

Institute of Physics

Chair of Condensed Matter Physics

Lecturer on an hourly basis

Publications

Article

Molecular simulation study of RNA/dopamine complex dynamics at varying concentrations

Armen H. Poghosyan, Yevgeni S. Mamasakhlisov, Marine A. Parsadanyan, Mariam A. Shahinyan,

Zvart H. Movsisyan, Poghos O. Vardevanyan

Scientific Reports 2025 21379

Article

Thermodynamic and Magnetic Properties of Weakly Interacting Electron Gas Localized in a CdSe Cylindrical Core-Shell Quantum Dot

Yevgeni Mamasakhlisov, Levon Tadevosyan, Hayk Ghaltaghchyan, Hayk Sarkisyan

Quantum Reports 2025 13

Article

Thermodynamic parameters of the electron gas in CdSe nanoplatelets

Y.Sh. Mamasakhlisov, L.A. Tadevosyan, H.Ts. Ghaltaghchyan, V.A. Harutyunyan, H.A. Sarkisyan

Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment

2025 170274

Article

Few-particle gas in strongly oblate asymmetric ellipsoidal quantum dot

Y.Sh. Mamasakhlisov, A.A. Nahapetyan, M.A. Mkrtchyan, M.Ya. Vinnichenko, D.A. Firsov, H.A. Sarkisyan

Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment

2025 170251

Article

Two-dimensional pair-interacting hole gas thermodynamics: Exactly solvable Moshinsky model for lens-shaped quantum dots

Y.S. Mamasakhlisov, M.A. Mkrtchyan, D.B. Hayrapetyan, S. Baskoutas, H.A. Sarkisyan

Heliyon 2024 e34762

Article

Sequence disorder-induced first order phase transition in confined polyelectrolytes

Y.Sh. Mamasakhlisov, V.F. Morozov, V. Stepanyan, A. Badasyan, R. Podgornik

Journal of Chemical Physics 2024 134906

Article

Pair-Interacting Heavy Holes Gas in a Strongly Prolate Ellipsoidal Quantum Dot: Thermodynamic Properties [Парно-взаимодействующий газ тяжелых дырок в сильно-

вытянутой эллипсоидальной квантовой точке: термодинамические свойства]

Y. S. Mamasakhlisov, M. A. Mkrtchyan, H. A. Sarkisyan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2023 391–396

Article

Computational Design of Gas Sensors Based on V3S4 Monolayer

Hayk A. Zakaryan, Misha A. Aghamalyan, Yevgeni Sh. Mamasakhlisov, Ilya V. Chepkasov,

Ekaterina V. Sukhanova, Alexander G. Kvashnin, Anton M. Manakhov, Zakhar I Popov,

Dmitry G. Kvashnin

Nanomaterials 2022 774

Article

Adsorption of Hydrogen Peroxide on Two-Dimensional Transition Metal Chalcogenides

M. A. Aghamalyan, V. M. Aroutiounian, E. S. Mamasakhlisov, E. V. Sukhanova, A. G. Kvashnin, Z. I. Popov,

A. A. Zakaryan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2022 170-173

Article

The mechanism of flip-flops in a AOT lamella: A molecular dynamics study

Y. Sh. Mamasakhlisov, A.H. Poghosyan

Colloids and Surfaces A: Physicochemical and Engineering Aspects 2022 128681

Article

Spectroscopic Study of Protein Complexes with Low-Molecular Compounds

P.O. Vardevanyan, M.A. Shahinyan, N.H. Petrosyan, Y.Sh. Mamasakhlisov

Journal of Contemporary Physics (Armenian Academy of Sciences) 2021 60-64

Article

A molecular dynamics study of protein denaturation induced by sulfonate-based surfactants

Yevgeni S. Mamasakhlisov, Armen H. Poghosyan, Aram A. Shahinyan, Gayane R. Kirakosyan,

Naira M. Ayvazyan, Garegin A. Papoian

Journal of Molecular Modeling 2021 261

Article

Cold denaturation of RNA secondary structures with loop entropy and quenched disorder

