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Տեսական և մաթեմատիկական ֆիզիկայի կենտրոն
Laboratory of Theoretical Physics
Leading Researcher
Research Institute of Physics
Տեսական և մաթեմատիկական ֆիզիկայի կենտրոն
Laboratory of Theoretical Physics
Leading Researcher
Institute of Physics
Chair of Theoretical and Mathematical Physics
Associate professor

Education

Institution	Yerevan State University
Faculty	Faculty of physics, theoretical physics chair
Date	1989 - 1992
Degree name	PhD student

Institution	Yerevan State University
Faculty	Faculty of physics, Theoretical physics chair
Date	1982 - 1989
Degree name	Masters

Scientific Rank/degree

Institution	Yerevan State University
Date	2013
Degree name	Doctor
Research Topic	Exact methods in one-dimensional and quasi-one-dimensional systems

Date	1996
Degree name	Candidate
Scientific Supervisor	Ara Sedrakyan
Research Topic	R-matrices in quantum groups

Language skills

Հայերեն English Русский Français

Work experience

Institution	A. Alikhanyan national science laboratory (Yerevan Physics Institute)
Period of time	2022 till now
Rank/degree	leading researcher

Institution	YSU
Period of time	2021 till now
Rank/degree	leading researcher

Institution	Theoretical physics chain, YSU
Period of time	2013 till now
Rank/degree	Associated professor

Publications

Article

Dynamical symmetries of the Calogero–Coulomb model

Tigran Hakobyan

Nuclear Physics B 2026 117522

https://doi.org/10.1016/j.nuclphysb.2026.117522

Article

Terahertz optics of a few-electron gas in a strongly prolate ellipsoidal quantum dot: implementation of the Calogero model

I. Safaryan, M. Mkrtchyan, T. Hakobyan, H. Sarkisyan

The European Physical Journal D 2026 117

https://link.springer.com/article/10.1140/epjd/s10053-026-01214-y

Article

Dunkl symplectic algebra in generalized Calogero models

Tigran Hakobyan

Journal of Physics A Mathematical and Theoretical 2025 065201

Article

Two-dimensional topological paramagnets protected by Z3 symmetry: Properties of the boundary Hamiltonian

Hrant Topchyan, Vasilii Iugov, Mkhitar Mirumyan, Tigran Hakobyan, Tigran A. Sedrakyan,

Ara G. Sedrakyan

SciPost Physics 2025 068

Article

Parafermionic representation of Potts-based cluster chain

Tigran Hakobyan, Raffi Varosyan

Physica B Condensed Matter 2025 417297

Article

Dunkl Symplectic Algebra in Generalized Calogero Model with Reflection Group Symmetry
Tigran Hakobyan
Bulgarian Journal of Physics 2025 108-113

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Simple Extension of Kitaev Chain for Z3 Parafermions [Простое обобщение цепочки Китаева для Z3 парафермионов]
Hakobyan T.S., Varosyan R.H., Harutunyan G.H.
Proceedings of NAS RA Physics 2024 28-35

Article
Sectorial Ground-State Nondegeneracy in Majorana Chains with Interaction and Orthogonal Symmetry [Невырожденность секториальных основных состояний в майорановских цепочках с взаимодействием и ортогональной симметрией]
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Hrant Topchyan, Vasilii Iugov, Mkhitar Mirumyan, Shahane Khachatryan, Tigran Hakobyan,
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Algebra of Dunkl Laplace–Runge–Lenz vector
Misha Feigin, Tigran Hakobyan
Letters in Mathematical Physics 2022 59, 1-29

Article
Superintegrable systems related to truncated Calogero model
T. Hakobyan, S. Vardanyan
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Lowest energy states of an O(N) fermionic chain
Tigran Hakobyan
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Article
Symmetry Algebra of Dynamical and Discrete Calogero Models
Tigran Hakobyan, Seda Vardanyan
Physics of Particles and Nuclei Letters 2020 734-737

Article
Symmetries of the generalized Calogero model and the Polychronakos-Frahm chain
Tigran Hakobyan
Physical Review D 2019 105011(1-7)

Article
Myers-Perry Conformal Mechanics

H. Demirchian, T. Hakobyan, A. Nersessian, M.M. Shekh-Jabbari

Physics of Particles and Nuclei 2018 860-864

Article

Integrability of Calogero-Coulomb Problems
Tigran Hakobyan, Armen Nersessian

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Constants of Motion in Deformed Oscilaltor and Coulomb Systems
Tigran Hakobyan, Armen Nersessian, Hovhannes Shmavonyan

