

**Full Name** Davit B. Hayrapetyan  
**Date of Birth** 27 August, 1982  
**Citizenship** Republic of Armenia  
**Nationality** Armenian  
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**Business Address** Russian-Armenian University  
H. Emin 123, Yerevan 0051, Armenia

**Academic  
Background,  
Education**

**2014** - Associate professor in the field of physics.

**2009** – Doctor of Physics (PhD) in the field of Semiconductor and Insulator Physics, Yerevan State University, Scientific supervisors Prof. J.R. Panosyan and Prof. E.M. Kazaryan

**PhD thesis:** “Investigation of electronic and optical properties of quantum structures with nontrivial geometry”.

**2006 – 2009**, Postgraduate Student, Department of Physics, State Engineering University of Armenia.

**2004 – 2006**, Department of Solid State Physics, Faculty of Physics, Yerevan State University.

**Master’s degree** of Physics in the field of Physics (diploma of honor),

**Master thesis:** “Direct interband light absorption in strongly oblate and strongly prolate ellipsoidal quantum dots”

**2000 – 2004**, Graduated from Faculty of Physics, Department of Solid State Physics, Yerevan State University.

**Bachelor’s degree** of Physics in the field of Physics (Diploma of honor)

**Bachelor thesis:** “Electron states in a strongly flattened ellipsoidal quantum dot in the presence of electric and magnetic fields”

**Honors and  
Awards**

**2022** – “**The Best scientific work**” initiated by World Armenian Congress, The Union of Armenians in Russia and The National Academy of Sciences of Armenia in the nomination Physics

**2021** – Winner of the “Highly effective researchers (Top 100)” competition initiated by State Committee of Science of Armenia

**2021 – ICO/ICTP Gallieno Denardo International Award** - "For his breakthrough contributions to the theory of semiconductor nanosystems, as well as his promotion of optics and photonics in Armenia under difficult circumstances."

**2017** – Winner of the “Highly effective young researchers under 35 age (Top 50)” competition initiated by State Committee of Science of Armenia

**2016** – Winner of the “Highly effective young researchers under 35 age (Top 50)” competition initiated by State Committee of Science of Armenia

**2016** – “The Best Young Scientist” initiated by Russian-Armenian University

**2015** – Award after V. Hambartsumian initiated by Russian-Armenian State University

**2012** – Award from “Tashir” charitable foundation for articles with maximum citations in the international scientific journals

**2012** – “The Best Young Scientist” initiated by Russian-Armenian University

**2011** – “The Best Young Lecturer” initiated by Russian-Armenian University

**2011** – Award from “Gagik Tsarukyan” charitable foundation for articles in the international scientific journals with high impact factor

**2011** – “**The Best scientific work**” initiated by World Armenian Congress, The Union of Armenians in Russia and The National Academy of Sciences of Armenia in the nomination Physics

**2006** – **President Educational Award** in the field of Information Technologies, First place in “The Best Master” nomination

**2003** – “The Best Student” in Yerevan State University

**2003** – “The Best Student” in Physics Faculty of Yerevan State University 3rd place award

**2000** – **Gold medal** for the excellent advancement and exemplary behavior in the high school

## **Employment History**

**2024 – up to now**, Head of the Laboratory of Quantum Materials and Nanophotonics, A.B. Nalbandyan Institute of Chemical Physics of NAS RA

**2023 – up to now**, Advanced Researcher, A.B. Nalbandyan Institute of Chemical Physics of NAS RA

**2018 – up to now**, Head of the Department of General Physics and Quantum

Nanostructures, Institute of Engineering and Physics, Russian-Armenian University

**2018 – 2020** CTO of Solar Group LLC

**2018 – up to now**, Head of the Wolfram Laboratory

**2017 – up to now**, Adjunct professor, Department of Semiconductor Physics and Nanoelectronics, Institute of Physics, Nanotechnologies and Telecommunications, Peter the Great St. Petersburg Polytechnic University

**2017 – 2018**, Head of the Laboratory of Mathematical Modeling of Quantum Systems, Institute of Mathematics and High Technologies, Russian-Armenian University

**2014 – up to now**, Associate professor, Department of General Physics and Quantum Nanostructures, Institute of Mathematics and High Technologies, Russian-Armenian University

**2014 – 2016**, Research scientist, Department of theoretical physics, Centre of Quantum Technologies and New Materials, Yerevan State University

**2014 – 2017** CEO of Energy Systems LLC

**2013 – 2014**, Teacher, “Usmunq” Private School

**2010 – 2011**, Researcher at BiPi LLC

**2009 – 2015**, Research scientist, Heliotechnic Problem Laboratory, National Polytechnic University of Armenia

**2009 – 2013**, Senior lecturer, Faculty of Applied Physics and Engineering, Russian-Armenian University.

**2007 – 2009**, Junior Research scientist, Faculty of Applied Physics and Engineering, Russian-Armenian University.

## Grants

**2023 - 2024** – Scientific Adviser of the ANSEF (the Armenian National Science and Education Fund) Award 2015, 23AN:PS-nano-2870, Quantum Dots with Non-Trivial Geometry as Vehicles for Nanodevice Engineering

**2022-2023** - Participant of **PMI Incubation Program** 2022 (PMI Science) “Inductive Heating of Magnetic Iron Oxide Nanoparticles”.

**2022-2023** - Participant of **Faculty Research Funding Program** 2022 (PMI Science) “Significant Heating of Iron Oxide Nanoparticles via Alternating

Magnetic Field”.

**2021-2022** Participant of the thematic work “Activities to support of efficiency of Russian-Armenian and Belorussian-Russian Universities”, supplement agreement contract № 075-03-2021-050/5 dated 08.07.21, initiated by the Ministry of Science and Higher Education of the Russian Federation.

**2021-2022** - Coordinator of **Faculty Research Funding Program** 2021 (PMI Science) “Colloidal Quantum Dots as Platforms for Quantum Information Science”.

**2021-2024** - Head of the **Starting Grant** initiated by the State committee of science of Armenia, Project 21SCG-1C008, Single Photons Sources and Entangled Photons Pairs Sources based on Coupled Colloidal Quantum Dots for Quantum Computing.

**2021-2022** - Head of the Project of the **Russian-Armenian Research Collaboration Grant** initiated by the State committee of science of Armenia and Russian Foundation for Basic Research, Project 20RF-048, Exciton transport, exciton-exciton interaction, 2D hybrid perovskites, organic-inorganic perovskites, multilayer nanostructure.

**2020-2023** – **Coordinator of Horizon 2020** WIDESPREAD-05-2020 Twinning Program, NanoQIQO, Twinning towards the Russian-Armenian University’s scientific excellence and innovation capacity in nanomaterials for quantum information and quantum optics (grant No. 95233).

