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Institute of Physics
Chair of Solid State Physics
Professor

🌐 Language skills

Հայերեն

📖 Publications

Article

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

Article

Planar quantum dots: Theoretical approaches

Aram Manaselyan, Vram Mughnetsyan, Albert Kirakosyan

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

Article

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

Article

Simultaneous effects of the confinement of polar optical phonons and spin-orbit coupling on the free carrier absorption of a nanowire

A.L. Vartanian, T.K. Ghukasyan, A.L. Asatryan, K.A. Vardanyan, A.A. Kirakosyan

Micro and Nanostructures (Previously known as Superlattices and Microstructures) 2022 207287

Article

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

Article

Electron-hole interaction in cylindrical quantum dots

Vram Mughnetsyan, Ashot Movsisyan, Albert Kirakosyan

Physica E: Low-dimensional Systems and Nanostructures 2022 115366

Article

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

Article

Polaronic effects on the electron Raman scattering in a spherical anisotropic quantum dot

T.K. Ghukasyan, A.L. Asatryan, L.A. Vardanyan, A.A. Kirakosyan, A.L. Vartanian

Armenian Journal of Physics 2022 175-181

Manual

Պինդ մարմնի ֆիզիկայի լաբորատոր աշխատանքներ. մաս 2

Արթուր Կիրակոսյան, Արշակ Վարդանյան, Աննա Ասատրյան, Արամ Մանասեյան,

Վալերի Հարությունյան

2021 190

Article

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)

Article

Effective tuning of isotropic and anisotropic properties of quantum dots and rings by external fields

Manuk G. Barseghyan, Aram Manaselyan, Albert A. Kirakosyan, Laura M. Perez, David Laroze

Physica E: Low-dimensional Systems and Nanostructures 2020 113807(1-7)

Article

Effect of spin-orbit coupling on the hot-electron energy relaxation in nanowires

A. L. Vartanian, A. L. Asatryan, A. G. Stepanyan, K. A. Vardanyan, A. A. Kirakosyan

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Article

Influence of image charge effect on the binding energy of hydrogen-like donor impurity in a near-surface quantum well under transverse electric field

A.L. Vartanian, A.L. Asatryan, A.A. Kirakosyan, K.A. Vardanyan

Physica E: Low-dimensional Systems and Nanostructures 2019 1-4

Article

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

Article

Effect of the impurity on the Aharonov-Bohm oscillations and the intraband absorption in GaAs/ Ga_{1-x}Al_xAs quantum ring under intense THz laser field

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

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

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

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Manual

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Արթերտ Կիրակոսյան

2019 224

Article

Modeling of anisotropic properties of double quantum rings by the terahertz laser field

Henrikh M. Baghramyan, Manuk G. Barseghyan, Albert A. Kirakosyan, Judith H. Ojeda, Jean Bragard,

David Laroze

Scientific Reports 2018 6145(1-10)

Article

Intense Terahertz Radiation Effect on Electronic and Intraband Optical Properties of Semiconductor Quantum Rings

H.M. Baghramyan, M.G. Barseghyan, A.A. Kirakosyan, D. Laroze

Physics of Quantum Rings 2018 411-445

Article

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

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

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Article

Spin relaxation mediated by spin-orbit and acoustic phonon interactions in a single-electron two-dimensional quantum dot

A.L. Vartanian, A.A. Kirakosyan, K.A. Vardanyan

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Article

Energy loss rate of hot electrons due to polar-optical phonon modes in a semiconductor nanowire under transverse electric field

A. Stepanyan, A. Asatryan, M. Yerosyan, K. Vardanyan, A. Kirakosyan, A. Vartanian

Physica B: Condensed Matter 2018 340-346

Article

Laser driven intraband optical transitions in two-dimensional quantum dots and quantum rings

M.G. Barseghyan, A.A. Kirakosyan, D. Laroze

Optics Communications 2017 571-576

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Article

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

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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

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Article

Energy-loss rate of hot electrons due to confined acoustic phonon modes in a semiconductor quantum wire under transverse electric field.

