

Curriculum Vitae

Personal data:

Name: Hayk A. Sarkisyan

Born: 2 June, 1972, Yerevan, ARMENIA

Nationality: Republic of Armenia

Marital Status: Married two children



Professional addresses:

Engineering Physics Institute of Russian-Armenian University,
123 Hovsep Emin Str., Yerevan, 0051, Armenia

Faculty of Physics, Yerevan State University
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Education and Degrees:

2005

Doctor of Science in Physics (Habilitation)

Thesis: “Some questions of the theory of electronic and optical properties of low-dimensional semiconductor quantum structures” (“Некоторые вопросы теории электронных и оптических свойств квантовых низкоразмерных полупроводниковых структур”)

1997

PhD in Physics

Thesis: “Theoretical study of the excitonic states and optical properties of semiconductor nanostructures” (“Теоретическое исследование экситонных состояний и оптических свойств полупроводниковых наноструктур”)

PhD Student 1994-1997

Department of Solid State Physics, Faculty of Physics, Yerevan State University

1994

Diploma with Honors

Thesis: “Two-dimensional relativistic hydrogen atom”

1989-1994 Student of Faculty of Physics, Yerevan State University

Employment

- 2018-present **Director of the Institute of Engineering and Physics of Russian-Armenian University**
- 2015-present **Professor**
Department of Semiconductor Physics and Nanoelectronics of Peter the Great Saint-Petersburg Polytechnic University, Russia
- 2012-2018 **Head of Department of General Physics and Quantum Nanostructures**, Russian Armenian University
- 2008-2012 **Dean Faculty of Physics and Technology**, Russian Armenian University
- 2006-present **Professor**
Department of General Physics and Quantum Nanostructures, Russian Armenian University
- 2001-2006 **Associated Professor**
Department of Physics, State Engineering University of Armenia
- 2002-2019 **Senior Researcher**
Department of Physics, Yerevan State University
- 1997-2002 **Researcher**
Faculty of Physics, Yerevan State University, Armenia

Awards:

- 2011 **State Awards of the Republic of Armenia in the Area of Precise and Natural Sciences (The highest scientific award of Armenia)**

2007 **Republic of Armenia Presidential Award in Physics**

2013-2020 **Top 100 most effective scientists in Armenia initiated by the State Committee of Science**

Scientific Interests:

- Electronic properties of quantum nanostructures (quantum wells, wires and dots).
- Optical properties (interband and intraband transitions, impurity and excitonic light absorption, direct and non direct interband light absorption) of quantum nanostructures (quantum wells, wires and dots).
- Few-body problems in quantum dots.
- Electrodynamics and spin characteristics of quantum dots.
- Stationary adiabatic approximation for the description of quantum nanostructures.
- Thermodynamic and magnetic properties of few-particle gases in quantum dots

Reviewer:

1. Physica **E**
2. Scientific Report
3. Physica **B**
4. Superlattices and Microstructures
5. Optics Communications
6. Solid State Communications
7. Physics Letters **A**
8. Journal of Mathematical Physics
9. Journal of Luminescence
10. European Physical Journal **B**
11. Modern Physics Letters **B**
12. International Journal of Theoretical Physics
13. Physica Status Solidi **B**
14. Applied Surface Science
15. Journal of Physics and Chemistry of Solids
16. Journal of Magnetism and Magnetic Materials

Editor:

- **Journal of Physics: Conference Series**, vol. 350. Proceedings of the 1st International Symposium on Optics and its Applications (OPTICS-2011), Yerevan-Ashtarak, Armenia, September 5-9, 2011 (*The Editors: A.B. Bhattacharjee, M.L. Calvo, E.M. Kazaryan, A.V. Papoyan, H.A. Sarkisyan*).
- **Journal of Physics: Conference Series**, vol. 672. Proceedings of the 2nd International Symposium on Optics and its Applications (OPTICS-2014), Yerevan-Ashtarak, Armenia, September 1-5, 2014 (*The Editors: M L Calvo, I N Dolganova, N Gevorgyan, A Guzman, A Papoyan, H Sarkisyan and S Yurchenko*).
- **Journal of Physics: Conference Series**, vol. 673. Proceedings of the 3rd International Symposium on Optics and its Applications (OPTICS-2015), Yerevan-Ashtarak, Armenia, October 1-5, 2015 (*The Editors: M L Calvo, I N Dolganova, N Gevorgyan, A Guzman, A Papoyan, H Sarkisyan and S Yurchenko*).
- “Actual problems of physics of low-dimensional systems”, Proceedings of the Conference Dedicated to the 70th Birthday of Academician E.M. Kazaryan (*Executive Editor H.A. Sarkisyan*).