**2021-2022** – Scientific advisor of the **PhD Students Support Program** of the State Committee of Science, “Optical properties of magnetobexcitons in semiconductor quantum dots”, PhD student Yuri Bleyan.

**2020-2021** - Principal Investigator of the ANSEF (the Armenian National Science and Education Fund) Award 2020, 20AN:PS-nano-2205, Theoretical and experimental investigation of optical properties of biexcitons in quantum dots

**2019-2022** - Head of the Project of the **Armenian-Italian Research Collaboration Grant** initiated by the State committee of science of Armenia, Project AI-01/19, Photophysical investigation of semiconductor quantum dots

**2018-2020** - Participant of the Thematical funding of the State Committee of Science of Armenia, Project 18T-1C062. Investigation of trion and biexciton structures in semiconductor quantum dots.

**2016 - 2021** – Participant of the Development Project initiated by the Russian-Armenian University, Investigation of many particle and photoluminescence characteristics of the semiconductor quantum dots and dashes

**2016 - 2018** – Head of the Project of the **Young Scientists Research Support**

**Program** initiated by the State committee of science of Armenia, Project 16YR-1C022, Investigation of quantum nanostructures with non-trivial geometry: electronic, excitonic and impurity states, linear and nonlinear optical properties in terahertz range

**2014 - 2017** Tempus “Armenqa” project 543817, Implementation of National and Sectorial Qualifications Frameworks in Armenia

**2016 - 2018** – Participant of the ISTC (The International Science and Technology Center) Project A-2130, Control of light in structured nonlinear media: Application to all-optical devices

**2015 - 2016** – Participant of the Development Project initiated by the Russian-Armenian University, Investigation of Coulomb, spin, and electro-optical properties of layered quantum dots and quantum dashes

**2015 - 2016** – Principal Investigator of the ANSEF (the Armenian National Science and Education Fund) Award 2015, NANO-3905, Cylindrical quantum dot with different confining potentials in the presence of external electrical and magnetic fields: impurity states and electrostatic multipoles

**2013 - 2015** – Participant of the ISTC Project K-2050, Development of Technologies of Stabilization of Parameters of Photovoltaic Cells

**2012** – Scientific advisor of the Postgraduate Students Support Program-2012 of the State Committee of Science, “Influence of hydrostatic pressure on electronic states and optical properties of spherical quantum dots”

**2011 - up to now** – Participant of the Basic funding of the State Committee of Science of Armenia, Investigation of physical properties of quantum nanostructures with non-trivial geometry and different confinement potentials

**2009 - 2011** – Participant of the ISTC Project A-1695, Nanotubes/Diamond Like Carbon composite transparent conductive material for Solar Cell and Conductive Coating Applications

**2009** – Participant of the ANSEF Award 2008, NANO-1759, Theoretical Investigation and Modeling of Electronic and Optical Properties of Strongly Oblated Semi-Ellipsoidal (3D) and Semi-elliptical (2D) Lens Shaped Quantum Dots

**2008** – Participant of the ANSEF Award 2008, NANO-1301, Theoretical Investigation and Modeling of Electronic and Optical Properties of Strongly Oblate (Prolate) Ellipsoidal and Semi-ellipsoidal Quantum Dots

## Membership in

**2023** Member of the “Support for strengthening scientific groups or laboratories -

## Committees

2023” call of Science Committee of Armenia, 2023, Yerevan, Armenia

**2023** Member of the “Postdoc Programme 2023” call of Science Committee of Armenia, 5 July, 2023, Yerevan, Armenia

**2022** Member of the “Programme to support the integration of foreign scientists into the RA scientific community” call of Science Committee of Armenia, 21 September, 2022, Yerevan, Armenia

**2021** Jury of Falling Walls Armenia, 11 September, 2021, Yerevan, Armenia

**2021** Chair of the school dedicated to the International Day of Light 2021, 17-20 May, 2021, Yerevan, Armenia

**2020** Co-chair of online workshop “From Darkness to Brightness” devoted to International Day of Light, 16 May, 2020, Yerevan, Armenia

**2017-2020** Member of the Programme Committee for the specific programme implementing Horizon 2020 - Configuration NMBP (European Commission)

**2017-2020** Member of the committee of the state examination and Bachelor graduate works of Yerevan State University (Faculty of Radiophysics)

**2015-2017** Member of the Committee for Sectorial Qualifications Framework in the Higher Education System for Physics of Republic of Armenia (Co-funded by the Tempus Programme of the European Union)

**2015-2020** Member of the committee of the state examination and Master graduate works of Russian-Armenian University (Chair of General Physics and Quantum Nanostructures)

**2012-2020** Member of the committee of the state examination and Bachelor graduate works of Russian-Armenian University (Chair of General Physics and Quantum Nanostructures)

**2011** Member of Olympiad program committee of Sixth annual international Microelectronics Olympiad of Armenia, Yerevan

**2010** Member of Olympiad program committee of Fifth annual international Microelectronics Olympiad of Armenia, Yerevan

## Professional Membership

**2022 up to now** EPS (European Physical Society), Adviser of RAU student chapter

**2018 up to now** OSA (Optical Society of America), Adviser of RAU student chapter

**2011 up to now** ICO (International Commission for Optics), member

**Reviewer of  
Scientific Journals**

Physica E: Low-dimensional Systems and Nanostructures

Superlattices and Microstructures

Optics Communications

Physica B: Condensed Matter

Journal of Contemporary physics

Journal of Inorganic and Organometallic Polymers and Materials

Radiation Effects and Defects in Solids

International Journal of Modern Physics B

Journal of Materials Research and Technology

Philosophical Magazine Letters

European Physical Journal B

Chemical Society Reviews (**IF=54.56**)

Materials Science in Semiconductor Processing

Journal of Applied Physics

ECS Journal of Solid State Science and Technology

Crystals

Nanomaterials

Journal of Computational Electronics

Photonics

Optics and Laser Technologies

Plos One

Condensed Matter

Philosophical Magazine

**Reviewer of  
National Scientific  
Agencies**

Science Committee of Armenia (SC)  
The Science Fund of the Republic of Serbia (SFRS)

**Languages**

Armenian (Native), Russian (Fluent), English (Proficient)

**Expertise**

**2017** - Expert of the ANQA on the institutional review of the French university in Armenia in the framework of the tempus TNA\_QA project, 2017

**2015 - 2017** Expert of the ARMENQA on the development of sectorial qualifications frameworks for Armenian higher education in the field of physics, 2015-2017

**2016 - 2020** Member of the Program Committee on the Nanotechnologies, Advanced Materials, Biotechnology, and Advanced Manufacturing and Processing (NMBP) configuration of the European Commission Horizon 2020 Framework Programme

**SUPERVISOR**

**Bachelor Thesis**

**Gyulnara Khachatryan**, Investigation of the time behavior of states in two- and three-level quantum dots, **2023**

**Natalya Grigoryan**, Study of a two-level cylindrical quantum dot under the influence of external disturbances, **2023**

**Narek Yengibaryan**, Double impurity states in a dumbbell shaped CdSe quantum dot, **2022**

**Sargis Gavalajyan**, Exciton states in a conical quantum dot, **2022**

**Grigor Mantashyan**, Calculation of the Raman spectrum of a CdSe/CdS quantum dot, **2021**.

**Nare Zaqaryan**, Linear and nonlinear optical properties of a CdSe/CdS quantum dot, **2021**.

**Gor Kharatyan**, Calculation of biexciton binding energy in a cylindrical quantum dot with a Morse potential, **2021**.

