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Научно-исследовательский институт физики
Կոնդենսացված վիճակի ֆիզիկայի կենտրոն
Руководитель группы

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Образование

Учреждение	Ереванский государственный университет
Факультет	физический факультет
Дата	1999 - 2008
Степень / Звание	Аспирант

Ученое звание/Ученая степень

Учреждение	Ереванский государственный университет
Дата	2008
Степень / Звание	Кандидат наук
Научный руководитель	А.А. Киракосян
Научная тема	Կիսահաղորդչային նանոկառուցվածքների էլեկտրոնային և օպտիկական հատկությունների վրա փոխադարձ դիֆուզիայի և արտաքին դաշտերի ազդեցության տեսական ուսումնասիրություն

Знание языков

Հայերեն English Русский

Опыт работы

Учреждение	Науояная грыппа моделирования и симуляций наноструктур
Период времени	2023 до настоящего времени
Звание/степень	руководитель научной группы
Учреждение	Лаборатория физики твердого тела, Ереванский государственный университет
Период времени	2022 - 2023
Звание/степень	старший научный сотрудник
Учреждение	Кафедра физики твердого тела, Ереванский государственный университет
Период времени	2016 - 2023
Звание/степень	заведующий учебной лабораторией

Учреждение	Ереванский государственный медицинский университет
Период времени	2015 - 2025
Звание/степень	преподаватель
Учреждение	Лаборатория физики твердого тела, Ереванский государственный университет
Период времени	2008 - 2022
Звание/степень	научный сотрудник

Публикации

Статья

Enhanced efficiency of intermediate-band semiconductor solar cells embedded with quantum dot superlattices

Naira Petrosyan, Lilit Yeganyan, Aram Manaselyan, Vram Mughnetsyan, Vidar Gudmundsson,

Albert Kirakosyan

Physics Letters A 2026 131639

<https://doi.org/10.1016/j.physleta.2026.131639>

Статья

Signatures of broken symmetries in the excitations of a periodic 2DEG coupled to a cylindrical photon cavity

Vidar Gudmundsson, Vram Mughnetsyan, Hsi-Sheng Goan, Jeng-Da Chai, Nzar Rauf Abdullah,

Chi-Shung Tang, Wen-Hsuan Kuan, Valeriu Moldoveanu, Andrei Manolescu

New Journal of Physics 2026 043502 - 043502

<https://doi.org/10.1088/1367-2630/ae5738>

Статья

Effect of two-dimensional nonlocal screening on mobility of electrons in transition-metal dichalcogenide monolayers

Aram Manaselyan, Vram Mughnetsyan, Anna Asatryan, Albert Kirakosyan

Semiconductor Science and Technology 2026 045015

<https://doi.org/10.1088/1361-6641/ae5f43>

Статья

Electronic states in a semiconductor nanobelt in the two-wave approximation

Minas Balyan, Vram Mughnetsyan, Albert Kirakosyan

Physics Letters A 2026 132007

<https://doi.org/10.1016/j.physleta.2026.132007>

Статья

Electronic states in a bending semiconductor nanobelt within the framework of finite potential well approximation

Minas Balyan, Vram Mughnetsyan, Albert Kirakosyan

Micro and Nanostructures 2026 208850

<https://doi.org/10.1016/j.micrna.2026.208850>

Статья

Magneto-Optical Properties of Electron Gas in a Chain of Planar Quantum Rings: Effect of

Screening on the Signature of Quantum Phase Interference

Armen Harutyunyan, Vram Mughnetsyan, Albert Kirakosyan, Vidar Gudmundsson

Annalen der Physik 2025 2400337

Статья

Spin configuration of an array of quantum rings controlled by cavity photons

Vidar Gudmundsson, Vram Mughnetsyan, Hsi-Sheng Goan, Jeng-Da Chai, Nzar Rauf Abdullah,

Chi-Shung Tang, Valeriu Moldoveanu, Andrei Manolescu

Physical review. B./Physical review. B 2025 115304

Статья

Effect of two-dimensional non-local screening on characteristics of transition metal dichalcogenide monolayers

Vram Mughnetsyan, Aram Manaselyan, Ashot Movsisyan, Albert Kirakosyan

Semiconductor Science and Technology 2024 045016

Статья

Planar quantum dots: Theoretical approaches

Aram Manaselyan, Vram Mughnetsyan, Albert Kirakosyan

Encyclopedia of Condensed Matter Physics (Second Edition) 2024 297-307

Статья

Magnetic Properties of A Cavity-Embedded Square Lattice of Quantum Dots or Antidots

Vram Mughnetsyan, Vidar Gudmundsson, Nzar Rauf Abdullah, Chi-Shung Tang, Valeriu Moldoveanu,

Andrei Manolescu

Annalen der Physik 2024 2300274

Статья

Magneto-optical properties of a quantum dot array interacting with a far-infrared photon mode of a cylindrical cavity

Vidar Gudmundsson, Vram Mughnetsyan, Hsi-Sheng Goan, Jeng-Da Chai, Nzar Rauf Abdullah,