Yevgeni Mamasakhlisov, Flavio Iannelli, Roland R Netz

Physical Review E 2020 012502(1-14)

Article

Statistical mechanics of DNA-nanotube adsorption

Yevgeni Mamasakhlisov, Shushanik Tonoyan, Davit Khechoyan, Artem Badasyan

Physical Review E 2020 062422(1-5)

Article

The Conductivity of the Monolayer of DNA - Quantum Dot Complexes in the Presence of Intercalating Charged Ligands

Y.S. Mamasakhlisov, V.F. Morozov, S.A. Tonoyan, E.M. Kazaryan, A.Y. Mamasakhlisov

Journal of Contemporary Physics (Armenian Academy of Sciences) 2020 87-93

Article

The Rouse Model of Viscoelasticity and Diffusion Behavior of Chromatin

Stepanyan V. A., Hayrapetyan A. A., Mamasakhlisov E.S

Journal of Contemporary Physics (Armenian Academy of Sciences) 2020 254-258

Article

Differential Melting Curves in Heterogeneous Biopolymers

V. F. Morozov, A. Y. Mamasakhlisov, A. Asatryan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2020 259-264

Article

THE CONDUCTIVITY OF THE MONOLAYER OF COMPLEXES OF DNA WITH QUANTUM DOTS IN THE PRESENCE OF INTERCALATING LIGANDS

Ye. Sh. MAMASAKHLISOV, A. Ye. MAMASAKHLISOV

Proceedings of the YSU A. Physical and Mathematical Sciences 2019 203-207

Article

The double-stranded DNA stability in presence of a flexible polymer

Yevgeni Mamasakhlisov, Hakob Sngryan, Shushanik Tonoyan, Artur Hakobyan, Poghos Vardevanyan

Journal of Biomolecular Structure and Dynamics 2018 1-12

Article

Sensitivity of DNA Sensors in the Presence of Charged Ligands

Sh.A. Tonoyan, A.A. Hakobyan, A.K. Andreassian, V.F. Morozov, Y.Sh. Mamasakhlisov

Journal of Contemporary Physics (Armenian Academy of Sciences) 2018 179-186

Article

Straight Calculations of Helix-Coil Transition Parameters in Heteropolymers

A.V. Asatryan, A.K. Andriasyan, A.A. Hakobyan, Sh.A. Tonoyan, Y.Sh. Mamasakhlisov, V.F. Morozov

Proceedings of the YSU A. Physical and Mathematical Sciences 2018 47-54

Article

Переход порядок-беспорядок в гетерогенных биологических макромолекулах

А.В. Асатрян, А.К. Андриясян, Ш.А. Тоноян, Е.Ш. Мамасакхлисов, В.Ф. Морозов

Вестник Российско-Армянского Университета: Физико-математические и естественные науки 2018 41-54

Article

AN INTEGRATED WEB-BASED INTERACTIVE DATA PLATFORM FOR MOLECULAR DYNAMICS SIMULATIONS

HRACHYA ASTSATRYAN, WAHI NARSISIAN, ELIZA GYULGYULYAN, VARDAN BAGHDASARYAN,

ARMEN POGHOSYAN, YEVGENI MAMASAKHLISOV, PETER WITTENBURG

Scalable Computing: Practice and Experience 2018 131-138

Article

Effect of ligands binding on the isotherm of hybridization of the DNA-chip

H.L. Tsaturyan, Sh.A. Tonoyan, V.F. Morozov, Y.Sh. Mamasakhlisov

Journal of Contemporary Physics (Armenian Academy of Sciences) 2017 180-188

<http://www.springer.com/physics/particle+and+nuclear+physics/journal/11958>

Article

Fluctuations in order-disorder transitions in the DNA-ligand complexes with various binding mechanisms

Y.Sh. Mamasakhlisov, A.P. Antonyan, A.Y. Mamasakhlisov, Sh.A. Tonoyan, P.H. Vardevanyan