**Elen Altunyan**, Calculation of the dipole and quadrupole moments of exciton complexes in quantum dots, **2020**.

**Levon Tadevsoyan**, Electric and magnetic susceptibilities of trions and biexcitons in quantum dots, **2020**.

**Tigran Avetisyan**, Calculation of photoionization for cylindrical quantum dots, **2020**.

**Vahe Danielyan**, Experimental methods of obtaining and band structure of graphene, **2020**.

**Paruyr Movsesyan**, Electronic states and fundamental absorption in a spherical



layered quantum dot, **2019**.

**Tigran Sargsyan**, Impurity states and impurity absorption in a quantum well with a Pöschl-Teller confining potential, **2018**.

**Julieta Shahnazaryan**, Calculation of photoluminescence in an ellipsoidal quantum dot, **2018**.

**Yuri Bleyan**, Biexciton states in a strongly oblate ellipsoidal quantum dot, **2017**.

**Vahe Karakhanyan**, Band structure of two-electron states in a quantum ring, **2017**.

**Gagik Ohanyan**, Impurity states with a spheroidal quantum dot, **2016**.

**Ruben Bedjanyan**, Absorption in a cylindrical quantum dot, **2015**.

**Arthur Sargsyan**, Electronic states in a pyramidal quantum dot, **2014**.

### Master Thesis

**Grigor Mantashyan**, Theoretical Investigation of Quantum Nanostructures with Non-Trivial Geometry, **2023**

**Gor Kharatyan**, Effect of Piezoelectricity on Biexciton States in an InGaN/GaN Quantum Dot, **2023**

**Nare Zaqaryan**, Monovalent and Bivalent Impurity States in a Core/Shell CdSe/CdS Quantum Dot, **2023**

**Tigran Avetisyan**, Electronic building blocks with augmented reality, **2022**.

**Diana Nalbandyan**, Electronic states in ellipsoidal quantum dots for different size quantization regimes, **2021**.

**Tigran Sargsyan**, Linear and nonlinear optical absorption of light in a cylindrical quantum dot at various confining potentials, **2020**.

**Julieta Shahnazaryan**, Study of absorption and photoluminescence spectra of ellipsoidal quantum dots, **2020**

**Yuri Bleyan**, Optical properties of biexcitons and trions in quantum dots, **2019**.

**Georgi Ionisyan**, Exciton states in a spherical quantum dot, **2019**.

**Gagik Ohanyan**, Nonlinear optical properties of ellipsoidal quantum dots, **2018**.

**Gor Grigoryan**, Impurity states in a spherical nanolayer with Kratzer's confining potential, **2017**.

**Artur Sargsyan**, Electronic states in ellipsoidal quantum dots, **2016**.

**Zaven Eghoyan**, Electronic states in a double quantum well with a modified Pöschl-Teller potential, **2015**.

**Tigran Vardanyan**, Impurity states in a cylindrical quantum dot with a modified Pöschl-Teller potential, **2014**.

**Hayk Kaltakhchyan**, Electronic states and absorption of light in strongly oblate truncated ellipsoidal quantum dot, **2013**.

### PhD Students

**2018 – 2024 Gagik Ohanyan**, Some questions of linear and nonlinear optical properties of ellipsoidal quantum dots

**2019 – 2022 Yuri Bleyan**, Study of the optical properties of complex excitonic complexes in quantum dots

**2020 – 2023 Tigran Sargsyan**, Investigation of the properties of vertically coupled

### **TEACHING COURSES (Assoc. Prof at Russian-Armenian University)**

1. Post graduate - Optical properties of quantum systems, lectures, training, testing, exam.
2. Graduate - Quantum systems of Nanoelectronics, lectures, training, testing, exam.
3. Graduate - Approximation Methods of Quantum Mechanics, lectures, training, testing, exam.
4. Graduate Methods of Mathematical Modeling (Wolfram Mathematica 12.0), lectures, practical training, testing, essay, and exam.
5. Undergraduate - Basics of Theoretical Physics (Mechanics, Electromagnetism, Quantum Mechanics, Statistical mechanics), practical training, testing, exam.
6. Undergraduate - General Physics (Classical Mechanics, Molecular Physics), lectures, laboratory, testing, exam.

### **INVITED LECTURER**

1. Peter the Great St. Petersburg Polytechnic University, Department of Semiconductor Physics and Nanoelectronics, Institute of Physics, Nanotechnologies and Telecommunications, 5-100 Programme, 29 March – 3 May 2021. Title:
  - a) Special Problems of Quantum Mechanics and Solid-State Physics: Solutions by Wolfram Mathematica.
2. Vrije Universiteit Brussel, “B-PHOT” Brussels Photonics Group, Erasmus+ Programme, 8-13 December 2019. Titles:
  - a) Investigation of Semiconductor Nanostructures at Russian-Armenian University.
  - b) Generalization of Kohn theorem for lens-shaped quantum dots: Theory and Experiment.
3. Saarland University, Chair of Physical and Theoretical Chemistry, Erasmus+ Programme, 18-24 November 2018. Title:
  - a) Generalization of Kohn theorem for lens-shaped quantum dots: Theory and Experiment.
4. Peter the Great St. Petersburg Polytechnic University, Department of Semiconductor Physics and Nanoelectronics, Institute of Physics, Nanotechnologies and Telecommunications, 5-100 Programme, 12-18 November 2017. Titles:
  - a) Conical quantum dots: Electronic states and optical properties.
  - b) Application of the Wolfram Language for the Calculations of Physical Characteristics of Quantum Nanostructures.
  - c) The use of different types of confining potential for modeling of semiconductor quantum nanostructures.
5. Saarland University, Chair of Physical and Theoretical Chemistry, Erasmus+ Programme, 14-19 November 2016. Titles:
  - a) Electronic and Optical Properties of the Conical Quantum Dots Ensemble.
  - b) Core/shell/shell spherical quantum dot with Kratzer confining potential.

