

# Тигран Степанович Акопян

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## Институт физики

Кафедра теоретической физики имени академика Гургена Саакяна  
Доцент

## Образование

Учреждение	ЕГУ
Факультет	Физический факультет, кафедра теоретической физики
Дата	1989 - 1992
Степень / Звание	Аспирант

Учреждение	ЕГУ
Факультет	Физический факультет, кафедра теоретической физики
Дата	1982 - 1989
Степень / Звание	Магистр

## Ученое звание/Ученая степень

Учреждение	ЕГУ
Дата	2013
Степень / Звание	Доктор наук
Специальность	Физико-математические науки
Научная тема	Точные методы в одномерных и квази-одномерных системах

Учреждение	Ереванский Институт Физики
Дата	1996
Степень / Звание	Кандидат наук
Специальность	Физико-математические науки
Научный руководитель	Ara Sedrakyan
Научная тема	R-матрицы квантовых групп

## Знание языков

Հայերեն English Русский Français

## Опыт работы

Учреждение	Национальная научная лаборатория имени А. Алиханяна (Ереванский физический институт)
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Период времени 2022 до настоящего времени  
Звание/степень ведущий научный сотрудник

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Учреждение ЕГУ  
Период времени 2021 до настоящего времени  
Звание/степень ведущий научный сотрудник

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Учреждение кафедра теоретической физики, ЕГУ  
Период времени 2013 до настоящего времени  
Звание/степень доцент

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## Публикации

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Статья

**Simple Extension of Kitaev Chain for Z<sub>3</sub> Parafermions [Простое обобщение цепочки Китаева для Z<sub>3</sub> парафермионов]**

Hakobyan T.S., Varosyan R.H., Harutunyan G.H.

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2024 28-35

---

Статья

**Z<sub>3</sub> and (xZ<sub>3</sub>)<sup>3</sup> symmetry protected topological paramagnets.**

Hrant Topchyan, Vasilii Iugov, Mkhitar Mirumyan, Shahane Khachatryan, Tigran Hakobyan,

Tigran Sedrakyan

Journal of High Energy Physics 2023 35

---

Статья

**Algebra of Dunkl Laplace-Runge-Lenz vector**

Misha Feigin, Tigran Hakobyan

Letters in Mathematical Physics 2022 59, 1-29

---

Статья

**Superintegrable systems related to truncated Calogero model**

T. Hakobyan, S. Vardanyan

Proceedings of Science 2021 006/10

---

Статья

**Lowest energy states of an O(N) fermionic chain**

Tigran Hakobyan

Physical Review B 2020 085128(1-18)

---

Статья

**Symmetry Algebra of Dynamical and Discrete Calogero Models**

Tigran Hakobyan, Seda Vardanyan

Physics of Particles and Nuclei Letters 2020 734-737

---

Статья

## **Symmetries of the generalized Calogero model and the Polychronakos-Frahm chain**

Tigran Hakobyan

Physical Review D 2019 105011(1-7)

