for THz sensing metasurfaces

M. Zhezhu, A. Vasil'ev, H. Parsamyan, T. Abrahamyan, G. Baghdasaryan, S. Gyozalyan, D. Ghazaryan, H. Gharagulyan

Results in Physics 2025 108351

Article

Chemical vapor deposition synthesis of (GeTe)n(Sb2Te3) gradient crystalline films as promising planar heterostructures

M. Zhezhu, A. Vasil'ev, M. Yapryntsev, E. Ghalumyan, D.A. Ghazaryan, H. Gharagulyan

Materials Science in Semiconductor Processing 2025 109863

Article

Revisiting THz absorption in GO and rGO liquid crystalline films

A. Vasil’ev, M. Zhezhu, H. Parsamyan, G. Baghdasaryan, M. Sargsyan, D.A. Ghazaryan, H. Gharagulyan

Optics & Laser Technology 2025 113628

Article

Epitaxial Growth of AlN Nanowires on Two-Dimensional h-BN Flakes Transferred Onto SiO2/Si Substrate

Albert Dautov, Talgat Shugabaev, Alexey Kuznetsov, Konstantin Kotlyar, Davit Ghazaryan, Adilet Toksumakov, Alexey Bolshakov, Alesya Parfeneva, George Cirlin, Vladislav Gridchin

International Conference of Young Specialists on Micro/Nanotechnologies and Electron Devices, EDM 2025 100-103

Article

Probing the features of electron dispersion by tunneling between slightly twisted bilayer graphene sheets

Alexey A. Sokolik, Azat F. Aminov, Evgenii E. Vdovin, Yurii N. Khanin, Mikhail A. Kashchenko, Denis A. Bandurin, Davit A. Ghazaryan, Sergey V. Morozov, Kostya S. Novoselov

Applied Physics Letters 2025 233101

Conference

TERAHERTZ RESPONCE OF GRAPHENE-LIKE STRUCTURES

L. Avanesyan, A. Vasil'ev, M. Zhezhu, H. Parsamyan, G. Baghdasaryan, M. Sargsyan, D. A. Ghazaryan, H. Gharagulyan

2025 24 - 24

https://crgconferences.com/functionalmaterials/

Conference

Ge–Sb–Te Gradient Crystalline Films for Potential Optical Filtering
Marina Zhezhu, Alexey Vasil'ev, Maxim Yaprintsev, Davit Ghazaryan, Hermine Gharagulyan

2025 68-69

https://indico.cern.ch/event/1548886/

Conference

Resonances Induced by Structural Asymmetry in the THz Domain and Their Applications
Sara Gyozalyan, Marina Zhezhu, Alexey Vasil'ev, Henrik Parsamyan, Tigran Abrahamyan,

Gayane Baghdasaryan, Davit A. Ghazaryan, Hermine Gharagulyan

2025 85-86

https://indico.cern.ch/event/1548886/

Conference

Terahertz Response of Liquid Crystalline GO and rGO Thin Films
Lilit Avanesyan, Alexey Vasil'ev, Marina Zhezhu, Henrik Parsamyan, Gayane Baghdasaryan,

Maksim Sargsyan, Davit A. Ghazaryan, Hermine Gharagulyan

2025 43-44

https://indico.cern.ch/event/1548886/

Article

E-beam induced micropattern generation and amorphization of L-cysteine-functionalized graphene oxide nano-composites
Y. Melikyan, H. Gharagulyan, A. Vasil'ev, V. Hayrapetyan, M. Zhezhu, A. Simonyan, D.A. Ghazaryan,

M.S. Torosyan, A. kharatyan, J. Michalicka, M. Yeranosyan

Colloids and Interface Science Communications 2024 100766-7

Article

Exploring van der Waals materials with high anisotropy: geometrical and optical approaches
Aleksandr S Slavich, Georgy A Ermolaev, Mikhail K Tatmyshevskiy, Adilet N Toksumakov,

Olga G Matveeva, Dmitriy V Grudinin, Kirill V Voronin, Arslan Mazitov, Konstantin V Kravtsov,

Alexander V Syuy, Dmitry M Tsymbarenko, Mikhail S Mironov, Sergey M Novikov, Ivan Kruglov,

Davit A Ghazaryan, Andrey A Vyshnevyy, Aleksey V Arsenin, Valentyn S Volkov, Kostya S Novoselov

Light Science & Applications 2024 68

Article

Wandering principal optical axes in van der Waals triclinic materials
Georgy A Ermolaev, Kirill V Voronin, Adilet N Toksumakov, Dmitriy V Grudinin, Ilia M Fradkin,

Arslan Mazitov, Aleksandr S Slavich,, Mikhail K Tatmyshevskiy, Dmitry I Yakubovsky, Valentin R Solovey,

Roman V Kirtaev, Sergey M Novikov, Elena S Zhukova, Ivan Kruglov, Andrey A Vyshnevyy,