## RESEARCH AREAS

Electronic and optical properties of semiconductor low dimensional systems: one-electron states, impurity states, exciton states, biexciton and trion states, interband and intraband transitions, absorption coefficient (for ensemble of quantum dots (QD)), influence of external electric and magnetic fields, influence of external hydrostatic pressure and temperature, different shaped QDs (quantum rings, core/shell QDs, nanoshells, spherical, cylindrical, ellipsoidal, conical QDs),

Transport properties of excitons in Perovskites

Optical properties of Diamond Like Carbon (DLC) films, Analyze of Raman spectras and IR spectras of DLC films, contact angle measurement and analyze of DLC films.

### Calculation methods

Effective mass method, geometrical adiabatic approximation, variational method, perturbation theory, numerical methods (Wolfram Mathematica 13.0, OriginPro 2015)

## SHORT TERM SCIENTIFIC VISITS

1. The group of Prof. Nika Akopian, Department of Electrical and Photonics Engineering, Technical University of Denmark, Copenhagen, Denmark, 11-14 January, 2024.
2. The group of Prof. Sotirios Baskoutas, Department of Material Science, University of Patras, Patras, Greece, 17-27 June, 2023.
3. The group of Prof. Sotirios Baskoutas, Department of Material Science, University of Patras, Patras, Greece, 2-7 April, 2023.
4. The group of Prof. Gabriel Bester, University of Hamburg, Hamburg, Germany, 20-25 November, 2022.
5. The group of Prof. Gianluca Accorsi, Institute of Nanotechnology, CNR Nanotec, Lecce, Italy, 1-10 October, 2022.
6. The group of Prof. Sotirios Baskoutas, Department of Material Science, University of Patras, Patras, Greece, 18 June - 1 July, 2022.
7. The group of Prof. Sotirios Baskoutas, Department of Material Science, University of Patras, Patras, Greece, April 9-15, 2022.
8. "B-PHOT" Brussels Photonics Group headed by Prof. Hugo Thienpont, Vrije Universiteit Brussel (VUB), Brussels, Belgium, 8-13 December, 2019.
9. The group of Prof. Dr. Michael Springborg, Chair of Physical and Theoretical Chemistry, Saarland University, Saarbrücken, Germany, 18-24 November 2018.
10. The group of Prof. Dr. Dmitry Firsov, Department of Semiconductor Physics and Nanoelectronics, Peter the Great St. Petersburg Polytechnic University, St. Petersburg, Russia, 12-18 November 2017.
11. The group of Prof. Dr. habil. Arturs Medvids, Department of Semiconductor Physics, Riga Technical University, Riga, Latvia, 18-25 November 2017.
12. The group of Prof. Dr. Michael Springborg, Chair of Physical and Theoretical Chemistry, Saarland University, Saarbrücken, Germany, 14-19 November 2016.

## CONFERENCES ORGANIZING COMMITTEE MEMBERSHIP

**2023** Director of the school NanoQIQO: School on Optics and Photonics (SOP-2023) 15-20 May, 2023, Yerevan, Armenia.

**2022** Co-chair of School Modern Applications of Optics and Photonics (MAOP-2022) 29 August – 3 September, 2022, Yerevan, Armenia.

**2021** 15<sup>th</sup> Annual Conference of Russian-Armenian University, 6-10 December, 2021, Yerevan, Armenia. Position: Member of Organizing Committee.

**2021** Chair of the school devoted to the International Day of Light – 2021, 17-21 May, 2021, Yerevan, Armenia.

**2020** Co-chair of online workshop “From Darkness to Brightness” devoted to International Day of Light, 16 May, 2020, Yerevan, Armenia.

**2019** 14<sup>th</sup> Annual Conference of Russian-Armenian University, 2-6 December, 2019, Yerevan, Armenia. Position: Member of Organizing Committee.

**2019** International School on Optics and Photonics (ISOP-2019), 1-7 July, 2019, Yerevan, Armenia. Position: Director.

**2018** 13<sup>th</sup> Annual Conference of Russian-Armenian University, 3-7 December, 2018, Yerevan, Armenia. Position: Member of Organizing Committee.

**2017** 4<sup>th</sup> International Advanced School on “Frontiers in Optics & Photonics” (FOP-2017), 19-25 September, 2017, Yerevan-Ashtarak, Armenia. Position: Director.

**2016** 4<sup>th</sup> International Symposium of "Optics and its applications" (Optics-2016), July 25-28, Yerevan – Ashtarak, Armenia, 2016. Position: Chair.

**2016** 3<sup>rd</sup> International Advanced School on “Frontiers in Optics & Photonics” (FOP-2016), 29 February - 12 March, 2016, Yerevan-Ashtarak, Armenia. Position: Director.

**2015** 3<sup>rd</sup> International Symposium of "Optics and its applications" (Optics-2015), October 1-5, Yerevan – Ashtarak, Armenia, 2015. Position: Chair.

**2014** 2<sup>nd</sup> International Advanced School on "Frontiers on Optics and Photonics" (FOP-2014), 30 August – 5 September, 2014, Yerevan-Ashtarak, Armenia. Position: Member of Organizing Committee.

**2014** 2<sup>nd</sup> International Symposium of "Optics and its applications" (Optics-2014), September 1-5, Yerevan – Ashtarak, Armenia, 2014. Position: Member of Organizing Committee.

**2012** Scientific Conference “Actual Problems of Nanoscale Systems Physics” dedicated to the 70<sup>th</sup> anniversary of NAS RA academician E.M. Kazaryan NAS of Armenia, March 21-22, Yerevan, Armenia, 2012. Position: Director.

**2003** – 3<sup>rd</sup> National Conference of Young Physicists, November 4-8, Yerevan, Yerevan, Armenia, 2003, Position: Member of Organizing Committee.

## CONFERENCES, SCHOOLS AND WORKSHOPS

1. Training course “Horizon Europe/H2020 Master of Finance and EC Audits”, Europe Media Trainings, 21-23 February, 2024, Barcelona, Spain.
2. The 8th Nanotech France 2023 International Conference and Exhibition, “Effect of Gaussian and Bessel laser beams on linear and nonlinear optical properties of vertically coupled cylindrical quantum dots”, 28-30 June, Paris, France.
3. School NanoQIQO: School on Optics and Photonics (SOP-2023), “Effect of Gaussian and Bessel laser beams on linear and nonlinear optical properties of vertically coupled cylindrical quantum dots”, 15-20 May, Yerevan, Armenia.

