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## Знание языков

English Русский Deutsch

## Публикации

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### **Exciton-optical phonon coupling in non-spherical quantum dots: A resonant Raman study of InP/ZnSe nanocrystals**

A.L. Vartanian, A.L. Asatryan, A.H. Movsisyan, L.A. Vardanyan, N. Del Fatti, F. Valle'e

Computational Materials Science 2025 113394/11

Статья

### **Kohn Anomaly with Spin-Orbit Coupling in Monolayer Graphene: A Method to Determine the Rashba Parameter**

Arshak L. Vartanian

ACS Applied Electronic Materials 2025 6348 - 6355

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### **Coherent Control of a Shallow Impurity Quantum States in Graphene Monolayer by Bichromatic Phase Modulated Laser Pulses: Influence of Relaxation Processes [Когерентное управление квантовыми состояниями мелкой примеси в монослое графена с помощью фазомодули]**

A.A. Avetisyan, A.P. Djotyan, G.P. Djotyan, A.L.Vartanian, A.L. Asatryan

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2025 42-49

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### **Comparative study on polaronic quantum confinement effects in wurtzite ZnO and GaN nanowires under external fields**

Anna Asatryan, Arshak Vartanian, Serob Hayrapetyan, Tigran Ghukasyan, Artak Avetisyan, Ya-Hong Xie

Results in Physics 2025 108535

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### **In situ microstructural and electrical characterizations of liquid metal stretchable conductors**

Souren Grigorian, Dmitriy Ksenzov, Tigran Ghukasyan, Arshak L. Vartanian

Materials Today Communications 2025 114317

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### **Intermediate interaction theory of the Dirac fermions with plasmon-surface LO-phonon excitations in the monolayer graphene on polar substrate**

Arshak L.Vartanian

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**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

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**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

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**External electric and magnetic field effects on the polaron in a wurtzite nitride nanowire embedded in a nonpolar matrix**

Anna L. Asatryan, Ashot H. Movsisyan, Arshak L. Vartanian

EUROPEAN PHYSICAL JOURNAL B 2021 id 70/8

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Образовательный Руководство

**Պինդ մարմնի ֆիզիկայի լաբորատոր աշխատանքներ. մաս 2**

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

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**Polaronic effects on the impurity-related linear and nonlinear optical properties in a nanowire with magnetic field**

Arshak L. Vartanian, Tigran K. Ghukasyan

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**Possible Frohlich surface polaron formation in graphene on a polar substrate**

Arshak L. Vartanian

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**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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**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

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**Influence of image charges on the impurity-related optical properties of near-surface quantum wells under a transverse electric field**

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

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**Polaron and dielectric mismatch effects on impurity-related optical absorption and refractive index changes in a spherical quantum dot**

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**Impurity-Bound Polaronic States in ZnSe Quantum Dots Under Electric Field: Image Charge Effect**

A. Vartanian, A. Asatryan, L. Vardanyan

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**Effect of Rashba spin-orbit coupling on polaron properties in CdSe nanowire under electric field**

A.L.Vartanian, L.A.Vardanyan

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**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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**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

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

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**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

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Mkrtich A. Yerosyan, Arshak L. Vartanian, Karen A. Vardanyan

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**Influence of the image charge effect on the hydrogen-like impurity-bound polaron in a spherical quantum dot in the presence of an electric field**

Arshak L. Vartanian, Lyudvig A. Vardanyan

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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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**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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**The influence of electric field on the interface polaron properties in a wurtzite nitride nanowire.**

Anna L. Asatryan, Karen A. Vardanyan, Arshak L. Vartanian

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**Polaronic effects due to quasi-confined optical phonons in wurtzite nitride nanowire in the presence of an electric field.**

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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

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**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

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

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**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

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**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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Образовательный Руководство

**Պինդ մարմնի ֆիզիկայի խնդիրներ, Մաս I**

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

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*Электронный материал*

**Պինդ մարմնի ֆիզիկայի լաբորատոր աշխատանքներ**

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

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

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**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.

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**Exciton Resonant Raman Scattering in Colloidal Quantum Dots: The Role of the Frohlich-Type Interaction**

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**Intermediate Coupling Theory of the Dirac Fermions with Plasmon-Surface Polar Optical Phonon Excitations in the Monolayer Graphene on Polar Substrate**

Arshak Vartanian

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