Dr, Associated prof., FARIDA N. TATARDAR

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WORK EXPERIENCE

Khazar University, School of Science and Engineering
Department: Physics and Electronics

Lecturer of Physics *(Mechanics and Thermodynamics) and Communication systems, Telecommunication networks, Wireless communication, Optical communication, Physics for medicine and biology, General Physics, Physics (Mechanics, Molecular physics, Quantum physics, nuclear physics), Azerbaijan, 2014 (February) - present.*

Khazar University, School of Science and Engineering
Head of Physics and Electronics Department – 2021 (present)

Azerbaijan National Academy of Sciences, Institute of Physics, ‘‘Physics of polymer nano- and active composites**’’ laboratory. *Leading Researcher,*** *Azerbaijan, 2008 (September) – 2022*

EDUCATION

2002-2006	**BSc in Physics**, Baku State University, Azerbaijan, Baku
2006-2008	**MSc in Physics**, Baku State University, Azerbaijan, Baku
2009-2013	**Ph.D. in Physics**, Institute of Physics, Azerbaijan, Baku
2017	**Associate professor,** Institute of Physics, Azerbaijan, Baku
2025	**Postdoctoral researcher**, Industrial Campus of Ferrol- University of A Coruna, Spain

CONFERENCES

1. International conference Electroceramics XII” /Trondheim, Norway, 2010;
2. International conference 7th Asian Meeting on Ferroelectrocity and 7th AsianMeeting on ElectroCeramincs” /Korea, 2010;
3. Congress and Exhabition on Advanced Materials and Processes “MaterialsScience and Engineering” / Darmstadt, Germany, 24-26 August 2010/;
4. The 10th Russia/CIS/Baltic/Japan Symposium on Ferroelectricity, RCBJSF – 10” /Yokohamo, Japan 2012/;
5. 11th İnternational Symposium on Ferroic Domains and Micro – to NanoscopicStructures”, /Ekaterinburg, Russia, 2011;
6. 1st International scientific conference of young Scientists and specialists. The role of Multidisciplinary approach in solution of actual problems and appliedsciences/ Baku, 2014/;
7. The 5th International Conference on Control and Optimization with IndustrialApplications,

27-29 August 2015, Baku, Azerbaijan.

8. International conference, conference named after academician Latif Imanov, Shusha, September 2022
9. International Conference, Nakhchivan named after Emil Shakhtakhtakhtinsky, October 2022
10. The 3rd Republican scientific conference dedicated to the 100th anniversary of the birth of National Leader Heyder Aliyev on the topic "Actual issues of personnel training in the field of energy", Hadrut, 17 November 2023
11. III. Interdisciplinary Conference on Mechanics, Computers and Electrics Istanbul/Türkiye. 21-22 Oct 2023
12. “Khazar Nanaotehnology Webinar” meeting series organised by the Nano BioAnalytical Chemistry Center on 25 December 2024.
13. Pharmaceutical Sciences Congress 2025, held on May 14, 2025, Famagusta, North Cyprus.
14. JIRheo 2025/ Reunión de Jóvenes Investigadores en Reología. 11-12 September 2025

LANGUAGES

- Azerbaijan (native)
- Russian (fluent)
- English (fluent)
- Turkish (good)

SELECTED HONORS and AWARDS

- ***Honor Diploma***, **bachelor** and **master** degrees- Baku State University,Azerbaijan
- ***PhD diploma***- Azerbaijan National Academy of Science, Azerbaijan
- ***Associate Professor Academic title*** - Azerbaijan National Academy ofScience, Azerbaijan
- **Certificate,** "Textbook Preparation and Evaluation", Khazar University,2015
- **Certificate,** "Development of interactive teaching materials based onlearning outcomes", Khazar University, 2017-2018
- **Certificate**, is awarded the honorary title of Notable Researcher, Khazar University, 2020
- **Certificate,** Appreciation Dunya İB School Science Fair, 2022
- **Certificate,** "Skills for the future" Mentorship, "Innovation Center" of the State Agency for Citizen Service and Social Innovation under the President of the Republic of Azerbaijan, 2023
- **Certificate,** for attending the Study Visit at KU Leuven Gent (Belgium) as part of the Erasmus+ CBHE 3E-Partnership Project, 11-12 September 2024
- **Certificate,** for attending the Study Visit at Polytechnic Milano Milan (Italy) as part of the Erasmus+ CBHE 3E-Partnership Project, 6-8 October 2024
- **Certificate,** for attending the Spanish Study Visit of the Erasmus+ project European
- Energy Efficiency towards Mutually Reinforcing Partnership with Georgia, Azerbaijan and Ukraine (3E- Partnership) 6-7 November 2024
- Certificate, for sharing her valuable knowledge and expertise during his lecture titled “Electrospun nanofibers and their applications: Energy Harvesting” at the “KHAZAR NANOTECHNOLOGY WEBINAR” meeting series organised by the Nano BiOAnalytical Chemstry Center on 25 December 2024
- **Certificate,** for their participation as an invited speaker in the International Pharmaceutical Sciences Congress 2025, held on May 14, 2025, Famagusta, North

Cyprus.