4. Russian-Armenian Workshop on perspective scientific directions, “Effect of Gaussian and Bessel laser beams on linear and nonlinear optical properties of vertically coupled cylindrical quantum dots”, 8-9 December, Yerevan, Armenia, 2022.
5. Pan-Armenian Conference 2022, “Single Photons Sources and Entangled Photons Pairs Sources based on Coupled Colloidal Quantum Dots for Quantum Computing”, 26 September - 01 October, Vanadzor, Armenia.
6. Global Summit on Semiconductors, Optoelectronics and Nanostructures (GSSON-2022), “Exciton-Related Raman Scattering, Interband Absorption and Photoluminescence in Colloidal CdSe/CdS Core/Shell Quantum Dots Ensemble”, March 23-25, 2022, Dubai, UAE.
7. 6<sup>th</sup> International Advanced School Frontiers in Optics & Photonics (FOP-2021), “Linear and nonlinear optical absorption of CdSe/CdS core/shell quantum dot in the presence of donor impurity”, 30 August - 11 September, 2021 Yerevan - Ashtarak, Armenia.
8. Summer school Electronic and Optical Properties of Nanomaterials, “Generalization of Kohn theorem for lens-shaped quantum dots: Theory and Experiment”, 12-16 July, 2021.
9. SPIE Photonics Europe Digital Forum 2020, “Optical parameters of coupled vertical cylindrical quantum dots with double modified Pöschl-Teller potential”, 6-10 April, 2020.
10. Laser Physics 2019 Conference, a) “The band gap variation of Boron Nitride nanotube”, b) “Theoretical Investigation of Impurity States and Light Absorption in Quantum Well with Modified Pöschl-Teller Potential”, c) “Effect of Hydrostatic Pressure and Temperature on the Impurity States and Diamagnetic Susceptibility in Strongly Oblate Ellipsoidal Quantum Dot”, c) “Investigation of binding and recombination energies of heavy hole- and light hole- trion states in ellipsoidal quantum dot”, 17-20 September, Ashtarak, Armenia, 2019. (Posters).
11. International School on Optics and Photonics (ISOP-2019), “Evaluation of Periodical Literature”, 1 – 7 July, 2019, Yerevan, Armenia.
12. 13<sup>th</sup> Annual Conference of Russian-Armenian University, “a) Photoluminescence of biexcitons and excitons in ellipsoidal quantum dot, b) Binding energy and photoionization cross-section of hydrogen-like donor impurity in strongly oblate ellipsoidal quantum dot, c) Electronic and transport properties of the Nitride Bohr nanotube”, 3 - 7 December, 2018, Yerevan, Armenia.
13. 7<sup>th</sup> International Conference on New Frontiers in Physics (ICNFP 2018), “Theoretical investigation of optical properties of quasi two-dimensional excitonic complexes in ellipsoidal quantum dots” 4-12 July, Kolymbari, Crete, Greece. (Oral)
14. 5<sup>th</sup> International Advanced School on “Frontiers in Optics & Photonics” (FOP-2018), “Investigation of excitonic complexes in ellipsoidal quantum dots”, 22-27 June, 2018, Yerevan-Ashtarak, Armenia.
15. International School on Metamaterials and Nanotechnologies, “Conical quantum dots: exciton states and optical properties” and “Application of Wolfram- Mathematica for modeling of quantum dots”, 24-28 December, Tsakhkadzor, Armenia, 2017 (Lecture).
16. Armenian Wolfram Technology Conference 2017, “Application of the Wolfram Language for the Calculations of Physical Characteristics of Quantum Nanostructures”, 23-24 September, Yerevan, Armenia, 2017. (Oral)
17. Laser Physics 2017 Conference, “Binding energy and photoionization cross-section of hydrogen-like donor impurity in strongly oblate ellipsoidal quantum dot”, 19-22 September, Ashtarak, Armenia, 2017. (Oral).

- 18.4<sup>th</sup> International Advanced School on “Frontiers in Optics & Photonics” (FOP-2017), 19-25 September, 2017, Yerevan-Ashtarak, Armenia (Organizer - Director).
- 19.School Natural Science and Applications, “Application of Wolfram language in natural sciences”, 26-28 August, Tsakhkadzor, Armenia, 2017 (Lecture).
- 20.Final Conference “National and Sectorial Qualifications Frameworks of the Higher Education of Armenia: Achievements and Issues”, 17 May, Yerevan, 2017 (Lecture).
- 21.Seminar and Workshop on “Learning outcomes and study programmes – assessment and evaluation”, Tempus “Armenqa” project 543817, 17-21 April, Ghent, Belgium, 2017 (Participant)
- 22.Conference Devoted to the 75 Anniversary of E.M. Kazaryan, Russian-Armenian University, “Conical quantum dot in the presence of the electric field” February 23-24, Yerevan, Armenia, 2017 (Oral).
- 23.11<sup>th</sup> Annual Scientific Conference of Russian-Armenian University, “Electronic and Optical Properties of the Conical Quantum Dots Ensemble”, 5-9 December, Yerevan, Armenia, 2016 (Oral).
- 24.“Implementation of National and Sectorial Qualification Frameworks in Armenia”, Workshop on “Finalizing SQFs in five subject areas of HE” and Training in “Using NQFs and SQFs for shaping programs of HE”, 15-16 December, Yerevan, 2016. (Lecturer and Trainer).
- 25.Scientific camp “Physics and We: lightning the optics”, “What is NANO?”, 8-12 August, 2016, Byurakan, Yerevan (Lecture).
- 26.4<sup>th</sup> International Symposium of "Optics and its applications" (Optics-2016), July 25-28, Yerevan – Ashtarak, Armenia, 2016. (Organizer - Chair).
- 27.3<sup>rd</sup> Russian School of young Scientists, St Petersburg, 21-25 June, 2016. (Participant)
- 28.Workshop on Twinning project “Empowerment of the Tertiary Level Education of the Republic of Armenia for European Higher Educational Area Integration”, Yerevan, 5-6 April, 2016.
- 29.3<sup>rd</sup> International Advanced School on “Frontiers in Optics & Photonics” (FOP-2016), 29 February - 12 March, 2016, Yerevan-Ashtarak, Armenia (Organizer -Director).
- 30.Issues of the Implementation of National and Sectorial Qualifications Frameworks in the Higher Education System of Armenia, Yerevan, 3-4 March, 2016.
31. Energy Materials and Nanotechnology (EMN) Guangzhou Meeting, “Magneto optics in conical quantum dot ensemble”, December 3-6, Guangzhou, China, 2015. (Invited Speaker).
- 32.Workshop on “Development of sectorial qualifications frameworks for Armenian higher education”, Tempus “Armenqa” project 543817, Osnabruck, 02-05 November, 2015. (Participant)
- 33.3<sup>rd</sup> International Symposium of "Optics and its applications" (Optics-2015), October 1-5, Yerevan – Ashtarak, Armenia, 2015. (Organizer - Chair).
- 34.Armenian Wolfram Technology Conference, 26-27 September, Dilijan, Armenia, 2015. (Participant)
- 35.School on Anomalous Transport, Superconductivity and Magnetism in Nanosystems, 15-20 June, Kyiv – Ukraine, 2015. (Participant)
- 36.SPIE Microtechnologies, “Light absorption of cylindrical quantum dot with Morse potential in the presence of parallel electrical and magnetic fields”, 4 - 6 May, Barcelona, Spain, 2015. (Poster)
- 37.2<sup>nd</sup> International Symposium on Optics and its Applications, September 1-5, Yerevan – Ashtarak, Armenia, 2014.
- 38.2<sup>nd</sup> International Advanced School on “Frontiers in Optics & Photonics” 30 August - 5 September, Yerevan-Ashtarak, Armenia, 2014. (Invited Speaker).
- 39.SPIE Optical Metrology, 13-16 May, Munich, Germany, 2013.