Conferences organizing committee membership

- 2017 **5th International Symposium on Optics & its applications (OPTICS-2017)**, 3-7 July 2017, Wroclaw, Poland
- 2016 **4th International Symposium on Optics & its applications (OPTICS-2016)**, 25-28 July 2016, Yerevan & Ashtarak, Armenia
- 2015 **3rd International Symposium on Optics & its applications (OPTICS-2015)**, 1 - 5 October 2015, Yerevan & Ashtarak, Armenia
- 2014 **2nd International Symposium on Optics & its applications (OPTICS-2014)**, 1 - 5 September 2014, Yerevan & Ashtarak, Armenia
- 2014 **2nd International Advanced School on Frontiers in Optics & Photonics (FOP-2014)**, 30 August - 5 September 2014, Yerevan & Ashtarak, Armenia
- 2012 **International Advanced School on Frontiers in Optics & Photonics (FOP-2012)**, 2 - 7 July 2012, Yerevan & Ashtarak, Armenia
- 2011 **International Symposium on Optics & its applications (OPTICS-2011)**: 5 - 9 September 2011, Yerevan & Ashtarak, Armenia
- 2011 **Photonics Micro- and Nanostructured Materials (PMNM-2011)**: 28-31 June, 2011, Yerevan, Armenia
- 2000, **National Conference for Young Physicists “Physics-2000, 2002, 2004”**, 17-20 September, 2000, Yerevan, Armenia; 25-28 September, 2002, Yerevan, Armenia; 22-24 April, 2004, Stepanakert, Artsakh

Supervisor:

8 PhD – Theses

1. Lyudvig Petrosyan
2. Areg Meliksetyan
3. Marwan Zuhair (Iraq)
4. Ara Atayan
5. Narek Aghekyan
6. Hayk Ghaltaghchyan
7. Sergey Amirkhanyan
8. David Baghdasaryan