Denis G Baranov, Davit A Ghazaryan, Aleksey V Arsenin, Luis Martin-Moreno, Valentyn S Volkov,

Kostya S Novoselov

Nature Communications 2024 1552

Article

Chiral Photonic Super-Crystals Based on Helical van der Waals Homostructures
Kirill V. Voronin, Adilet N. Toksumakov, Georgy A. Ermolaev, Aleksandr S. Slavich,

Mikhail K. Tatmyshevskiy, Sergey M. Novikov, Andrey A. Vyshnevyy, Aleksey V. Arsenin,

Kostya S. Novoselov, Davit A. Ghazaryan, Valentyn S. Volkov, Denis G. Baranov

Laser & Photonics Review 2024 2301113

Article

Infrared photodetection in graphene-based heterostructures: bolometric and thermoelectric effects at the tunneling barrier

Dmitry A. Mylnikov, Mikhail A. Kashchenko, Kirill N. Kapralov, Davit A. Ghazaryan, Evgenii E. Vdovin, Sergey V. Morozov, Kostya S. Novoselov, Denis A. Bandurin, Alexander I. Chernov, Dmitry A. Svintsov

npj 2D Materials and Applications 2024 34

Article

Programmable Carbon Nanotube Networks: Controlling Optical Properties Through Orientation and Interaction

Kirill V. Voronin, Georgy A. Ermolaev, Maria G. Burdanova, Aleksandr S. Slavich, Adilet N. Toksumakov, Dmitry I. Yakubovsky, Maksim I. Paukov, Ying Xie, Liu Qian, Daria S. Kopylova, Dmitry V. Krasnikov, Davit A. Ghazaryan, Denis G. Baranov, Alexander I. Chernov, Albert G. Nasibulin, Jin Zhang, Aleksey V. Arsenin, Valentyn Volkov

Advanced Science 2024 2404694

Article

Polarization control of lasing from few-layer MoTe2 coupled with the optical metasurface supporting quasi-trapped modes

A. V. Prokhorov, A. N. Toksumakov, A. V. Shesterikov, F. M. Maksimov, M. K. Tatmyshevskiy, M. Yu. Gubin, R. V. Kirtaev, E. I. Titova, D. I. Yakubovsky, E. S. Zhukova, V. V. Burdin, S. M. Novikov, A. I. Chernov, D. A. Ghazaryan, A. V. Arsenin, V. S. Volkov

Applied Physics Letters 2024 041702

Article

Improving the electro-optical properties of MoS2/rGO hybrid nanocomposites using liquid crystals

A. Vasil'ev, Y. Melikyan, M. Zhezhu, V. Hayrapetyan, M.S. Torosyan, D.A. Ghazaryan, M. Yeranosyan, H. Gharagulyan

Materials Research Bulletin 2024 113036

Article

Essential L-Amino Acid-Functionalized Graphene Oxide for Liquid Crystalline Phase Formation

H. Gharagulyan, Y. Melikyan, V. Hayrapetyan, Kh. Kirakosyan, D.A. Ghazaryan, M. Yeranosyan

Materials Science and Engineering B 2023 116564

Article

Graphene on SiO2/Si and Al2O3 under thermal annealing and electric current: Competition of dopant desorption and conformation to substrate

E.A. Kolesov, M.S. Tivanov, O.V. Korolik, I.A. Svito, A.S. Antonovich, Yu. Klishin, D.A. Ghazaryan, A.V. Arsenin, V.S. Volkov, O.O. Kapitanova, G.N. Panin

Diamond and Related Materials 2023 110362

Article

Dry Assembly of van der Waals Heterostructures Using Exfoliated and CVD-Grown 2D Materials

Adilet N. Toksumakov, M. N. Sidorova, A. S. Slavich, M. K. Tatmyshevskiy, I. A. Zavidovskiy,

G. A. Ermolaev, V. S. Volkov, D. A. Ghazaryan, A. V. Arsenin

Bulletin of the Russian Academy of Sciences Physics 2023 S453–S457

Article

Tunable THz flat zone plate based on stretchable single-walled carbon nanotube thin film
Gleb M Katyba, Nikita I Raginov, Eldar M Khabushev, Vladislav A Zhelnov, Andrei Gorodetsky,

Davit A Ghazaryan, Mikhail S Mironov, Dmitriy V Krasnikov, Yuri G Gladush, James Lloyd-Hughes,

Albert G Nasibulin, Aleksey V Arsenin, Valentyn S Volkov, Kirill I Zaytsev, Maria G Burdanova

Optica 2023 53-61

Article

Anomalous optical response of graphene on hexagonal boron nitride substrates
Adilet N Toksumakov, Georgy A Ermolaev, Mikhail K Tatmyshevskiy, Yuri A Klishin, Aleksandr S Slavich,

Ilya V Begichev, Dusan Stosic, Dmitry I Yakubovsky, Dmitry G Kvashnin, Andrey A Vyshnevyy,