40. Laser Physics 2013, 8-11 October, Ashtarak, Armenia, 2013.
41. Scientific Conference “Actual Problems of Nanoscale Systems Physics” dedicated to the 70<sup>th</sup> anniversary of NAS RA academician E.M. Kazaryan NAS of Armenia, March 21-22, Yerevan, Armenia, 2012.
42. International Advanced School on “Frontiers in Optics & Photonics” (FOP-2012) 2-7 July, Yerevan-Ashtarak, Armenia, 2012. (Invited Speaker)
43. Workshop on Supersymmetry in Integreble Systems, 27-30 August, Yerevan, Armenia, 2012.
44. International Conference Laser Physics 2012, Ashtarak, Armenia, 9-12 October, 2012.
45. 7<sup>th</sup> Annual Scientific Conference of Russian-Armenian (Slavonic) University, 3-7 December, 2012.
46. International Scientific Workshop Photonics & Micro- and Nano- structured Materials (PMNM - 2011), Yerevan, Armenia, June 28-30, 2011.
47. International Symposium "OPTICS and its applications" (OPTICS-2011), Yerevan – Ashtarak, Armenia, 5-9 September 2011.
48. International Conference Laser Physics 2011, Ashtarak, Armenia, 11-14 October, 2011.
49. 6<sup>th</sup> Annual Scientific Conference of Russian-Armenian (Slavonic) University, 5-9 December, 2011.
50. Second International School on Nanophotonics and Photovoltaics, Tsakhkadzor, Armenia, 15-22 September, 2010.
51. Third International Forum “ROSNANOTECH”, Moscow, 1-3 November, 2010.
52. Annual Scientific Conference of State Engineering University of Armenia, Yerevan, November 22-26, 2010.
53. 5<sup>th</sup> Annual Scientific Conference of Russian-Armenian (Slavonic) University, 6 - 10 December, 2010.
54. Second International Forum “ROSNANOTECH”, Moscow, 6-8 October, 2009.
55. 4<sup>th</sup> Annual Scientific Conference of Russian-Armenian (Slavonic) University, 30 November - 4 December, 2009.
56. International Advanced Research Workshop Modern Problems in Optics & Photonics (MPOP), Yerevan, Armenia, 27 August – 2 September, 2009.
57. Virtual Conference on Nanoscale Science and Technology, “VC-NST-2008” USA, July 24-29, 2008.
58. First International Forum “ROSNANOTECH”, Moscow, 6-8 October, 2008
59. 3<sup>rd</sup> Annual Scientific Conference of RAU, 5-10 December, 2008.
60. Annual Scientific Conference of State Engineering University of Armenia, Yerevan, October 6-9, 2008.
61. Semiconductor Micro and Nanoelectronics. The sixth international conference, Tsakhkadzor, Armenia, September 18-20, 2007.
62. Conference dedicated to the 50<sup>th</sup> anniversary of YSU Solid State Physics Chair, Yerevan, October, 2007.
63. 2<sup>nd</sup> Annual Scientific Conference of Russian-Armenian (Slavonic) University, 3-7 December, 2007.
64. Annual Scientific Conference of State Engineering University of Armenia, Yerevan, October 8-10, 2007.
65. International Conference Micro and Nanotechnologies with the Use of Ions Beams, Accelerated to Low and Average Energies. Obninsk, Russia, 16-18 October, 2007.
66. 14<sup>th</sup> Semiconducting and Insulating Materials Conference, SIMC-XIV, University of Arkansas, Fayetteville, Arkansas 72701, USA, May 15-20, 2007.

67. 10<sup>th</sup> International scientific conference and school. Actual problems of solid electronics and microelectronics. Divnomorskoye, Russia, 24-29 September, 2006.
68. Semiconductor Micro and Nanoelectronics. The fifth international conference, Aghveran, Armenia, September 16-18, 2005.
69. 3<sup>rd</sup> National Conference of Young Physicists, Yerevan, YSU, Armenia, November 4-8, 2003.