More than 30 Master Theses

PUBLICATIONS

INTERNATIONAL REFEREED JOURNALS

- 1 E.M. Kazaryan, K.A. Mkhoyan and H.A. Sarkisyan, "Indirect transitions caused by electron dislocation interaction in size-quantized semiconductor film", *Thin Solid Films*, vol. 302, pp. 54-57 (1997).
- 2 E.M. Kazaryan, K.A. Mkhoyan and H.A. Sarkisyan, "Indirect transitions in thin films due to Coulomb interactions between electrons", *Thin Solid Films*, vol. 338, pp. 185-187 (1999).
- 3 A.A. Avetisyan, A.P. Djotyan, E.M. Kazaryan and H.A. Sarkisyan, "Impurity states in narrow band semiconductor in a high magnetic field", *Physica Status Solidi B*, vol. 214, pp. 91-95 (1999).
- 4 E.M. Kazaryan, L.S. Petrosyan and H.A. Sarkisyan, "Energy levels of an electron with Kane's law of dispersion in a spherical microcrystal", *Physica E*, vol.8, pp. 19-23 (2000).
- 5 E.M. Kazaryan, L.S. Petrosyan and H.A. Sarkisyan, "Electronic states in narrow band gap semiconductor microcrystal with parabolic confinement in magnetic field", *Physica E*, vol.11, pp. 362-367 (2001).
- 6 E.M. Kazaryan, L.S. Petrosyan and H.A. Sarkisyan, "Impurity states in a parabolic quantum dot under action of a high magnetic field", *International Journal of Modern Physics B*, vol.15, pp.4103-4110 (2001).
- 7 H.A. Sarkisyan, "Electronic states in cylindrical quantum dot in the presence of parallel electrical and magnetic fields", *Modern Physics Letters B*, vol.16, pp.835-841 (2002).
- 8 E.M. Kazaryan, L.S. Petrosyan, H.A. Sarkisyan, "Impurity states in a narrow band gap semiconductor quantum dot with parabolic confinement potential", *Physica E*, vol.16, pp. 174-178 (2003).
- 9 L.G. Mardoyan, L.S. Petrosyan, H.A. Sarkisyan, "The charge-dyon bound system in the spherical quantum well", *Physical Review A*, vol.68, id 014103 (2003).
- 10 H.A. Sarkisyan, "Direct optical absorption in cylindrical quantum dot", *Modern Physics Letters B*, vol.18, pp. 443-452 (2004).
- 11 M.S. Atoyan, E.M. Kazaryan, H.A. Sarkisyan, "Direct interband light absorption in a cylindrical quantum dot in quantizing magnetic field", *Physica E*, vol.22, pp. 860-866 (2004).
- 12 M.S. Atoyan, H.A. Sarkisyan, "Absorption coefficient of size-quantized $A^3 B^5$ semiconductor film with dislocations", *Physica B*, vol. 352, pp. 241-246 (2004).
- 13 M.S. Atoyan, E.M. Kazaryan, H.A. Sarkisyan, "Optical transitions in parabolic quantum dot", *Physics of Atomic Nuclei*, vol.68, pp. 1726-1729 (2005).
- 14 E.M. Kazaryan, A.A. Kostanyan, H.A. Sarkisyan, "Impurity optical absorption in parabolic quantum well", *Physica E*, vol.28, pp. 423-430 (2005).
- 15 M.S. Atoyan, E.M. Kazaryan, H.A. Sarkisyan, "Interband light absorption in parabolic quantum dot in the presence of electrical and magnetic fields", *Physica E*, vol.31, pp. 83-85 (2006).
- 16 E.M. Kazaryan, A.V. Meliksetyan, L.S. Petrosyan, H.A. Sarkisyan, "Impurity states of

narrow-gap semiconductor parabolic quantum dot in the presence of extremely strong magnetic field", *Physica E*, vol.31, pp. 228-231 (2006).

17 H.A.Sarkisyan, "On the criteria of the applicability of the single-particle transitions in multi-particle system", *Physics of Part. and Nucl. Letters*, vol. 4, pp. 51-54 (2007).

18 V.A. Harutyunyan, E. M. Kazaryan, A. A. Kostanyan, H. A. Sarkisyan, "Interband transitions in cylindrical layer quantum dot: influence of magnetic and electric fields", *Physica E*, vol. 36, pp. 114-118 (2007).

19 E.M. Kazaryan, A.A. Kostanyan, H.A. Sarkisyan, "Optical absorption in GaAs quantum wells caused by donor-acceptor pair transitions", *Journal of Physics: Condensed Matter*, vol. 19, id 046212 (9pp) (2007).

20 L.G. Mardoyan, A.P. Nersessian, H.A. Sarkisyan, V.R. Yeghikyan, "Dipole transitions and Stark effect in the charge-dyon system", *Journal of Physics A: Mathematical and Theoretical*, vol. 40, pp. 5973-5980 (2007).

21 E.M. Kazaryan, A.V. Meliksetyan, H.A. Sarkisyan, "Interband transitions in a InSb narrow-gap cylindrical quantum dot", *Technical Physics Letters*, vol. 33, pp. 49-56 (2007).

22 E.M. Kazaryan, L.S. Petrosyan, H.A. Sarkisyan, "Hidden symmetry and excitonic transitions in the quantum well", *Physica E*, vol. 40, pp. 536-541 (2008).

23 M. Zoheir, A.Kh. Manaselyan, H.A. Sarkisyan, "Electronic states and Stark shift in narrow band InSb quantum spherical layer", *Physica E*, vol. 40, pp. 2945-2949 (2008).

24 A.K. Atayan, E.M. Kazaryan, A.V. Meliksetyan, H.A. Sarkisyan, "Magneto-absorption in cylindrical quantum dots", *European Physical Journal B*, vol. 63, pp. 485-492 (2008).

