

## Curriculum Vitae Narek Margaryan

Head of research group,  
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### Appointments

Head of Research Group A.I. Alikhanyan National Science Laboratory (Yerevan Physics Institute)	2022 – present
Invited Senior Research Fellow University of Notre Dame, Indiana, USA	2022
Researcher A.I. Alikhanyan National Science Laboratory (Yerevan Physics Institute)	2020 - 2022
Researcher Armenian State Pedagogical University after Khachatur Abovyan	2018 - 2022
Lecturer Institute of physics, Yerevan State University	2023 - present
Researcher Basic Laboratory “Heliotecnic”, National Polytechnic University of Armenia	2016 - 2017
Lecturer Department of Physics, National Polytechnic University of Armenia	2014 - 2022
Laborant Department of Physics, National Polytechnic University of Armenia	2013 - 2015

### Grants

“Smart Films Self-Adapt to The Thermal Background”. Ministry of Education, Science, Culture and Sport RA, Higher Education and Science Committee. (PI) \$98,000	2023
“Graphene/Lithium Niobate Structure for Aerosol generation”. Enterprise Incubator Founding, Yerevan, Armenia, (PI) \$15000	2022
“Graphene-Based Infrared Absorbing Films”. Ministry of Education, Science, Culture and Sport RA Science Committee. (PI) \$97,000	2021
“Universal Sensors For Biomedical Diagnostics and Environmental Monitoring”. Enterprise Incubator Founding, Yerevan, Armenia, (PI) \$10,000	2021
“CVD system for graphene synthesis”. Ministry of Education, Science, Culture and Sport RA Science Committee, Young researchers support program, (PI) (\$6,200 + \$12,500 AANL Cost Share)	2021
“Perovskite solar cells-the way for energy security and waste reduction” Ministry of Education, Science, Culture and Sport RA Science Committee.	2021
“Graphene / lithium niobate heterostructure based field transistor for terahertz modulator” Scientific Committee RA.	2021
“Perovskites: the next generation of solar cells”. Enterprise Incubator Founding, Yerevan, Armenia	2021
“High temperature surface acoustic wave sensors on the base of hybrid stoichiometric lithium niobate-graphene materials”. Ministry of Education, Science, Culture and Sport RA Science Committee	2018

## Education

Ph.D. in Physics	2017
National Polytechnic University of Armenia, Yerevan, Armenia	
M.S. in Physics	2010
Yerevan State University, Yerevan, Armenia	
B.S. in Physics	2008
Yerevan State University, Yerevan, Armenia	

## Publications

1. N. Margaryan et al, 15.5 MeV proton irradiation treatment of liquid phase exfoliated graphene. *Diamond and Related Materials*, V 146, 111224 (2024).
2. A. A. Danghyan et al, Determination of energy band gap of  $\alpha$ -LiIO<sub>3</sub> doped with L-Arginine and L-Nitroarginine amino acids using diffuse reflectance spectroscopy. *Journal of instrumentation*, 19, C05003 (2024).
3. E. Aleksanyan, N. Margaryan et al, Optical and structural characterization of CsPb(1-xBrx)<sub>3</sub> nanomaterials prepared by the mechanochemical method. *Optical Materials*, 146, 114506 (2023).
4. L. Anjo, A. Arshakyan, N. Gasparyan, A. Shahinyan, E. Aleksanyan, N. Margaryan, Functionalization of Graphene Oxide Layers Simultaneously with Liquid Phase Exfoliation, *Armenian Journal of Physics*, V16, I 2, p 56-61 (2023).
5. Margaryan N., Kokanyan N., Kokanyan E., Investigation of Properties of Graphene Quantum Dots and Carbon Nanotubes Synthesized in a Colloid Solution. *Journal of Contemporary Physics (Armenian Academy of Sciences)*, Vol. 56, No. 3, ISSN 1068–3372 (2021).
6. Margaryan N., Kokanyan N., Kokanyan E., Low-temperature synthesis and characteristics of fractal graphene layers / *Journal of Saudi Chemical Society*, 23 (1), 13-20 (2019)
7. Margaryan N., Study of Surface Properties of Nanostructured Carbon Films, *NPUA Bulletin*, 1, 145-150 (2019) (In Armenian)
8. Margaryan N., Kokanyan N., Kokanyan E., The AFM and Raman Study of Few Layer Graphene. *The Nanotech Middle East 2017 International Conference Nanotech ME 2017, Dubai - UAE Conference Proceedings* (2017)
9. Margaryan N., Karayan H. S., Avagyan A. N., Optical and Surface Properties of Self Assembled Graphene Layers. *Proceedings of the Eleventh International Conference "Semiconductor Micro- and Nanoelectronics"*, pp. 23-25 (2017)
10. Margaryan N., Karayan H. S., Measuring Surface Potential of Carbon Nanostructured Films, Coming Out of Concept of Thermodynamic Work Function. *Proceedings of the Eleventh International Conference "Semiconductor Micro- and Nanoelectronics"*, pp. 23-25 (2017)
11. Margaryan N., Karayan H. S., Harutyunyan A. V. , Calculation of the Surface Potential of Nanostructured Carbon Films Using Multifractal Analysis Method. *Bulletin of High Technology*, 1, 35-41 (2017)