## SCIENTIFIC PUBLICATIONS

1. N.Y. Yengibaryan, G.V. Khachatryan, G.A. Mantashian, P.A. Mantashyan, G. Bester, S. Baskoutas, D.B. Hayrapetyan, Mollow triplet in Two-Impurity dumbbell quantum dot, *Results in Physics*, 57, 107429, 2024.
2. Y.Y. Bleyan, T.A. Sargsian, A.A. Kostanyan, D.B. Hayrapetyan, P.A. Mantashyan, Impact of intense laser Bessel beam on excitonic complexes in ellipsoidal quantum dot, *Journal of Luminescence*, 263, 120101, 2023.
3. E.S. Hakobyan, D.A. Baghdasaryan, E.M. Kazaryan, P.A. Mantashyan, D.B. Hayrapetyan. Nonlinear optical properties of coupled quantum dots in peanut configuration. *Philosophical Magazine*, 103(20), 1911-1926, 2023.
4. D.B. Hayrapetyan, Relativistic correction of biexciton fine structure in ellipsoidal quantum dots. *Physica B: Condensed Matter*, 665, p.415060, 2023.
5. S.P. Gavalajyan, G.A. Mantashian, G.Ts. Kharatyan, H.A. Sarkisyan, P.A. Mantashyan, S. Baskoutas, D.B. Hayrapetyan, Optical Properties of Conical Quantum Dot: Exciton-Related Raman Scattering, Interband Absorption and Photoluminescence, *Nanomaterials*, 13 (8), p.1393, 2023.
6. M.A. Mkrtchyan, D.B. Hayrapetyan, E.M. Kazaryan, H.A. Sarkisyan. S. Baskoutas, D.A. Firsov, M.Ya. Vinnichenko, “One- and few-particle optics of the valence band in lens-shaped Ge/Si quantum dots”, *Physica E: Low-dimensional Systems and Nanostructures* 150, 115703, 2023.
7. P.A. Mantashyan, G.A. Mantashian, D.B. Hayrapetyan. “Talbot effect in InAs/GaAs coupled cylindrical quantum dots ensemble”, *Physica E: Low-dimensional Systems and Nanostructures* 148, 115662, 2023.
8. G.A. Mantashian, P.A. Mantashyan, D.B. Hayrapetyan, “Modeling of Quantum Dots with the Finite Element Method”, *Computation*, 11 (1), 5, 2023.
9. T.A. Sargsian, P.A. Mantashyan, D.B. Hayrapetyan, “Effect of Gaussian and Bessel laser beams on linear and nonlinear optical properties of vertically coupled cylindrical quantum dots”, *Nano-Structures and Nano-Objects*, 33, 100936, 2023.
10. H.Ts. Ghaltaghchyan, D.B. Hayrapetyan, E.M. Kazaryan, H.A. Sarkisyan, “The electron gas in the core/shell cylindrical quantum dot: Thermodynamic and diamagnetic properties”, *Micro and Nanostructures*, 174, 207471, 2023.
11. D.B. Hayrapetyan, “Hydrogen-like donor impurity states in strongly prolate ellipsoidal quantum dot”, *Physica E: Low-dimensional Systems and Nanostructures*, 145, 115493, 2023.
12. D.A. Baghdasaryan, V.A., Harutyunyan, D.B. Hayrapetyan, E.M. Kazaryan, S. Baskoutas, H.A. Sarkisyan, Exciton States and Optical Absorption in CdSe and PbS Nanoplatelets. *Nanomaterials*, 12, 3690, 2022.
13. M.Y. Vinnichenko, I.S. Makhov, R.V. Ustimenko, T.A. Sargsian, H.A. Sarkisyan, D.B. Hayrapetyan, D.A. Firsov, “Doping effect on the light absorption and photoluminescence of Ge/Si quantum dots in the infrared spectral range”, *Micro and Nanostructures*, 169, 207339, 2022.



14. Y.Y. Bleyan, D.B. Hayrapetyan, “Magnetobiexciton in strongly oblate ellipsoidal quantum dot”, *Physica B: Condensed Matter*, 632, 413725, 2022.
15. Y.Y. Bleyan, P.A. Mantashyan, E.M. Kazaryan, H.A. Sarkisyan, G. Accorsi, S. Baskoutas, D.B. Hayrapetyan, “Non-Linear Optical Properties of Biexciton in Ellipsoidal Quantum Dot”, *Nanomaterials*, 12(9), 1412, 2022.
16. G.A. Mantashian, D.B. Hayrapetyan, “Impurity effects on binding energy, diamagnetic susceptibility and photoionization cross-section of chalcopyrite AgInSe<sub>2</sub> Nanotadpole”, *Journal of Physics: Condensed Matter*, 34(24), 245302, 2022.
17. D.B. Baghdasaryan, E.S. Hakobyan, D.B. Hayrapetyan, I.V. Iorsh, I.A. Shelykh, V. Shahnazaryan, “Tunable strongly interacting dipolar excitons in hybrid perovskites”, *Physical Review Materials*, 6(3), 034003, 2022.
18. D.B. Hayrapetyan, “Binding and Recombination Energies of Quasi-One-Dimensional Excitonic Complexes in Ellipsoidal Quantum Dot”, *Foundations*, 2(1), 219-227, 2022.
19. C.S. Garoufalidis, Z. Zeng, G. Bester, I. Galanakis, D.B. Hayrapetyan, E. Paspalakis, S. Baskoutas, “Excitons in ZnO Quantum Dots: The Role of Dielectric Confinement”, *The Journal of Physical Chemistry C*, 126, 5, 2833–2838, 2022.
20. M.A. Mkrтчyan, D.B. Hayrapetyan, E.M. Kazaryan, H.A. Sarkisyan, M.Y. Vinnichenko, V.A. Shalygin, D.A. Firsov, L.S. Petrosyan, “Effects of an External Magnetic Field on the Interband and Intraband Optical Properties of an Asymmetric Biconvex Lens-Shaped Quantum Dot”, *Nanomaterials*, 12(1), 60, 2021.
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22. B. Alexandros, C.S. Garoufalidis, D.I. Anyfantis, N. Bouropoulos, P. Pouloupoulos, D.B. Hayrapetyan, S. Baskoutas. Quantum Confinement Effects of Thin Co<sub>3</sub>O<sub>4</sub> Films, *Atoms*, 9(4), p. 70, 2021.
23. K.S. Khachatryan, M.A. Mkrтчyan, D.B. Hayrapetyan, E.M. Kazaryan, H.A. Sarkisyan, Adiabatic description of the electroabsorption in strongly prolate and oblate conical quantum dots. *Physica E: Low-dimensional Systems and Nanostructures*, 134, p.114887, 2021.
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25. G.A. Mantashian, P.A. Mantashyan, H.A. Sarkisyan, E.M. Kazaryan, G. Bester, S. Baskoutas, D.B. Hayrapetyan, Exciton-Related Raman Scattering, Interband Absorption and Photoluminescence in Colloidal CdSe/CdS Core/Shell Quantum Dots Ensemble. *Nanomaterials*, 11(5), p.1274, 2021.
26. T.A. Sargsian, M.A. Mkrтчyan, H.A. Sarkisyan, D.B. Hayrapetyan, Effects of external electric and magnetic fields on the linear and nonlinear optical properties of InAs cylindrical quantum dot with modified Pöschl-Teller and Morse confinement potentials. *Physica E: Low-dimensional Systems and Nanostructures*, 126, p.114440, 2021.
27. D.B. Hayrapetyan, E.M. Kazaryan, M.A. Mkrтчyan, H.A. Sarkisyan, Long-wave Absorption of Few-Hole Gas in Prolate Ellipsoidal Ge/Si Quantum Dot: Implementation of Analytically Solvable Moshinsky Model. *Nanomaterials*, 10(10), p.1896, 2020.
28. V.A. Harutyunyan, D.B. Hayrapetyan, E.M. Kazaryan, Optical Transitions and Photoluminescence in Cylindrical Core/Layer/Shell  $\beta$ -CdS/ $\beta$ -HgS/ $\beta$ -CdS Heterostructure. *Physics of the Solid State*, 62(8), pp.1305-1316, 2020.