25 M. Zuhair, A.Kh. Manaselyan, H.A. Sarkisyan, "Magneto- and electroabsorption in narrow-gap InSb cylindrical layer quantum dot", *Physica E*, vol. 41, pp. 1583-1590 (2009).

26 A.A. Gusev, O. Chuluunbaatar, S.I. Vinitsky, V.L. Derbov, E.M. Kazaryan, A.A. Kostanyan, H.A. Sarkisyan, "Adiabatic approach to the problem of a quantum well with a hydrogen-like impurity", *Physics of Atomic Nuclei*, vol.73, pp. 331-338 (2010).

27 E.M. Kazaryan, A.V. Meliksetyan, H.A. Sarkisyan, "Interband absorption in a InSb narrow-band cylindrical quantum dot in presence of the magnetic field", *Journal of Computational and Theoretical Nanoscience*, vol. 7, N2, pp. 486-491 (2010).

28 A.K. Atayan, E.M. Kazaryan, A.V. Meliksetyan, H.A. Sarkisyan, "Interband magnetoabsorption in cylindrical quantum layer with Smorodinsky-Winternitz confinement potential", *Journal of Computational and Theoretical Nanoscience*, vol. 7, N6, pp. 1165-1171 (2010).

29 M.S. Atoyan, E.M. Kazaryan, B.Zh. Poghosyan, H.A. Sarkisyan, "Interband absorption and excitonic states in narrow band InSb spherical quantum dots", *Physica E*, vol. 43, pp. 1592-1596 (2011).

30 N.G. Aghekyan, E.M. Kazaryan, A.A. Kostanyan, H.A. Sarkisyan, "Two electronic states and state exchange time control in spherical nanolayer", *Superlattices and Microstructures*, vol. 50, pp. 199-206 (2011).

31 S. Liang, W.-F. Xie, H.A. Sarkisyan, A.V. Meliksetyan, H. Shen, "Nonlinear optical properties in a nanoring: quantum size and magnetic field effect", *Journal of Physics: Condensed Matter*, vol. 23, pp. 415302 (6 pages) (2011).

32 S. Liang, W.-F. Xie, H.A. Sarkisyan, A.V. Meliksetyan, H. Shen, "Electronic and optical

properties of a nanoring in the presence of external magnetic field", *Superlattices and Microstructures*, vol. 51, pp. 868-876 (2012).

33 A.A. Kirakosyan, E.M. Kazaryan, V.N. Mughnetsyan, H.A. Sarkisyan, "Tunability of absorption threshold frequencies and Stark shift in the InSb narrow gap spherical quantum layer", *Semiconductor Science and Technology*, vol. 27, pp. 085003 (6 pages) (2012).

34 N.G. Aghekyan, E.M. Kazaryan, H.A. Sarkisyan, "Two Electron States in a Thin Spherical Nanolayer: Reduction to the Model of Two Electrons on a Sphere", *Few-Body Systems*, vol. 53, pp. 505-513 (2012).

35 A. A. Gusev, O. Chuluunbaatar, S. I. Vinitzky, K. G. Dvoyan, E. M. Kazaryan, H.A. Sarkisyan, V. L. Derbov, A.S.Klombotskaya, V. V. Serov, "Adiabatic Description of Nonspherical Quantum Dot Models", *Physics of Atomic Nuclei*, vol.75, pp. 1210-1226 (2012).

36 E.M. Kazaryan, V.A. Shahnazaryan, H.A. Sarkisyan, "Quantum ring on sphere: electron state on spherical segment", *Physica E*, vol. 52, pp. 122-126 (2013).

37 A.A. Gusev, L.L. Hai, S.I. Vinitzky, O. Chuluunbaatar, V.L. Derbov, A.S. Klombotskaya, K.G. Dvoyan, H.A. Sarkisyan, "Analytical and numerical calculations of spherical and optical characteristics of spheroidal quantum dots", *Physics of Atomic Nuclei*, vol.76, pp. 1033-1055 (2013).