12. Ispiryan N., Margaryan N., Some Details of Graphene Nanofilm Syntheses and Possible Biomedical Application, *Pharma*, № 14, p. 31-40 (2017) (In Armenian)
13. Aharonyan K. H., Margaryan N., Screened Exciton in a Lead Salt Quantum Wire. *NPUA Bulletin*, V1, p. 59-64 (2017)
14. Margaryan N.B., Panosyan ZH., Mailian A., Voskanyan S. A Study of Surface Potential of CVD Carbon Layers and Carbon Tribolayers. *Nano Studies*, 13, 229-232 (2016)
15. Margaryan N., Ispiryan N., Application of Carbon Nanostructured Films in Biosensors, *Pharma*, № 13, p. 51-55, 5 (2016)
16. Aharonyan K. H., Margaryan N., Dielectric confinement influenced screened Coulomb potential for a semiconductor quantum wire. *Journal of Physics: Conference Series*, 672, 012009 (2016)
17. Aharonyan K., H., Margaryan N., Plasmon-phonon coupling in lead salt semiconductor quantum well / *Journal of Physics: Conference Series*, 673, 012002 (2016)
18. Aharonyan K. H., Margaryan N., Binding energy of the one-sided dielectrically enhanced screened exciton in semiconductor quantum well. *Reports of National Science Academy of Armenia* v.116, pp. 57-63 (2016)
19. Aharonyan K. H., Margaryan N., The Binding Energy of the Screened Coulomb Center in a semiconductor quantum wire. *NPUA Bulletin*, V1, p. 42-47 (2016)
20. Margaryan N., Screened Coulomb centers in lead salt /mesoporous silica SBA 15 phase realistic semiconductor quantum wire system. *Proceedings of the Tenth International Conference "Semiconductor Micro- and Nanoelectronics"*, pp. 96-98 (2015)
21. Aharonyan K. H., Margaryan N., Screened Coulomb properties of semiconductor nanowire with dielectric confinement effect. *Proceedings of the Tenth International Conference "Semiconductor Micro- and Nanoelectronics"*, pp. 94-96 (2015)
22. Aharonyan K. H., Margaryan N., Dielectric Confinement Affected Quantum Screening of Quasi One Dimensional Electron Gas in Semiconductor Quantum Wires. *NPUA Bulletin*, 1, 35-39 (2015)
23. Aharonyan K. H., Margaryan N., Harutyunyan A. V., Calculation of Binding Energy of Exciton in Semiconductor Quantum Wire. *Publications of International Scientific Conference: "Education, Science and Economics at Universities and Schools."* pp. 35-39. 28.09-2.10, Goris (2015)
24. Aharonyan K. H., Margaryan N., On the Theory of Plasmon-Phonon Coupling in Lead Salt Semiconductor Quantum Well. *NPUA Bulletin*, 1, 49-54 (2014)
25. Aharonyan K. H., Margaryan N., Plasmon-phonon properties of narrowgap realistic lead salt *Proceedings of the Ninth International Conference "Semiconductor Micro- and Nanoelectronics"*, pp. 147- 150, (2013)
26. Aharonyan K. H., Margaryan N., Plasmon-Phonon Properties of Narrow-Gap Realistic Lead Salt Quantum Well. *NPUA Bulletin*, 1, 71-76 (2013)
27. Aharonyan K. H., Margaryan N., The screened exciton absorption in quantum well. *NPUA Bulletin*, 1, 81-86 (2012)

#### **Presentation at international scientific conferences**

1. 13th edition of Graphene Conference series, the largest European Event in Graphene and

- 2D Materials, Graphene 2023, 27-30 July, 2023, Manchester, UK.
2. 11th International Symposium on Optics and its Applications, OPTICS 2023, 11-15 July, 2023, Yerevan, Armenia.
  3. International Conference on Quantum Magnetism and Statistical Mechanics of Lattice Models. 11-15 May 2022, Yerevan, Armenia.
  4. 10th International Symposium on Optics and its Applications OPTICS 2022. 15-19 January 2022, Yerevan-Ashtarak, Armenia.
  5. International conference: Nanotechnology 2019. 29 June-5 July, 2019. Thessaloniki, Greece.
  6. International conference: OPTICS 2019. 20 -24Sep, 2019.Yerevan, Armenia.
  7. International conference: IONS Yerevan 2018 (Optical Society of America conference).30 Aug- 2 Sep, 2018.
  8. International conference: Nanotech Middle East 2017. 4-6 December, Dubai, UAE.
  9. International conference: Trends in Nanotechnology (TNT2017). 5-9 June, Dresden, Germany.
  10. International conference: Semiconductor Micro-and Nanoelectronics (ICSMN 2017). 23-25 June, Yerevan, Armenia.
  11. International conference: Nanotech 2016 (NanoMetrology 2016). 1-3 June, Paris, France.
  12. International conference: Nano 2016. 24-27 October, Tbilisi, Georgia.
  13. International conference: Semiconductor Micro-and Nanoelectronics (ICSMN 2015). 11-13 September, Yerevan, Armenia.

### **Teaching Experience**

General Physics, Physical Bases of Electronics (for bachelor students), Radiative Recombination in Semiconductors (for master students), Physics of Heterostructures (for bachelor students).