- **Certificate, Postdoctoral researcher**, Industrial Campus of Ferrol- University of A Coruna, Spain/ during the period from June 20 to September 20, 2025

GRANT ACTIVITY

- Project No: EIF-BGM-2-BRFTF-1-2013-07/01/1-M-06. Title: Investigation ofcrazing effect in polyether fibbers and films. Approval data: 26.08.2013 *participant*
- Project No: EİF-KETPL-2-2015-1(25)-56/01/1-M-01. Title: Low-dimensionalspin-orbit effects and additive effects in semiconductors and Superconductors: Approval data: 28.10.2016. *participant*
- Science Fund Project Competition of the State Oil Company of the Republic of Azerbaijan - ET, September 2019 - September 2020, "Addition and correlation in graphene, fullerene and other topological nanostructures. *manager*

QUALIFICATIONS

- Microsoft Windows & Microsoft Office Suite (Word, Excel, PowerPoint)
- MATLAB (data analysis, simulation, visualization)
- Origin Pro (versions 6.1, 7.1, 8.1 – scientific data analysis & graphing)

RESEARCH INTEREST

Focused on the design and development of **nanocomposites and hybrid composites** for advanced applications
Investigation of **nanoparticle immobilization and functionalization** to enhance material performance
Study of **piezoelectric effects in composite systems** for energy harvesting and sensing

Research on **electro-acoustic and acousto-electric transducers** for signal conversion and sensing applications
Development of **fiber-reinforced nanocomposites** with enhanced multifunctional properties
Exploration of **3D-printed sensors and smart materials** for biomedical and engineering applications

PUBLICATIONS

2. M. K. Kerimov, I.S. Sultanahmedova, I. A. Faradzhzade, F.N. Tatardar, H.S.Aliyev, F. F. Yahyaev. Varistor Effect in Polymer–Semiconductor Composites// Semiconductors, 2010, Vol. 44, No.7, p. 904–911 (Impact Factor: 0.739-SCI).
3. G. A. Mamedov, A. E. Panich, I.Sultanakhmedova , F.N. Tatardar, A.A.Mekhtili, F. F. Yakhyaev. Piezoelectric Composites with a High Stability of the Piezo-electric Modulusunder the Action of Mechanical and Temperature Fields// Physics of the Solid State, 2010, Vol. 52, No.6, pp.1138–1145.
4. Kurbanov M.A., Aliyev G.G., Tatardar F.N., Sultanahmedova I.S., Mehdili. A.A. New Technologies of the Nanoparticle Immobilization in the Polymer Solutions for Preparation of the Polymer Nanocomposites// Azerbaijan journal of PhysicsVolume XVI, 2010 number 2, Series; En, June, p. 38 – 41.
5. F. F. Yakhyayev, I.S.Sultanakhmedova, F.N. Tatardar, G. Kh. Kulieva. A Device for the Complex Study of the Modes of Crystallization and Processing of Polymeric Composites under Electric Discharge Plasma and Temperature Effects // Surface Engineering and Applied Electrochemistry, 2010, Vol. 46, No. 2, pp. 160–164.