38 E.M. Kazaryan, V.A. Shahnazaryan, H.A. Sarkisyan, "Optical interband absorption and Stark shift in a quantum ring on a sphere", *Optics Communications*, vol. 315, pp. 253-257 (2014).

39 D.A. Baghdasaryan, E.M. Kazaryan, H.A. Sarkisyan, "Two-electron states and state exchange time control in parabolic quantum dot", *Physica E*, vol. 58, pp. 67-72 (2014).

40 E.M. Kazaryan, V.A. Shahnazaryan, H.A. Sarkisyan, A.A. Gusev, "Quantum model of Thomson helium atom", *Physics of Particles and Nuclei Letters*, vol. 11, pp. 189-197 (2014).

41 E.M. Kazaryan, V.A. Shahnazaryan, H.A. Sarkisyan, "Two electron states in a quantum ring on a sphere", *Few-Body Systems*, vol. 55, pp. 151-158 (2014).

42 N.G. Aghekyan, S.M. Amirkhanyan, E.M. Kazaryan, H.A. Sarkisyan, "Spin magnetic moment and persistent orbital currents in cylindrical nanolayer", *Superlattices and Microstructures*, vol. 69, pp. 87-98 (2014).

43 V.A. Harutyunyan, E. M. Kazaryan, H. A. Sarkisyan, "Electroabsorption in a narrow gap semiconductor nanotube in the field of uniformly charged ring", *Physica E*, vol. 64, pp. 7-14 (2014).

44 D.B. Hayrapetyan, E.M. Kazaryan, L.S. Petrosyan, H.A. Sarkisyan, "Core/shell/shell spherical quantum dot with Kratzer confining potential: Impurity states and electrostatic multipoles", *Physica E*, vol. 66, pp. 7-12 (2015).

45 E.M. Kazaryan, L.S. Petrosyan, V.A. Shahnazaryan, H.A. Sarkisyan, "Quasi-conical quantum dot: electron state and quantum transitions", *Communication in Theoretical Physics* vol. 63, pp. 255-260 (2015).

46 D.A. Baghdasaryan, H.Ts. Ghaltaghchyan, E.M. Kazaryan, H.A. Sarkisyan "Two-electron impurity in the parabolic quantum dot: uncertainty relation and perturbation approach", *Physica E*, vol. 70, pp. 52-57 (2015).

47 D.B. Hayrapetyan, A.V. Chalyan, E.M. Kazaryan, H.A. Sarkisyan, "Direct Interband Light Absorption in Conical Quantum Dot", *Journal of Nanomaterials*, vol. 2015, id915742, 6 pages (2015).