---

*Статья*

### **Myers-Perry Conformal Mechanics**

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

Physics of Particles and Nuclei 2018 860-864

---

*Статья*

### **Integrability of Calogero-Coulomb Problems**

Tigran Hakobyan, Armen Nersessian

Physics of Particles and Nuclei Letters 2017 331-335

<http://link.springer.com/journal/11497>

---

*Статья*

### **Constants of Motion in Deformed Oscillator and Coulomb Systems**

Tigran Hakobyan, Armen Nersessian, Hovhannes Shmavonyan

Physics of Particles and Nuclei Letters 2017 400-402

<http://link.springer.com/journal/11497>

---

*Статья*

### **Symmetries in superintegrable deformations of oscillator and Coulomb systems: Holomorphic factorization**

Tigran Hakobyan, Armen Nersessian

Physical Review D 2017 025014

<http://journals.aps.org/prd/>

---

*Статья*

### **Two-center Coulomb Problem with Calogero Interaction**

Tigran Hakobyan, Armen Nersessian

Physics of Atomic Nuclei 2017 383-388

<http://link.springer.com/journal/11450>

---

*Статья*

### **Lobachevsky geometry in TTW and PW systems**

Tigran Hakobyan, Armen Nersessian, Hovhannes Shmavonyan

Physics of Atomic Nuclei 2017 591-597

<http://link.springer.com/journal/11450>

---

*Статья*

### **Near horizon extremal Myers-Perry black holes and integrability of associated conformal mechanics**

Tigran Hakobyan, Armen Nersessian, M.M. Sheikh-Jabbari

Physics Letters B 2017 586-591

<http://www.journals.elsevier.com/physics-letters-b>

---

*Статья*

### **CALOGERO MODEL AND ITS GENERALIZATION**

T.Hakobyan, A.Nersessian

*Статья*

**Spherical Calogero model with oscillator/Coulomb potential: Classical case**

Francisco Correa, Tigran Hakobyan, Olaf Lechtenfeld, Armen Nersessian

Physical Review D 2016 125008,9

<http://journals.aps.org/prd/>

---

*Статья*

**Spherical Calogero model with oscillator/Coulomb potential: Quantum case**

Francisco Correa, Tigran Hakobyan, Olaf Lechtenfeld, Armen Nersessian

Physical Review D 2016 125009

<http://journals.aps.org/prd/>

---

*Статья*

**Integrability and separation of variables in Calogero-Coulomb-Stark and two-center Calogero-Coulomb systems**

Tigran Hakobyan, Armen Nersessian

Physical Review D 2016 045025,14

<http://journals.aps.org/prd/>

---

*Статья*

**Coulomb systems with Calogero Interaction**

Tigran Hakobyan, Armen Nersessian

Proceedings of the YSU A. Physical and Mathematical Sciences 2016 15-19

<http://www.ysu.am/science/en/journals>

---

*Статья*

**On Dunkl angular momenta algebra**

Misha Feigin, Tigran Hakobyan

Journal of High Energy Physics 2015 107,22

<http://www.springer.com/physics/particle+and+nuclear+physics/journal/13130>

---

*Статья*

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

Tigran Hakobyan

Nuclear Physics B 2015 248-258

<http://www.sciencedirect.com/science/journal/05503213>

---

*Статья*

**Runge-Lenz vector in Calogero-Coulomb problem**

Tigran Hakobyan, Armen Nersessian

Physical Review A 2015 22111

<http://journals.aps.org/prd/>

---

*Статья*

**Superintegrability of generalized Calogero models with oscillator or Coulomb potential**

Tigran Hakobyan, Olaf Lechtenfeld, Armen Nersessian

Physical Review D 2014 101701(R),6

<http://journals.aps.org/prd/>

---

*Статья*

**The structure of invariants in conformal mechanics**

Tigran Hakobyan, David Karakhanyan, Olaf Lechtenfeld

Nuclear Physics B 2014 399-420

<http://www.sciencedirect.com/science/journal/05503213>

---

*Статья*

**The spherical sector of the Calogero model as a reduced matrix model**

Tigran Hakobyan, Armen Nersessian, Francisco Correa, Olaf Lechtenfeld

Nuclear Physics B 2012 250-266

<http://www.journals.elsevier.com/nuclear-physics-b/>

---

*Статья*

**Integrable generalizations of oscillator and Coulomb systems via action-angle variables**

Tigran Hakobyan, Armen Nersessian, Armen Saghatelian, Vahagn Yeghikyan, Olaf Lechtenfeld

Physics Letters A 2012 679-686

<http://www.journals.elsevier.com/physics-letters-a>

---

*Статья*

**Action-angle variables and novel superintegrable systems**

Armen Nersessian, Tigran Hakobyan, Armen Saghatelian, Vahagn Yeghikyan, Olaf Lechtenfeld

Physics of Particles and Nuclei 2012 577-582

<http://www.springer.com/physics/particle+and+nuclear+physics/journal/11496>

---

*Образовательный Руководство*

**Չուզաւիեռ ծրագրավորում MPI փաթեթի միջոցով**

S.U. Հակոբյան

2012 42

---

*Статья*

**Invariants of the spherical sector in conformal mechanics**

Tigran Hakobyan, Armen Nersessian, Armen Saghatelian, Olaf lechtenfeld

Journal of Physics A-Mathematical and Theoretical 2011 055205, 14 pages

<http://iopscience.iop.org/journal/1751-8121>

---

*Статья*

**Invariants of the spherical sector in conformal mechanics**

Tigran Hakobyan, Armen Nersessian, Armen Saghatelian, Olaf Lechtenfeld

Journal of Physics A-Mathematical and Theoretical 2011 055205, 14

<http://iopscience.iop.org/journal/1751-8121>

---

*Статья*

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

Tigran Hakobyan

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

<http://www.emis.de/journals/SIGMA/>

---

Статья

**Hidden symmetries of integrable conformal mechanical systems**

Tigran Hakobyan, Armen Nersessian, Sergey Krivonos, Olaf Lechtenfeld

Physics Letters A 2010 801-806

<http://www.journals.elsevier.com/physics-letters-a>

---

Статья

**Energy-level ordering for frustrated spin ladder models**

T. Hakobyan

Physics of Atomic Nuclei 2010 339-344

---

Статья

**Lobachevsky geometry of (super)conformal mechanics**

Tigran Hakobyan, Armen Nersessian

Physics Letters A 2009 1001-1004

<http://www.journals.elsevier.com/physics-letters-a>

---

Статья

**The cuboctahedric Higgs oscillator from the rational Calogero model**

Tigran Hakobyan, Armen Nersessian, Vahagn Yeghikyan

Journal of Physics A: Mathematical and General (Journal of Physics A-Mathematical and Theoretical) 2009 205206, 11