- 29.V.A. Harutyunyan, E.M. Kazaryan, D.B. Hayrapetyan, Interband Absorption and Luminescence in InP/InAs/InP Spherical Core/Shell/Shell Heterostructure for Moderate Regime of Size Quantization. *Acta Physica Polonica, A.*, 137(6), 2020.
- 30.I.M. Danglyan, E.M. Kazaryan, D.B. Hayrapetyan, Electronic and Transport Properties of Boron Nitride Nanodevice. *Armenian Journal of Physics*, 12(4), pp.344-348, 2019.
- 31.I.M. Danglyan, D.B. Hayrapetyan, E.M. Kazaryan, Band Gap and Density of States of Multiwalled Boron Nitride Nanotubes. *NAS RA Reports*, 119 (4), pp.315-319, 2019.
- 32.C.S. Garoufalis, Z. Zeng, G. Bester, D.B. Hayrapetyan, S. Baskoutas, Optical properties of zig-zag and armchair ZnO colloidal nanoribbons. *Chemical Physics Letters*, 732, p.136659, 2019.
- 33.Y.Y. Bleyan, D.B. Hayrapetyan, Tuning Terahertz Recombination Transitions of Quaternion States in Ellipsoidal Quantum Dot. *Journal of Contemporary Physics*, 54(2), pp.153-159, 2019.
- 34.V.A. Harutyunyan, M.A. Mkrtchyan, E.M. Kazaryan, D.B. Hayrapetyan, Interband Absorption and Photoluminescence in Nanospherical InP/InAs/InP Core/Shell/Shell Heterostructure. *Journal of Contemporary Physics*, 54(1), pp.33-45, 2019.
- 35.D.A. Baghdasaryan, E.S. Hakobyan, D.B. Hayrapetyan, H.A. Sarkisyan, E.M. Kazaryan, Nonlinear Optical Properties of Cylindrical Quantum Dot with Kratzer Confining Potential. *Journal of Contemporary Physics*, 54(1), pp.46-56, 2019.
- 36.H.A. Sarkisyan, D.B. Hayrapetyan, L.S. Petrosyan, E.M. Kazaryan, A.N. Sofronov, R.M. Balagula, D.A. Firsov, L.E. Vorobjev, A.A. Tonkikh, Realization of the Kohn's Theorem in Ge/Si Quantum Dots with Hole Gas: Theory and Experiment, *Nanomaterials*, 9 (1), 56, 2019.
- 37.D.B. Hayrapetyan, Y.Y. Bleyan, D.A. Baghdasaryan, H.A. Sarkisyan, S. Baskoutas, E.M. Kazaryan, Biexciton, negative and positive trions in strongly oblate ellipsoidal quantum dot, *Physica E: Low-dimensional Systems and Nanostructures*, 105, 47-55, 2019.
- 38.D.B. Hayrapetyan, V.A. Harutyunyan, E.M. Kazaryan, Optical absorption and photoluminescence in the spherical InP/InSb/InP core/shell/shell nanostructure, *Advances in Materials Science and Engineering*, 2(1), pp. 1-7, 2018.
- 39.S.I. Pokutnyi, Y.N. Kulchin, V.P. Dzyuba, D.B. Hayrapetyan, Exciton Spectroscopy of Spatially Separated Electrons and Holes in the Dielectric Quantum Dots, *Crystals*, 8(4), 148, 2018.
- 40.D.B. Hayrapetyan, D.A. Baghdasaryan, E.M. Kazaryan, S.I. Pokutnyi, H.A. Sarkisyan, Exciton states and optical absorption in core/shell/shell spherical quantum dot. *Chemical Physics*, 506, pp. 26-30, 2018.
- 41.D.A. Baghdasaryan, D.B. Hayrapetyan, E.M. Kazaryan, H.A. Sarkisyan, Thermal and magnetic properties of electron gas in toroidal quantum dot. *Physica E: Low-dimensional Systems and Nanostructures*, 101, pp. 1-4, 2018.
- 42.V.A. Harutyunyan, D.B. Hayrapetyan, E.M. Kazaryan, Interband Absorption and Photoluminescence in the Cylindrical Layered CdS/HgS/CdS Heterostructure. *Journal of Contemporary Physics*, 53(1), pp.48-57, 2018.
- 43.A.N. Sofronov, R.M. Balagula, D.A. Firsov, L.E. Vorobjev, A.A. Tonkikh, H.A. Sarkisyan, D.B. Hayrapetyan, L.S. Petrosyan, E.M. Kazaryan, Absorption of Far-Infrared Radiation in Ge/Si Quantum Dots, *Semiconductors*, 52 (1) 59–63, 2018
- 44.D.B. Hayrapetyan, G.L. Ohanyan, D.A. Baghdasaryan, H.A. Sarkisyan, S. Baskoutas, E.M. Kazaryan, Binding energy and photoionization cross-section of hydrogen-like donor impurity in strongly oblate ellipsoidal quantum dot, *Physica E: Low-dimensional Systems and Nanostructures*, 95, 27-31, 2018.

45. D.A. Baghdasaryan, D.B. Hayrapetyan, H.A. Sarkisyan, E.M. Kazaryan, S.I. Pokutnyi, Exciton states and direct interband light absorption in the ensemble of toroidal quantum dots, *Journal of Nanophotonics*, 11, 4, 046004, 2017.
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49. D.B. Hayrapetyan, L.S. Petrosyan, E.M. Kazaryan, H.A. Sarkisyan, Electron gas in asymmetric biconvex thin quantum lens: Realization of Kohn's theorem, *Proceedings of the Yerevan State University, Physical and Mathematical Sciences*, 51 (1), 109-112, 2017.
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51. D.B. Hayrapetyan, T.V. Kotanjyan, H.Kh. Tevosyan, E.M. Kazaryan, Effects of hydrostatic pressure on the donor impurity in a cylindrical quantum dot with Morse confining potential, *Radiation Effects and Defects in Solids*, 171, pp. 1-9, 2016.
52. V.A. Harutyunyan, D.B. Hayrapetyan, D.A. Baghdasaryan, Single-Electron States in Semiconductor Nanospherical Layer of Large Radius, *Journal of Contemporary Physics*, 51 (4), pp. 350–359. 2016.
53. D.B. Hayrapetyan, S.M. Amirhanyan, E.M. Kazaryan, H.A. Sarkisyan, Effect of hydrostatic pressure on diamagnetic susceptibility of hydrogenic donor impurity in core/shell/shell spherical quantum Dot with Kratzer confining potential. *Physica E: Low-dimensional Systems and Nanostructures*, 84, 367-371, 2016.
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- 76.D.B. Hayrapetyan, K.G. Dvoyan, E.M. Kazaryan, A.A.Tshantshapanyan. Electronic States and Light Absorption in a Cylindrical Quantum Dot Having Thin Falciform Cross-Section. *Nanoscale Research Letters*, Volume 4, Issue 2, pp.130-137, 2009.
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