Aleksey V Arsenin, Valentyn S Volkov, Davit A. Ghazaryan

Communications Physics 2023 13

Article

Photoluminescence anisotropy in hybrid nanostructures based on gallium phosphide nanowire and 2D transition metal dichalcogenides
MA Anikina, A Kuznetsov, AN Toksumakov, VV Dremov, DA Ghazaryan, VV Fedorov, AV Arsenin,

VS Volkov, AD Bolshakov

St Petersburg State Polytechnical University Journal Physics and Mathematics 2023 3.2

Article

Hexagonal boron nitride nanophotonics: a record-breaking material for the ultraviolet and visible spectral ranges
D. V. Grudinin, G. A. Ermolaev, D. G. Baranov, A. N. Toksumakov, K. V. Voronin, A. S. Slavich,

A. A. Vyshnevyy, A. B. Mazitov, I. A. Kruglov, D. A. Ghazaryan, A. V. Arsenin, K. S. Novoselov, V. S. Volkov

Materials Horizons 2023 2427-2435

Article

Temperature-dependent Raman spectroscopy and thermal conductivity of TiS2 hexagonal nanodiscs
Mohammad Talib, Samrah Manzoor, Davit A. Ghazaryan, Aleksey V. Arsenin, Valentyn S. Volkov,

Prabhash Mishra

Materials Science in Semiconductor Processing 2022 107084

Article

High-refractive index and mechanically cleavable non-van der Waals InGaS3
Adilet N. Toksumakov, Georgy A. Ermolaev, Aleksandr S. Slavich, Natalia V. Doroshina,,

Ekaterina V. Sukhanova, Dmitry I. Yakubovsky, Alexander V. Syuy, Sergey M. Novikov,,

Roman I. Romanov, Andrey M. Markeev, Aleksandr S. Oreshonkov, Dmitry M. Tsymbarenko,

Zakhar I. Popov, Dmitry G. Kvashnin, Andrey A . Vyshnevyy, Aleksey V. Arsenin, Davit A. Ghazaryan,

Valentyn S. Volkov

npj 2D Materials and Applications 2022 85

Article

Broadband optical and terahertz properties of 1D van der Waals heteronanotubes
Maria G. Burdanova, Yongjia Zheng, Maksim I. Paukov, Georgy A. Ermolaev, Gennady A. Komandin,

Davit Ghazaryan, Sergey Novikov, Rong Xiang, Shohei Chiashi, Shigeo Maruyama, James Lloyd-Hughes,

Alexey V. Arsenin, Valentin Volkov

IEEE Photonics Journal 2022 182243

Article

Twisted monolayer and bilayer graphene for vertical tunneling transistors
Davit A. Ghazaryan, Abhishek Misra, Evgenii E. Vdovin,, Kenji Watanabe, Takashi Taniguchi,

Sergei V. Morozov, Artem Mishchenko, Kostya S. Novoselov

Applied Physics Letters 2021 183106

Article

On the Role of Structural Imperfections of Graphene in Resonant Tunneling through Localized States in the h-BN Barrier of van-der-Waals Heterostructures
M. V. Grigoriev, D. A. Ghazaryan, E. E. Vdovin, Yu. N. Khanin, S. V. Morozov, K. S. Novoselov

Физика и техника полупроводников (Semiconductors) 2020 291–296

Article

High-temperature electronic devices enabled by hBN-encapsulated graphene
Makars Šiškins, Ciaran Mullan, Seok-Kyun Son, Jun Yin, Kenji Watanabe, Takashi Taniguchi,

Davit Ghazaryan, Kostya S. Novoselov, Artem Mishchenko

Applied Physics Letters 2019 123104

Article

Engineering Graphene Flakes for Wearable Textile Sensors via Highly Scalable and Ultrafast Yarn Dyeing Technique
Shaila Afroj, Nazmul Karim, Zihao Wang, Sirui Tan, Pei He, Matthew Holwill, Davit Ghazaryan,

Anura Fernando, Kostya S. Novoselov

ACS Nano 2019 3847–3857

Article

Field-induced insulating states in a graphene superlattice
S. Pezzini, S. Wiedmann, A. Mishchenko, M. Holwill, R. Gorbachev, D. Ghazaryan, K.S. Novoselov,

U. Zeitler

Physical review. B./Physical review. B 2019 045440

Article

Planar and van der Waals heterostructures for vertical tunnelling single electron transistors
Gwangwoo Kim, Sung-Soo Kim, Jonghyuk Jeon, Seong In Yoon, Seokmo Hong, Young Jin Cho,

Abhishek Misra, Servet Ozdemir, Jun Yin, Davit Ghazaryan, Matthew Holwill, Artem Mishchenko,

Daria V. Andreeva, Yong-Jin Kim, Hu Young Jeong, A-Rang Jang, Hyun-Jong Chung, Andre K. Geim,

Kostya S. Novoselov, Byeong-Hyeok Sohn, Hyeon Suk Shin

Nature Communications 2019 230