A. Stepanyan, M. Yeranosyan, L. Vardanyan, A. Asatryan, A. Kirakosyan, A. Vartanian

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Article

Frohlich polaron in nanowire with Rashba and Dresselhaus spin-orbit couplings

Arshak Vartanian, Albert Kirakosyan, Karen Vardanyan

Micro and Nanostructures (Previously known as Superlattices and Microstructures) 2017 655-661

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Article

EFFECTS OF ELECTRIC FIELD AND IMAGE CHARGES ON THE IMPURITY-RELATED OPTICAL ABSORPTION COEFFICIENTS IN A SPHERICAL QUANTUM DOT

A.L. Vartanian, A.L. Asatryan, A.A. Kirakosyan, A.A. Mkhitarian, S.S. Avetisyan

Proceedings of the YSU A. Physical and Mathematical Sciences 2017 124-127

<http://www.y-su.am/science/en/journals>

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ONE-DIMENSIONAL FRÖHLICH POLARON WITH SPIN-ORBIT COUPLING

K. Vardanyan, A. Kirakosyan, A. Vartanian

Вестник Российско-Армянского Университета: Физико-математические и естественные науки 2017 41-46

<http://science.rau.am/rus/50/701>

Article

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

Article

Elastic strain distribution in one layer quantum ring superlattice

V.N. Mughnetsyan, A.A. Kirakosyan

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Article

Influence of lateral electric field on intraband optical absorption in concentric double quantum rings

H.M. Baghramyan, M.G. Barseghyan, D. Laroze, A.A. Kirakosyan

Physica E: Low-dimensional Systems and Nanostructures 2016 81-89

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Impurity-modulated Aharonov-Bohm oscillations and intraband optical absorption in quantum dot-ring nanostructures

M.G. Barseghyan, A.Kh. Manaselyan, D. Laroze, A.A. Kirakosyan

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Image Charge and Electric Field Effects on Hydrogen-like Impurity-bound Polaron Energies and Oscillator Strengths in a Quantum Dot

L.A. Vardanyan, A.L. Vartanian, A.L. Asatryan, A.A. Kirakosyan

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<http://www.springer.com/materials/optical+%26+electronic+materials/journal/11664>

Article

Electric field and image charge effects on impurity-bound polarons in a CdS colloidal quantum dot embedded in organic matrices

A.L. Asatryan, A.L. Vartanian, A.A. Kirakosyan, L.A. Vardanyan

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Laser driven impurity states in two-dimensional quantum dots and quantum rings

D. Laroze, M.G. Barseghyan, A. Radu, A.A. Kirakosyan

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Պինդ մարմնի ֆիզիկայի լաբորատոր աշխատանքներ մաս I

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Գառնիկ Վերմիշյան

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Article

Impurity-related intraband absorption in coupled quantum dot-ring structure under lateral electric field

M.G. Barseghyan, H.M. Baghramyan, D. Laroze, J. Bragard, A.A. Kirakosyan

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Article

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

V. Mughnetsyan, A. Manaselyan, A. Kirakosyan

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The influence of electric field on the quasi-confined and interface polaron basic parameters in a wurtzite nitride quantum wire.

A.L. Asatryan, K.A. Vardanyan, A.L. Vartanian, A.A. Kirakosyan

Journal of Physics: Conference Series 2015 012048/1-4

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

Article

Confined acoustic phonon-mediated spin relaxation in a twodimensional quantum dot in the presence of perpendicular magnetic field

K A Vardanyan, A L Vartanian, A G Stepanyan, A A Kirakosyan

Journal of Physics: Conference Series 2015 012043 /4pp

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Article

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

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Effect of Phonon Confinement on Optical Phonon-Mediated Carrier Capture into CdSe/ZnS Quantum Dots

K.A. Vardanyan, A.L. Vartanian, A.A. Kirakosyan

JOURNAL OF ELECTRONIC MATERIALS 2015 2779-2785

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Article

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

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Article

Phonon confinement effect on the polaron states in a double quantum ring structure in the presence of electric and magnetic fields

Mkrtich A. Yerosyan, Arshak L. Vartanian, Abbas Shahbandari, Albert A. Kirakosyan