- 48 D.B. Hayrapetyan, E.M. Kazaryan, H.A. Sarkisyan, "Implementation of Kohn's theorem for the ellipsoidal quantum dot in the presence of external magnetic field", *Physica E*, vol. 75, pp. 353-357 (2016).
- 49 D.B. Hayrapetyan, E.M. Kazaryan, H.A. Sarkisyan, "Magneto-absorption in conical quantum dot ensemble: possible applications for QD LED", *Optics Communications*, vol. 71, pp. 138-143 (2016).
- 50 D.B. Hayrapetyan, S.M. Amirkhanyan, 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* vol. 84, pp. 367-371 (2016).
- 51 D.A. Baghdasaryan, E.M. Kazaryan, H.A. Sarkisyan, "Photoionization and electrostatic multipoles properties of spherical core/shell/shell quantum nanolayer with off-center impurity", *Superlattices and Microstructures*, vol. 104, pp. 69-77 (2017).
- 52 D.A. Baghdasaryan, E.M. Kazaryan, H.A. Sarkisyan, K.D. Moiseev, "Optical "visualization" of Pythagorean triples and electrostatic multipoles in quantum dash", *Physica E* vol. 90, pp. 170-174 (2017).
- 53 H.Ts. Ghaltaghchyan, D.B. Hayrapetyan, E.M. Kazaryan, H.A. Sarkisyan, "Few-body magneto-absorption in prolate ellipsoidal quantum dot", *Physics of Atomic Nuclei*, vol.80, pp. 769-773 (2017).
- 54 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*, vol. 11(4), 046004 (10 pages) (2017).
- 55 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*, vol. 95, pp. 27-31 (2018).
- 56 A.N Sofronov, R.M. Balagula, D.A. Firsov, L.E. Vorobjev, A.A. Tonkih, H.A. Sarkisyan, D.B. Hayrapetyan, L.S. Petrosyan, E.M. Kazaryan, "Absorption of far-infrared radiation in Ge/Si quantum dots", *Semiconductors*, vol. 52, pp. 59-63 (2018).
- 57 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*, vol. 101, pp. 1-4 (2018).
- 58 D.A. Baghdasaryan, D.B. Hayrapetyan, E.M. Kazaryan, S.I. Pokutnyi H.A. Sarkisyan, "Exciton states and optical absorption in core/shell/shell spherical quantum dot", *Chemical Physics*, vol. 506, pp. 26-30 (2018).
- 59 H. Sarkisyan, D. Hayrapetyan, L. Petrosyan, E. Kazaryan, A. Sofronov, R. Balagula, D. Firsov, L. Vorobjev, A. Tonkikh, "Realization of the Kohn's theorem in Ge/Si quantum dots with hole gas: theory and experiment", *Nanomaterials*, vol.9, 56 (14 pages) (2019).
- 60 D.B. Hayrapetyan, Yu. 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*, vol. 105, pp. 47-55 (2019).
- 61 V. Shahnazaryan, V. Mughnetsyan, I. Shelykh, H. Sarkisyan, "Exciton–exciton interactions in coaxial double quantum rings", *Nanomaterials*, vol.9, 1469 (13 pages) (2019).
- 62 D.B. Hayrapetyan, E.M. Kazaryan, M.A. Mkrtchyan, H.A. Sarkisyan, "Long-wave absorption of few-hole gas in prolate ellipsoidal Ge/Si quantum dot: implementation of analytically solvable Moshinsky model", *Nanomaterials*, vol.10, 1896 (12 pages) (2020).

63 T.A. Sargsian, M.A. Mkrtchyan, 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*, vol. 126, 114440 (9 pages) (2021).

NATIONAL REFEREED JOURNALS

64 A.P. Djotyan, E.M. Kazaryan and H.A.Sarkisyan, "Relativistic two-dimensional hydrogen atom", *Journal of Contemporary Physics*, vol. 29, pp.27-31 (1994).

65 A.A. Kirakosyan, M.K.Koumashyan, K.A. Mkhoyan and H.A. Sarkisyan, "Light absorption in a semiconductor, containing dislocations, in indirect interband transitions", *Journal of Contemporary Physics*, vol. 30, pp.14-20 (1995).

66 K.A. Mkhoyan and H.A. Sarkisyan, "Function of dielectric susceptibility of size-quantized semiconductor film", *Sci. Lett. of YSU*, vol. 2, pp.37-41 (1996).

67 A.A. Avetisyan, A.P. Djotyan, E.M. Kazaryan and H.A. Sarkisyan, "Relativistic hydrogen atom in a high magnetic field", *Journal of Contemporary Physics*, vol. 34, pp.24-28 (1999).

68 H.A. Sarkisyan, "Dielectric susceptibility of electron gas with nonparabolic dispersion law", *Reports of National Academy of Sciences Republic of Armenia*, vol.100, pp.143-146 (2000).

69 A.A. Avetisyan, E.M. Kazaryan and H.A. Sarkisyan, "The hydrogen-like impurity states in A^3B^5 semiconductor microcrystals", *Journal of Contemporary Physics*, vol.35, pp. 21-24 (2000).

70 H.A. Sarkisyan, "To the problem of violation of Kohn's theorem in quantum dots", *Journal of Contemporary Physics*, vol.37, pp.233-236 (2002).

71 E.M. Kazaryan, L.S. Petrosyan, H.A. Sarkisyan "Influence of semiconductor-dielectric transition border on the electronic states in spherical quantum dots", *Journal of Contemporary Physics*, vol.37, pp. 120-128, (2002).