Journal of Contemporary Physics (Armenian Academy of Sciences) 2017 173-179

<http://www.springer.com/physics/particle+and+nuclear+physics/journal/11958>

Article

On the Performance and Energy Consumption of Molecular Dynamics Applications for Heterogeneous CPU-GPU Platforms Based on Gromacs

Armen Poghosyan, Hrachya Astsatryan, Wahi Narsisian, Yevgeni Mamasakhlisov

Cybernetics and Information Technologies 2017 68-80

Article

Possible mechanism of non-monotone behavior of helix-coil transition temperature in two-component solvent

Sh.A. Tonoyan, A.V. Asatryan, D.L. Hayrapetyan, Y.Sh. Mamasakhlisov, V.F. Morozov

Journal of Contemporary Physics (Armenian Academy of Sciences) 2016 93-98

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Article

Theoretical treatment of helix-coil transition of complexes DNA with two different ligands having different binding parameters

Armen T. Karapetian, Zareh A. Grigoryan, Yevgeni Sh. Mamasakhlisov, Mikael V. Minasyants,

Poghos O. Vardevanyan

Journal of Biomolecular Structure and Dynamics 2016 198-202

<http://www.tandfonline.com/action/journalInformation?journalCode=tbsd20#.V25anP...>

Article

Generalized model of polypeptide chain for helix-coil transition in two-component solvent

Sh.A. Tonoyan, A.V. Asatryan, Mirtavoosi Saadat, Y.Sh. Mamasakhlisov, V.F. Morozov

Journal of Contemporary Physics (Armenian Academy of Sciences) 2015 375-380

<http://www.springer.com/physics/particle+and+nuclear+physics/journal/11958>

Article

Solvent effects in the helix-coil transition model can explain the unusual biophysics of intrinsically disordered proteins

A. Badasyan, Y. Sh. Mamasakhlisov, R. Podgornik, V. A. Parsegian

Journal of Chemical Physics 2015 014102-1-014102-

<http://scitation.aip.org/content/aip/journal/jcp>

Article

Collapse and hybridization of RNA: View from replica technique approach

Y.Sh. Mamasakhlisov, S. Bellucci, Shura Hayryan, H. Caturyan, Z. Grigoryan, Chin-Kun Hu

European Physical Journal E 2015 100

<http://epje.epj.org/>

Article

Differential Geometry in DNA Molecules

Armen Nersessian, Yevgeni Mamasakhlisov, Stefano Bellucci

Article

External field influence on semiflexible macromolecules: geometric coupling

Armen Nersessian, Yevgeni Mamasakhlisov, Stefano Bellucci

Modern Physics Letters B 2011 1809-1819

<http://www.worldscientific.com/worldscinet/mplb>

Conference

The dsDNA duplex stability and carbon nanotube induced crystallization: the effect of two - component solvent

Sh.A. Tonoyan, A.V. Asatryan, S. Mirtavoosi, Y.Sh. Mamasakhlisov, V.F. Morozov

Conference

Theoretical Description of ssDNA Adsorption on Carbon Nanotubes

Shushanik Tonoyan, Davit Khechoyan, Vardges Mambreyan, Vladimir Morozov, Yevgeni Mamasakhlisov

Conference

Constrained Annealing Approach for Order-Disorder Transitions in heterogeneous Macromolecular Systems

Shushanik Tonoyan, A. Andreassian, A. Hakobyan, V.F. Morozov, Y.Sh. Mamasakhlisov

Conference

The Helix-Coil Transition the Frames of GMPC. Ligands Effects

Vladimir Morozov, Aram Andriasyan, Saadat Mirtavoosi, Shushanik Tonoyan, Yevgeni Mamasakhlisov

Conference

Reentrant Melting of Single - Stranded RNA with Quenched Sequence Randomness

Yevgeni Mamasakhlisov, A. Andreassian, A. Hakobyan

Conference

Study of human serum albumin interaction with some ligands

P. Vardevanyan, Y. Mamasakhlisov, M. Shahinyan, M. Mikaelyan, N. Petrosyan