6. Мамедов Г.А., Курбанов М.А., Рамазанова И.С., Мехтили А.А., Алиев Х.С., Алиев Г.Г., Татардар Ф.Н., Оруджев И.Н., Кулиева Г.Х. Новая технология иммобилизации наночастиц в полимерной матрице гибридных пьезоэлектрических композитов // “Nanotexnologiyalar və onların texnikada tətbiqi” I Beynəlxalq Konfrans materialları, Bakı – 2010, s. 14 – 19.
7. Мамедов Г.А., Курбанов М.А., Татардар Ф.Н., Гочуева А.Ф., Мехтили А.А., Мусаева С.Н., Алиев Х.С., Рамазанова И.С., Оруджев И.Н., Юсифова У.В.. Технологические особенности создания нового класса пьезоэлектрических материалов на основе гибрида нано- и микропьезоэлектрических композитов // “Nanotexnologiyalar və onların texnikada tətbiqi” I Beynəlxalq Konfrans materialları, Bakı – 2010, s. 19 – 23.
8. Мамедов Г.А., Курбанов М.А., Кулиева Г.Х., Мехтили А.А., Рамазанова И.С., Гочуева А.Ф., Яхъяев Ф.Ф., Оруджев И.Н., Юсифова У.В. Диагностирование наноструктурирования полимерной фазы гибридных композитов применением метода термоактивационной спектроскопии // “Nanotexnologiyalar və onların texnikada tətbiqi” I Beynəlxalq Konfrans materialları, Bakı – 2010, s. 34 – 39.
9. Ф.Н. Татардар. Пьезоэлектрические материалы на основе гибрида матричных нано – и микропьезоэлектрических композитов // Научной конференции аспирантов национальной академии наук Азербайджана, Bакı – «ElM» - 2010, с. 69 – 71.
10. Керимов М.К., Курбанов М.А., Мехтили А.А., Алиев Г.Г., Султанахмедова И.С., Татардар Ф.Н. и др. Пьезоэлектрические материалы на основе гибрида матричных нано - и микропьезоэлектрических композитов // ЖТФ., 2011, т. 81, вып. 8, с.127 – 134.
11. Kurbanov. M.A., Tatardar. F.N., Mextili A.A., Sultanaxmedova I.S., Aliev G.G., Yusifova U.V. New technology of the immobilization of nanoparticles in polymers and the development of the piezoelectrics based on hybrid matrix of nano- and micropiezoceramics compozites// Surface Engineering and Applied Electrochemistry, 2011, Vol. 47, No. 1, pp. 76-83.
12. Kurbanov M.A., Bayramov A.A., Safarov N.A., Tatardar F.N., Mextili A.A., Sultanaxmedova I.S. Hybrid piezoelectric composites with high electromechanical characteristics. US Patent No.8, 030,829 B1, 2011.
13. M.A. Kurbanov, A.A. Bayramov, N.A. Safarov, F.N. Tatardar, I.S.Sultanakhmedova. Hybrid piezoelectric composites with high elektromechanical characterics // Scientific Israel – Technological Advantages, 2012, vol.14, no 1, p. 1 -7
14. Керимов М.К., Курбанов М.А., Байрамов А.А., Мехтили А.А., Татардар Ф.Н., Кулиева Г.Х., Оруджев И.Н., Рамазанова И.С. Электроакустические Преобразователи на основе нано- и микрогибридных пьезоэлектрических композитов // AMEA – nın məruzələri, 2011, cild LXVII, № 2, s. 39 – 50.
15. Керимов М.К., Курбанов М.А., Байрамов А.А., Мехтили А.А., Татардар Ф.Н., Кулиева Г.Х., Оруджев И.Н., Рамазанова И.С. Новая технология иммобилизации наночастиц в гибридном пьезоэлектрическом композите и диагностирование наноструктурирования полимерной фазы // AMEA – nın məruzələri, 2011, cild LXVII, № 1, s. 63 – 73.
16. Prof. Mirza Kurbanov, DrSc. Azad Bayramov, DrPh. Nuru Safarov, Irada Sultanahmedova, Farida Tatardar/ Formation of the piezoelectric and electret effect in composites of polymer-piezoceramic crystallized in a plasma of electric discharge. “International conference Electroceramics XII” Trondheim, Norway, 2010, s. 445
17. Ch.O. Gajar, M.A. Kurbanov, A.A. Bayramov, I.S. Sultanahmedova, F.N. Tatardar, O.A. Aliev, F.F. Yaxyayev, Z.A. Dadashev/ Hybrid piezoelectric materials based on the polymer matrix nano- and microcomposites. 11th International Symposium on Ferroic Domains And micro –to Nanoscopic Structures. Ekaterinburg, Russia, 2012, pp. 183
18. М. К. Керимов, А. А. Байрамов, Ф. Н. Татардар, Г. Х. Гулиева, О. А. Алиев. Влияние технологии модификации композитов полимер–пьезокерамика на них пироэлектрические