72 E.M. Kazaryan, L.S. Petrosyan, H.A. Sarkisyan, "Impurity states in truncated parabolic quantum dot", *Reports of National Academy of Sciences Republic of Armenia*, vol.104, pp.302-307 (2003).

73 M.S. Atoyan, E.M. Kazaryan, H.A. Sarkisyan, "Interband light absorption in a cylindrical quantum dots in the presence of electrical field", *Reports of National Academy of Sciences Republic of Armenia*, vol.104, pp.314-320 (2004).

74 E.M. Kazaryan, A.A. Kostanyan, H.A. Sarkisyan, "Interband transitions in a spherical quantum layer in the presence of an electric field: spherical rotator model", *Journal of Contemporary Physics*, vol. 42, pp. 145-150 (2007).

75 A.K. Atayan, E.M. Kazaryan, A.V. Meliksetyan, H.A. Sarkisyan, "Magnetoexcitonic states in a quantum ring with the Winternitz-Smorodinsky confinement potential", *Journal of Contemporary Physics*, vol. 45, N3, pp. 126-131 (2010).

76 V.A. Harutyunyan, E.M. Kazaryan, H.A. Sarkisyan, "Optical absorption in a narrow-band InSb cylindrical layered nanowire in the presence of strong electrostatic field", *Journal of Contemporary Physics*, vol. 46, pp. 285-292 (2011).

77 N.G. Aghekyan, E.M. Kazaryan, H.A. Sarkisyan, "A single electron current in a cylindrical nanolayer", *Reports of National Academy of Sciences Republic of Armenia*, vol.112, pp.73-78

(2012).

78 D.B. Hayrapetyan, E.M. Kazaryan, H.A. Sarkisyan, "On the possibility of implementation of Kohn's theorem in the case of ellipsoidal quantum dots", *Journal of Contemporary Physics*, vol. 48, pp. 32-36 (2013).

79 V.A. Harutyunyan, V.A. Gasparyan, E.M. Kazaryan, H.A. Sarkisyan, "Electron and hole states in a narrow-band semiconductor InSb film in the presence of uniform electrostatic field", *Journal of Contemporary Physics*, vol. 48, pp. 162-172 (2013).

80 S.M. Amirkhanyan, E.M. Kazaryan, H.A. Sarkisyan, "Spin magnetic moment current of impurity electron in a spherical quantum dot", *Journal of Contemporary Physics (Armenian Academy of Sciences)*, vol. 49, pp. 264-271 (2014).

81 S.M. Amirkhanyan, E.M. Kazaryan, H.A. Sarkisyan, "Calculation of electrostatic multipoles of electron localized in narrow-band InSb spherical nanolayer", *Journal of Contemporary Physics (Armenian Academy of Sciences)*, vol. 50, pp. 268-276 (2015).

82 H.Ts. Ghaltaghchyan, E.M. Kazaryan, H.A. Sarkisyan, "Diamagnetic susceptibility of the electron gas in the cylindrical", *Journal of Contemporary Physics (Armenian Academy of Sciences)*, vol. 51, pp. 162-167 (2016).

83 H.Ts. Ghaltaghchyan, E.M. Kazaryan, H.A. Sarkisyan, "Diamagnetism in the cylindrical quantum dot with parabolic confinement potential", *Proc. Of the Yerevan State University (Physical and Mathematical Sciences)*, N3, pp. 20-24 (2016).

84 D.B. Hayrapetyan, E.M. Kazaryan, L.S. Petrosyan, H.A. Sarkisyan, "Electron gas in asymmetric biconvex thin quantum lens: realization of Kohn's theorem", *Proc. Of the Yerevan State University (Physical and Mathematical Sciences)*, N1, pp. 109-112 (2017).

85 D.A. Baghdasaryan, D.B. Hayrapetyan, E.M. Kazaryan, H.A. Sarkisyan, A. Medvids, "Conical quantum dot: Electronic states and dipole moment", *Journal of Contemporary Physics (Armenian Academy of Sciences)*, vol. 51, pp. 162-167 (2017).

86 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 (Armenian Academy of Sciences)*, vol. 54, pp. 46-56 (2019).

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