<http://iopscience.iop.org/journal/0305-4470>

---

Статья

**Cuboctahedric Higgs oscillator from the Calogero model**

Armen Nersessian, Tigran Hakobyan, Vahagn Yeghikyan

Journal of Physics A-Mathematical and Theoretical 2009 205206

<http://iopscience.iop.org/journal/1751-8121>

---

Статья

**Lobachevsky geometry of (super)conformal mechanics**

Armen Nersessian, Tigran Hakobyan

Physics Letters A 2009 1001-1004

<http://www.journals.elsevier.com/physics-letters-a>

---

Статья

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

Tigran Hakobyan

Physical Review B 2008 012407,4

<http://journals.aps.org/prb/>

---

Статья

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

Tigran Hakobyan

Physical Review B 2007 214421,14

<http://journals.aps.org/prb/>

---

Статья

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

Tigran Hakobyan

Nuclear Physics B 2004 575-594

<http://www.journals.elsevier.com/nuclear-physics-b/>

---

Статья

**The possibility of gapless excitations in antiferromagnetic spin chains with long-range interactions**

T. Hakobyan

Journal of Physics A: Mathematical and General (Journal of Physics A-Mathematical and Theoretical) 2003 L599-L604

<http://iopscience.iop.org/journal/0305-4470>

---

Статья

**Phase diagram of the frustrated two-leg ladder model**

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

Physical Review B 2001 144433,17

<http://journals.aps.org/prb/>

---

Статья

**Delocalization of states in two-component superlattices with correlated disorder**

T. Hakobyan, D. Sedrakyan, A. Sedrakyan, I. Gomez, F. Dominguez-Adame

Physical Review B 2000 11432-11436

<http://journals.aps.org/prb/>

---

Статья

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

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

Journal of Mathematical Physics 1999 5687-5701

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

---

Статья

**The European Physical Journal B**

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

EUROPEAN PHYSICAL JOURNAL B 1999 31-33

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

---

Статья

**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

PHYSICA STATUS SOLIDI A-APPLICATIONS AND MATERIALS SCIENCE 1999 623-629

[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1862-6319/homepage/2231\\_ed...](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1862-6319/homepage/2231_ed...)

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Статья

**A family of affine quantum group invariant integrable extensions of the Hubbard Hamiltonian**

A. Avakyan, T. Hakobyan, A. Sedrakyan

Nuclear Physics B 1997 633-652

*Статья*

**Integrable Extensions of Hubbard Hamiltonian**

T. Hakobyan, A. Sedrakyan, A. Avakyan

International Journal of Modern Physics B 1997 3207-3222

---

*Статья*

**Spin chain Hamiltonians with affine  $U_q$  symmetry**

T. Hakobyan, A. Sedrakyan

Modern Physics Letters B 1996 250-254

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

---

*Статья*

**On the universal R-matrix of  $U_{q|2}$  at roots of unity**

T. Hakobyan, A. Sedrakyan

COMMUNICATIONS IN MATHEMATICAL PHYSICS 1996 157-171

<http://link.springer.com/journal/220>

---

*Статья*

**Lattice electrons in constant magnetic field: Bethe like ansatz**

T. Hakobyan, A. Sedrakyan

Modern Physics Letters A 1995 495-501

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

---

*Статья*

**Universal R matrix of  $U_{q|l}(n,m)$  quantum superalgebras**

T. Hakobyan, A. Sedrakyan

Journal of Mathematical Physics 1994 2552-2559

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

---

*Статья*

**R-matrices for  $U_{qosp}(1, 2)$  for highest weight representations of  $U_{qosp}(1, 2)$  for general  $q$  and  $q$  an odd root of unity**

T. Hakobyan, A. Sedrakyan

Modern Physics Letters B 1993 266-271

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

---

*Статья*

**R-matrices for highest weight representations of  $sl_q(2,C)$  at roots of unity**

T. Hakobyan, A. Sedrakyan

Modern Physics Letters B 1993 27-32

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

---

*Статья*

**Some new spinor representations of quantum groups  $B_q(n)$ ,  $C_q(n)$ ,  $G_q(2)$**

T. Hakobyan, A. Sedrakyan

Journal of Mathematical Physics 1993 2554-2560

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

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