Physica B: Condensed Matter 2015 365-370

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Article

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

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Article

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

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

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Article

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

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Monograph

Պիևդ մարմնի ֆիզիկայի ներածություն, Մաս I

Ա.Ա. Կիրակոսյան

2015 288

Monograph

Պիևդ մարմնի ֆիզիկայի ներածություն, Մաս II

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2015 364

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Ա.Ա. Կիրակոսյան, Ա.Լ. Վարդանյան, Ա.Լ. Ասատրյան

2015 154

Article

Потенциал точечного заряда в полупроводниковой гетероструктуре с цилиндрической симметрие

Ա.Ա. Կիրակոսյան, Ն.Գ. Մովսիսյան, Շ.Գ. Գասպարյան

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Conference

Effect of image charges on the impurity-bound polaronic states in colloidal quantum dots embedded in different organic matrices.

A.L. Vartanian, A.L. Asatryan, L.A. Vardanyan, A.A. Kirakosyan

Conference

Spin-orbit interaction enhanced polaron effect in wurtzite semiconductor quantum well.

M.A. Yeranossyan, K.A. Vardanyan, A.L. Vartanian, A.A. Kirakosyan

Conference

Spin Relaxation in the Presence of Spin-Orbit Interactions in Single Electron Quantum Dots Embedded in a Suspended Phonon Cavity

A.L. Vartanian, K.A. Vardanyan, A.A. Kirakosyan

Conference

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

V.N. Mughnetsyan, A.A. Kirakosyan

Conference

The influence of electric field on the quasi-confined and interface polaron basic parameters in a wurtzite nitride quantum wire.

A.L. Asatryan, K.A. Vardanyan, A.L. Vartanian, A.A. Kirakosyan

Conference

Effect of Rashba and Dresselhaus spin-orbit interactions on the polaron properties in wurtzite semiconductor quantum dot in the presence of external fields.

M.A. Yerosyan, K.A. Vardanyan, A.L. Vartanian, A.A. Kirakosyan

Conference

Confined acoustic phonon-mediated spin relaxation in a two-dimensional quantum dot in the presence of perpendicular magnetic field.

K.A. Vardanyan, A.L. Vartanian, A.A. Kirakosyan

Conference

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

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Dilatational and flexural acoustic-phonon mediated spin relaxation in a two-dimensional quantum dot in the presence of perpendicular magnetic field.

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Electric field effect on hot-electron energy-loss rate via LA-phonon scattering in a cylindrical quantum wire.

A. Stepanyan, L. Vardanyan, A. Asatryan, A. Vartanian, A. Kirakosyan

Conference

Confined and interface polar optical phonon-limited electron mobility in quantum wires in the presence of perpendicular electric field.

K. Vardanyan, Y. Brsoyan, A. Vartanian, A. Kirakosyan

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Vartanian A, Vardanyan K, Kirakosyan A

Conference

Quasi-one-dimensional Fröhlich polaron with spin-orbit Rashba and Dresselhaus couplings

Karen Vardanyan, Arshak Vartanian, Albert Kirakosyan

Conference

The influence of the transverse electric field on the hot electron energy loss rate via polar-optical phonons in nanowires

A.Asatryan, A.Stepanyan, M.Yeranosyan, A.Kirakosyan, A.Vartanian

Conference

Wurtzite-nitride quantum wires under electric and magnetic fields: Polaron basic parameters

A.L. Asatryan, L.A. Vardanyan, A.A. Kirakosyan, A.L. Vartanian

Ematerial

Պինդ մարմնի ֆիզիկայի լաբորատոր աշխատանքներ

Ալբերտ Կիրակոսյան, Արշակ Վարդանյան, Աննա Ասատրյան, Արամ Մանասեյան,

Գառնիկ Վերմիշյան

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Ատոմի ֆիզիկա

Ա. Կիրակոսյան

Conference

Phonon-Assisted Optical Absorption for Nanowires with Spin-Orbit Coupling

Ghukasyan T. K., Asatryan A.L., Vardanyan K.A., Kirakosyan A.A., Vartanian A.L.

Conference

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

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