

# Mammadova Saida

03.11.1985

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## EDUCATIONAL BACKGROUND

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PhD in Theoretical Physics from Institute of Physics Baku, Azerbaijan	2021
M.S. in Baku State University, Department of Mathematical analysis, honor diploma	2007-2009
B.S. in Baku State University, Department of Mechanics and Mathematics	2003-2007

## WORK EXPERIENCE

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<b>School № 196</b>	2007-2010
<i>Math teacher</i>	
<b>School № 197</b>	2010-2011
<i>Math teacher</i>	
<b>Institute of Physics, Ministry of Science and Education of Azerbaijan</b>	
<i>Researcher</i>	2011-2021
<i>Senior Researcher</i>	2021-present
<b>Institute of Physics, Ministry of Science and Education of Azerbaijan</b>	
<i>Instructor</i>	2015-2016

## SKILLS

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Atomistic Simulation Software/QuantumATK: large-scale and more realistic material simulation

- : integrating multiple simulation methods,
- : ranging from ab initio DFT to semi-empirical and classical force field analysis.

## RESEARCH INTERESTS

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Differential and integral equations, DFT calculation, superconductivity, nanotechnology.

## CONDUCTED TRAININGS FOR SCIENCE POPULARIZATION

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Jury member- at the Conferences of the Junior Academy at the Pishevari gymnasium in Baku; 2021 - 2023

For science popularization - the teaching of math at schools through lectures; 2022

Publication of articles on social issues in scientific mass and network newspapers;

## SCIENTIFIC MISSIONS CONFERENCES, TRAINING

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- Summer school: Advances in Condensed Matter Physics: New Trends and Materials in Quantum Technologies, 07-15.05. 2019, Samarkand, Uzbekistan.
- Training: “Software improvement”, 23-29.11.2016, Minsk, Belarus.
- Training: “Doped effects in superconductors”, 22-29.11.2015, Dubna, Russia
- Conference: “5<sup>th</sup> International Advances in Applied Physics and materials Science Congress, APMAS-2015” 15-20.04.2015, Mugla - Fathiye, Turkey.
- PV International Summer School ANAS Institute of Physics - European Commission, 01-06.08. 2013, Baku, Azerbaijan.

## PROJECTS

### EIF-2012-2(6)-39/08/1

Quantum harmonic oscillator model and spin chain based on deformed algebras.

### 01-3-1115-2014/2018

Effects of randomness on the physical properties of low-dimensional structures with strong spin-orbit interactions.

### EIF- KETPL-2015-1(25)

Effects of spin-orbit interactions and disorder in low-dimensional semiconductors and superconductors: application of the topological structures in quantum informatics.

### World Federation of Scientist National Scholarship programme:

Time-reversal invariant topological superconductivity in quasi 1D structures.

## AWARDS

First place, Contest for best paper from Young Researcher	Institute of Physics 2015
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## Other activities

Chairman of organization “Renaissance”	Institute of Physics 2023-
Secretary of Council of the Young Scientists and Specialists	Institute of Physics 2017-2018

## Publications

1. С.Н. Мустафаева, М.М. Асадов, С.О. Маммадова, С.С. Гусейнова, В.Ф. Лукичев.. Диэлектрическая спектроскопия и транспортные свойства легированного Yb монокристалла TInS<sub>2</sub>, ISBN 978-5-6049376-5-5, МАТЕРИАЛЫ МЕЖДУНАРОДНОЙ НАУЧНО-ПРАКТИЧЕСКОЙ ОНЛАЙН-КОНФЕРЕНЦИИ «МЕЖДИСЦИПЛИНАРНЫЕ ИССЛЕДОВАНИЯ НАУКИ, ТЕХНИКИ И ОБРАЗОВАНИЯ, г. Грозный, 16 февраля 2023 г, стр.107-114.
2. Асадов М.М., Гусейнова С.С., Маммадова С.О., Мустафаева С.Н., Лукичев В.Ф. DFT расчет адсорбции лития в 4H – SiC, электронных и термодинамических свойств бинарных соединений системы Si–C–Li, ISBN 978-5-90168-853-3, XV Симпозиум с международным участием ТЕРМОДИНАМИКА И МАТЕРИАЛОВЕДЕНИЕ, Новосибирск, 3–7 июля 2023 г, стр.111.