Chi-Shung Tang, Valeriu Moldoveanu, Andrei Manolescu

Physical review. B./Physical review. B 2024 235306

Статья

MAGNETO-OPTICAL PROPERTIES OF ARRAYED STRUCTURES OF CYLINDRICAL AND ELLIPTICAL QUANTUM DOTS

Lilit YEGANYAN, Vram MUGHNETSYAN, Maryam MANSOURY

NANOCOM ... 2024 64-69

Статья

Tuning of paramagnetic and diamagnetic cavity photon excitations in a square array of quantum dots in a magnetic field

Vram Mughnetsyan, Vidar Gudmundsson, Hsi-Sheng Goan, Jeng-Da Chai, Nzar Rauf Abdullah,

Chi-Shung Tang, Valeriu Moldoveanu, Andrei Manolescu

Physical review. B./Physical review. B 2024 205301

Статья

Controlling the excitation spectrum of a quantum dot array with a photon cavity

Vidar Gudmundsson, Vram Mughnetsyan, Nzar Rauf Abdullah, Chi-Shung Tang, Valeriu Moldoveanu, Andrei Manolescu
Physical review. B./Physical review. B 2023 115306

Статья

Hofstadter-like spectrum and magnetization of artificial graphene constructed with cylindrical and elliptical quantum dots

Maryam Mansoury, Vram Mughnetsyan, Aram Manaselyan, Albert Kirakosyan, Vidar Gudmundsson,

Vigen Aziz-Aghchegala

Physics Letters A 2023 129115

Конференция

Magneto-optical properties of arrayed structures of quantum dots and rings

Yeganyan Lilit, Mughnetsyan Vram, Mansoury Maryam

2023 114 - 114

<https://photonicsai.com/optics11/>

Конференция

Magneto-Optical Properties of Artificial Graphene Constructed of Cylindrical and Elliptical Quantum Dots

YEGANYAN Lilit, MUGHNETSYAN Vram, MANSOURY Maryam, KIRAKOSYAN Albert, GUDMUNDSSON Vidar

2023 69 - 69

<https://www.nanocon.eu/en/>

Статья

Unified approach to cyclotron and plasmon resonances in a periodic two-dimensional GaAs electron gas hosting the Hofstadter butterfly

Vram Mughnetsyan, Vidar Gudmundsson, Nzar Rauf Abdullah, Chi-Shung Tang, Valeriu Moldoveanu,

Andrei Manolescu

Physical review. B./Physical review. B 2022 155302

Статья

Signature of miniband nodes in magneto-optical properties of one-dimensional superlattice of planar quantum rings

Maryam Mansoury, Vigen Aziz-Aghchegala, Vram Mughnetsyan, Albert Kirakosyan, Vidar Gudmundsson

Physics Letters A 2022 128324

Статья

Electron-hole interaction in cylindrical quantum dots

Vram Mughnetsyan, Ashot Movsisyan, Albert Kirakosyan

Physica E: Low-dimensional Systems and Nanostructures 2022 115366

Статья

Effects of a far-infrared photon cavity field on the magnetization of a square quantum dot array

Vidar Gudmundsson, Vram Mughnetsyan, Nzar Rauf Abdullah, Chi-Shung Tang, Valeriu Moldoveanu,

Andrei Manolescu

Physical review. B./Physical review. B 2022 115308

Статья

Electronic and Magnetic Properties of Laser Dressed Quantum Dot and Ring with Rashba Spin-Orbit Coupling

Vram Mughnetsyan, Aram Manaselyan, Manuk Barseghyan, Albert Kirakosyan, Laura M. Perez,

David Laroze

Springer Proceedings in Physics (Optics and Its Applications) 2022 145-154

Статья

Interminiband absorption in a quantum ring superlattice in magnetic field with periodic vector potential

Vram Mughnetsyan, Ara Atayan, Albert Kirakosyan, Vigen Aziz-Aghchegala

Physica E: Low-dimensional Systems and Nanostructures 2020 113722(1-6)

Статья

Control of electronic and optical properties of a laser dressed double quantum dot molecule by lateral electric field

M.G. Barseghyan, V.N. Mughnetsyan, H.M. Baghramyan, F. Ungan, L.M. Perez, D. Laroze

Physica E: Low-dimensional Systems and Nanostructures 2020 114362(1-7)

Статья

Tuning of energy gap and 1D Dirac-like points in artificial graphene and boron nitride monolayer by an external electric field

Vram Mughnetsyan

Micro and Nanostructures (Previously known as Superlattices and Microstructures) 2020 106700

Статья

Effect of anisotropic strain on the electronic characteristics of an InAs/GaAs honeycomb superlattice

Vram Mughnetsyan, Albert Kirakosyan

Micro and Nanostructures (Previously known as Superlattices and Microstructures) 2019 243-251

Статья

Effect of the impurity on the Aharonov-Bohm oscillations and the intraband absorption in GaAs/ Ga1– xAlxAs quantum ring under intense THz laser field