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Symmetries in superintegrable deformations of oscillator and Coulomb systems: Holomorphic factorization
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Two-center Coulomb Problem with Calogero Interaction
Tigran Hakobyan, Armen Nersessian

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Lobachevsky geometry in TTW and PW systems
Tigran Hakobyan, Armen Nersessian, Hovhannes Shmavonyan

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Near horizon extremal Myers-Perry black holes and integrability of associated conformal mechanics
Tigran Hakobyan, Armen Nersessian, M.M.Sheikh-Jabbari

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CALOGERO MODEL AND ITS GENERALIZATION
T.Hakobyan, A.Nersessian

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

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Article

Spherical Calogero model with oscillator/Coulomb potential: Classical case

Francisco Correa, Tigran Hakobyan, Olaf Lechtenfeld, Armen Nersessian

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Spherical Calogero model with oscillator/Coulomb potential: Quantum case
Francisco Correa, Tigran Hakobyan, Olaf Lechtenfeld, Armen Nersessian

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Integrability and separation of variables in Calogero-Coulomb-Stark and two-center Calogero-Coulomb systems
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On Dunkl angular momenta algebra
Misha Feigin, Tigran Hakobyan

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Lowest-energy states in parity-transformation eigenspaces of SO(N) spin chain
Tigran Hakobyan

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Runge-Lenz vector in Calogero-Coulomb problem
Tigran Hakobyan, Armen Nersessian

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Superintegrability of generalized Calogero models with oscillator or Coulomb potential
Tigran Hakobyan, Olaf Lechtenfeld, Armen Nersessian

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The structure of invariants in conformal mechanics
Tigran Hakobyan, David Karakhanyan, Olaf Lechtenfeld

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The spherical sector of the Calogero model as a reduced matrix model
Tigran Hakobyan, Armen Nersessian, Francisco Correa, Olaf Lechtenfeld

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Integrable generalizations of oscillator and Coulomb systems via action-angle variables
Tigran Hakobyan, Armen Nersessian, Armen Saghatelyan, Vahagn Yeghikyan, Olaf Lechtenfeld

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Invariants of the spherical sector in conformal mechanics
Tigran Hakobyan, Armen Nersessian, Armen Saghatelian, Olaf lechtenfeld

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Ordering of Energy Levels for Extended SU(N) Hubbard Chain

Tigran Hakobyan

Symmetry Integrability and Geometry-Methods and Applications 2010 024,13

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Hidden symmetries of integrable conformal mechanical systems
Tigran Hakobyan, Armen Nersessian, Sergey Krivonos, Olaf Lechtenfeld

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Energy-level ordering for frustrated spin ladder models

T. Hakobyan

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Lobachevsky geometry of (super)conformal mechanics

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The cuboctahedric Higgs oscillator from the rational Calogero model

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Antiferromagnetic ordering of energy levels for a spin ladder with four-spin cyclic exchange: Generalization of the Lieb-Mattis theorem

Tigran Hakobyan

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Energy-level ordering and ground-state quantum numbers for a frustrated two-leg spin-1 /2 ladder

Tigran Hakobyan

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The ordering of energy levels for su(n) symmetric antiferromagnetic chains

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T. Hakobyan, J. H. Hetherington, M. Roger

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Article

Bethe Ansatz and thermodynamic limit of affine quantum group invariant extensions of the t –J model

T. Hakobyan, A. Avakyan, A. Sedrakyan, J. Ambjorn

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T. Hakobyan, V. Harutunyan, V. Gevorkyan, V. Makhov

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Luminescence Excitation and Influence of Radiation on the Stimulated Processes in Corundum Crystals

T. Hakobyan, V. Harutyunyan, E. Hakhverdyan, V. Gevorkyan, V. Grigoryan, V. Makhov

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A. Avakyan, T. Hakobyan, A. Sedrakyan

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Integrable Extensions of Hubbard Hamiltonian

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Spin chain Hamiltonians with affine Uqg symmetry
T. Hakobyan, A. Sedrakyan

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On the universal R-matrix of Uqsl2 at roots of unity
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Universal R matrix of Uqsl(n,m) quantum superalgebras
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R-matrices for highest weight representations of slq(2,C) at roots of unity
T. Hakobyan, A. Sedrakyan

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Article

Some new spinor representations of quantum groups Bq(n), Cq(n), Gq(2)
T. Hakobyan, A. Sedrakyan

Journal of Mathematical Physics 1993 2554-2560

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