3. Mammadova S., Huseynova S., Rustamov R., STUDYING GOLD ADSORBED ON GRAPHENE SUPERCELL AS A DRUG CARRIER FOR ANTICANCER DRUG  $\beta$ -LAPACHONE, 3<sup>rd</sup> International Conference One Health Problem & Solution, 1-2 June 2023 Baku, Azerbaijan, pp.75.
4. Huseynova S.S., Mammadova S.O., Iskandarova G.Z. ELECTRONIC AND MAGNETIC PROPERTIES OF Cs DOPED GRAPHENE, CONFERENCE PROCEEDINGS, Sumqayit, 2022, p.75-76.
5. M. M. Asadov, S. O. Mammadova, S. S. Huseynova, S. N. Mustafaeva, and V. F. Lukichev, Simulation of the Adsorption and Diffusion of Lithium Atoms on Defective Graphene for a Li-Ion Battery, ISSN 1063-7397, Russian Microelectronics, 2023, Vol. 52, No. 3, pp. 167–185.
6. 4. S.S. HUSEYNOVA, S.O. MAMMADOVA, M.V. GOJAYEVA, FIRST-PRINCIPLES STUDY OF LITHIUM ADSORPTION ON SiC, AJP FIZIKA section C: Conference M.H. Shahtakhtinski, Baku, Azerbaijan, 2022, pp.61-63.
7. S.O. MAMMADOVA, S.S. HUSEYNOVA, A.Y. SHARIFLI, GOLD ATOM ADSORBED ON GRAPHENE SUPERCELL MODEL, AJP FIZIKA section C: Conference L.M. Imanov, Baku, Azerbaijan 2022, pp.19-22.
8. M.M.Asadova, S.O.Mammadova, S.S.Guseynova, S.N.Mustafaeva, and V.F.Lukichev, Ab Initio Modeling of Gold Adsorption by the Surface of Defect Graphene, ISSN1063-7397, Russian Microelectronics, 2022, Vol.51, No.6, pp.384–396.
9. M.M. Асадов , С.О. Маммадова , С.С. Гусейнова , С.Н. Мустафаева , В.Ф. Лукичев, Ab initio расчет зонной структуры и свойств модификаций соединения  $Ti_3Sb$ , допированного литием, Физика твердого тела, 2022, том 64, вып. 11.
10. S.O. Mammadova, S.S. Huseynova, A.Y. Sharifli, The geometric structure and magnetic properties of Li adsorbed on monolayer graphene, AJP FIZIKA, 2022, volume XXVIII № 1, section En.
11. S.O. Mammadova “Electronic and magnetic properties of A15 and D8m phase  $Ti_3Sb$ ” MODERN TRENDS IN PHYSICS, BSU, Baku, Azerbaijan, Proceedings volume II, 2021, p.23-30.
12. S.S. Huseynova and S.O. Mammadova “Monovacancy graphene supercells doped with silicon, germanium, and lithium atoms” MODERN TRENDS IN PHYSICS, BSU, Baku, Azerbaijan, Proceedings volume II, 2021, p.36-40.
13. S.S.Huseynova, S.O.Mammadova “First principles study of magnetism at vacancy in graphene” Transactions of ANAS, v.XLI, №2, 2021, 22-25.
14. S.S.Huseynova, S.O.Mammadova “First principles study on Si atom doped and adsorbed monovacancy graphene supercells, The Reports of National Academy of Sciences of Azerbaijan, 2021, Volume LXXVII, №1-2, 12-18.
15. S.S. Huseynova, S.O.Mammadova, A.A. Sadigova “AB INITIO CALCULATION Al, Co, Sr DOPED GRAPHENE” AJP FIZIKA, v. XXVI, №4, December 2020, 11-14.
16. Məmmədova, S. O. Topoloji izolyator və ifratkeçiricilərdə Majorana fermionlarının kvant informasiya daşıyıcısı olan qubit kimi meydana çıxma mexanizmləri// Azerbaijan Journal of Physics, - Baku: - 2019. C. XXV, №3, - s. 47-49.
17. Mammadova, S. O. Majorana fermions in one- and quasi-one dimensional insulator with charge-density wave // Azerbaijan Journal of Physics, - Baku: - 2019. Vol. XXV, №3, - p. 22-24.
18. Mammadova, S., Nakhmedov, E., Alekperov, O. Quasi-One-Dimensional Topological Superconductor // Acta Physica Polonica A, - 2016. Vol. 129, №4, - p. 800-802.

19. Nakhmedov, E., Mammadova, S., Alekperov, O. Topological superconductivity and fractional Josephson effect in quasi-one dimensional wires on a plane // JETP Letters, - 2016. Vol. 103, iss. 1, - p. 20-26.
20. Nəhmədov, Ə. P., Məmmədova S. O., Ələkbərov O. Z. Mayorana fermionları vasitəsi ilə birölçülü kristallarda qubit kvant informasiyası daşıyıcısının yaradılması üsulu, İxtira İ2019 0002, Azərbaycan Respublikası / - 2019.
21. Nakhmedov E., Mammadova S., and Alekperov O. Topological superconductivity in quasi-one dimensional structures // The Reports of National Academy of Sciences of Azerbaijan, 2015, v. LXXI, № 2, p.19-24.
22. Nakhmedov E., Alekperov O. and Mammadova S. Effects of randomness on the critical temperature in quasi-two-dimensional organic superconductors // Azerbaijan journal of Physics, 2012, XI. XVIII, № 4, pp.37.
23. S.O. Mammadova “Electronic properties of A-15 type superconductor  $Ti_3Sb$ ” 7th INTERNATIONAL CONFERENCE MTP-2021: MODERN TRENDS IN PHYSICS, BSU, Baku, Azerbaijan, December 15-17, 2021, p.45.
24. S.S. Huseynova and S.O. Mammadova “Magnetic properties of Si doped and adsorbed monolayer graphene with vacancy” 7th INTERNATIONAL CONFERENCE MTP-2021: MODERN TRENDS IN PHYSICS, BSU, Baku, Azerbaijan, December 15-17, 2021, p.93.
25. Mammadova, S., Nakhmedov, E., Alekperov O. Quasi-One-Dimensional Topological Superconductor // 5th International Advances in Applied Physics and Materials Science Congress (APMAS-2015), - Oludeniz, - 16-19 april, - 2015, p. 545.
26. Mammadova, S. Suppression of the critical temperature by spin-orbit interactions in a weakly-coupled layered superconductor // 1st International Scientific Conference of young scientists and specialists, - Baku, -15-16 october, - 2014, -p.221-222.
27. Nakhmedov, E., Alekperov, O., Mammadova S. Suppression of the critical temperature of layered organic superconductors by disorder // International Conference on Ternary and Multinary Compounds (ICTMC-18), - Salzburg: - 27-31 august - 2012, - p.128.