M.G. Barseghyan, V.N. Mughnetsyan, L.M. Perez, A.A. Kirakosyan, D. Laroze

Physica E: Low-dimensional Systems and Nanostructures 2019 91-97

Статья

Exciton-Exciton Interactions in Coaxial Double Quantum Rings

Vram Mughnetsyan, Vanik Shahnazaryan, Ivan Shelykh, Hayk Sarkisyan

Nanomaterials 2019 1469(1-13)

Статья

Rashba splitting of Dirac points and symmetry breaking in strained artificial graphene

Vram Mughnetsyan, Aram Manaselyan, Manuk Barseghyan, Albert Kirakosyan, David Laroze

Physical review. B./Physical review. B 2019 195132(1-8)

Статья

Effect of interdiffusion and external magnetic field on electronic states and light absorption in Gaussian-shaped double quantum ring

Статья

EFFECT OF DONOR IMPURITY ON AHARONOV-BOHM OSCILLATIONS IN A DOUBLE QUANTUM RING WITH GAUSSIAN CONFINEMENT

V. N. MUGHNETSYAN

Proceedings of the YSU A Physical and Mathematical Sciences 2018 205-212

Статья

Effect of interdiffusion and magnetic field on two-electron states in Gaussian-shaped double quantum rings

V.L. Aziz Aghchegala, V.N. Mughnetsyan, A.A. Kirakosyan

Physica E: Low-dimensional Systems and Nanostructures 2017 157-163

<http://www.journals.elsevier.com/physica-e-low-dimensional-systems-and-nanostru...>

Статья

Effect of Rashba spin-orbit coupling and external magnetic field on electronic minibands in highly strained one-layer quantum ring superlattice

Vram Mughnetsyan, Aram Manaselyan, Albert Kirakosyan

Micro and Nanostructures (Previously known as Superlattices and Microstructures) 2017 10-18

<http://www.journals.elsevier.com/superlattices-and-microstructures>

Статья

Strain distribution and band structure of InAs/GaAs quantum ring superlattice

Vram Mughnetsyan, Albert Kirakosyan

Micro and Nanostructures (Previously known as Superlattices and Microstructures) 2017 318-327

Статья

Elastic strain distribution in one layer quantum ring superlattice

V.N. Mughnetsyan, A.A. Kirakosyan

Proceedings of the YSU A Physical and Mathematical Sciences 2017 121-123

Статья

Rashba Spin-Orbit Coupling in a Two-Dimensional Quantum Ring Superlattice

V. Mughnetsyan, A. Manaselyan, A. Kirakosyan

Micro and Nanostructures (Previously known as Superlattices and Microstructures) 2015 584-591

<http://www.journals.elsevier.com/superlattices-and-microstructures>

Статья

Electron capture processes in quantum dots due to one-and two-phonon assisted transitions: The role of optical phonon confinement

A L Vartanian, K A Vardanyan, V N Mughnetsyan, A A Kirakosyan

Journal of Physics Conference Series 2015 012017/4pp

<http://iopscience.iop.org/journal/1742-6596>

Статья

Effect of phonon confinement on one- and two-polar optical phonon capture processes in quantum dots

K.A. Vardanyan, A.L. Vartanian, V.N. Mughnetsyan, A.A.Kirakosyan

Physica E: Low-dimensional Systems and Nanostructures 2015 268-274

<http://www.journals.elsevier.com/physica-e-low-dimensional-systems-and-nanostru...>

Статья

Effect of interdiffusion on electronic states of strain-free Gaussian-shaped double quantum ring superlattice

V.L. Aziz Aghchegala, V.N. Mughnetsyan, A.A. Kirakosyan

Physica E: Low-dimensional Systems and Nanostructures 2015 30-35

<http://www.journals.elsevier.com/physica-e-low-dimensional-systems-and-nanostru...>

Статья

Effect of interdiffusion on nonlinear intraband light absorption in Gaussian-shaped double quantum rings

V.L. Aziz Aghchegala, V.N. Mughnetsyan, A.A. Kirakosyan

Physica E: Low-dimensional Systems and Nanostructures 2015 210-216

<http://www.journals.elsevier.com/physica-e-low-dimensional-systems-and-nanostru...>

Статья

Effect of interdiffusion on band structure in GaAs/Ga_{1-x}Al_xAs quantum ring superlattices

V. Mughnetsyan, A. Kirakosyan, A. Manaselyan

6-th International Conference on Nanomaterials, NANOCON-2014, Conference Proceedings 2015 47-53

http://nanocon2014.tanger.cz/files/proceedings/20/index_en.htm

Конференция

Elastic Strain Distribution in one layer InAs/GaAs Quantum Ring Superlattice.

V.N. Mughnetsyan, A.A. Kirakosyan

2015 59-60

<http://www.dom-events.org/>

Конференция

Electron capture processes in quantum dots due to one- and two-phonon assisted transitions: The role of optical phonon confinement.

A.L. Vartanian, K.A. Vardanyan, V.N. Mughnetsyan, A.A. Kirakosyan

2015 42-42

<http://edison19.usal.es/>