свойства // Электронная Обработка Материалов №5 (49), 2013, с. 6 – 14

19. A.A.Baymanov, F.N. Tatardar, F.F. Yahyayev, A.F. Nuraliyev A.A. Dadasgov, B. Kh. Khudayarov . Ultradisperse state of polymer phase as stabilizer in nanosized $BaTiO_3$ and polar and nonpolar polymer composities// Azerbaijan Journal of Physics, Fizika, v.XX, n 1, Section: En, April, 2014, p.55-59
20. F.N. Tatardar. Immobilization of nanoparticles in polymer phase by plasma method. 1st international scientific conference of young scientists and specialists.The role of Multidisciplinary approach in solution of actual problems and applied sciences. Baku, 2014, pp. 251-253.
21. М.А.Гурбанов, Ф.Н. Татардар, З.А. Дадашев, И.С.Рамазанова, А.А.Байрамов, Э.Г.Гашимов. Электретный композит полимер-сегнетопьезокерамика как источник энергии. Azərbaycan Milli Elmlər Akademiyasinin Xəbərləri Fizika-texnika və riyaziyyat elmləri seriyası, fizika və astronomiya XXXVI, 2015, №5, с.100-105
22. Levent Parali, Mirza A. Kurbanov, Azad A. Bayramov, Farida N. Tatardar. Effects of electric Discharge plasma treatment on the thermal conductivity of polymer – metal nitride/carbide composites// Journal of ELECTRONIC MATERIALS DOI: 10.1007/s11664-015-4010-3 2015 The Minerals, Metals & Materials Society. (Impact Factor: 1.798-SCI)
23. Havar A. Mamedov, Levent Paralı , Mirza A. Kurbanov, Farida.N. Tatardar, Azad A.Bayramov, İsrafil Şabikoğlu. Piezoresistive and Posistor Effects in Polymer-Semiconductor and Polymer-Ferropiezoceramic Composite// Физика и техника полупроводников(Semiconductors), 2016, том 50, вып. 5, с.633-638 (Impact Factor: 0.739-SCI)
24. F. N. Tatardar., M.A. Kurbanov., Z.A. Dadashev. Relationship between composite Piezoelectric properties and crystal chemical parameters of piezofiller and polymer matrix/ The 5th international scientific conference on Control and Optimization with Industrial Applications, Baku, Azerbaijan, 27-29 August, 2016. Pp.432
25. F.N. Tatardar. Development of new plasma method for Nano- dispersion of the polar and non-polar polymers/ Academic Science Week – 2015, Inrenational Multidisciplinary Forum. 02- 04 Novomber, 2015, Baku, Azerbaijan, pp 189 -190
26. Prof.Dr. Kurbanov Mirza (aztu), Dr.-ing. Tatardar Farida. Alternativ enerjinin generasiyası və elektrik şəbəkələrinə qoşulması. Magistr təhsili üçün- Elektroenergetika ixtisası üzrə. Tempus Projekt: 516678 Tempus-1-2011-1-De-Tempusjpcr) Anpassung Des Lehrbetriebs An Den Bologna Prozess Im Ingenieurstudium Für Aserbaidschan. Baku 2015, s.103
27. N. A. Safarov, F.N. Tatardar, S. S. Amirov. The Hybride Composites Based New Materials For The Electromechanical And Acoustico-Electrical Converters/ Journal of Non-Oxide Glasses Vol. 9, No 1, 2017, p. 19 – 23. https://chalcogen.ro/19_SafarovNA.pdf
28. E. Nakhmedov, O. Alekperov, F. Tatardar, Yu. M. Shukrinov, I. Rahmonov, and K. Sengupta. Effect of magnetic field and Rashba spin-orbit interaction on the Josephson tunneling between superconducting nanowires/ PHYSICAL REVIEW B 96, 014519 (2017). P. 1-15 https://journals.aps.org/prb/abstract/10.1103/PhysRevB.96.014519
29. F.N. Tatardar, M. A. Kurbanov , N. A. Safarov , Sh. Sh. Amirov , O. A. Aliyev. Plasma methods for nanostructuring the polymer matrix of piezoelectric nanocomposites/ ajp fizika 2018 vol. Xxiv №1, section: en. P. 18-23 http://www.physics.gov.az/physart/168_2018_01_18_en.pdf
30. M. A. Kurbanov, F. N. Tatardara, N. A. Safarov, I. S. Ramazanova, Z. A. Dadashev, I. A. Faradzhzade, K. K. Azizova, and A. F. Gochueva. New Technology of High-Sensitivity Ferro/Piezoelectric Materials Based on Micro- and Nanostructured Hybrid Polymers. Technical Physics, 2019, Vol. 64, No. 5, pp. 693–697 https://ui.adsabs.harvard.edu/abs/2019JTePh..64..693K/abstract

31. E. Nakhmedov, E. Nadimi, S. Vedaei, O. Alekperov, F. Tatardar, A. I. Najafov, I. I. Abbasov, and A. M. Saletsky. Vacancy mediated magnetization and healing of a graphene monolayer, PHYSICAL REVIEW B 99, 125125 (2019) https://journals.aps.org/prb/abstract/10.1103/PhysRevB.99.125125
32. E. Nakhmedov, B.D. Suleymanlic, O.Z. Alekperova, F. Tatardar, H. Mammadov, A. Konovko, A.M. Saletskye, Yu.M. Shukrinov, K. Senguptah, B. Tanatari. Josephson current between two p-wave superconducting nanowires in the presence of Rashba spin-orbit interaction and Zeeman magnetic fields. Physica C: Superconductivity and its applications 579 (2020) 1353753 https://www.sciencedirect.com/science/article/abs/pii/S0921453420302495
33. M.Ə.Qurbanov, F.N. Tatardar, İ.S. Ramazanova, A.F.Nurəliyev, Z.A.Dadaşov. Polimer – nanoölçülü və polimer– mikroölçülü kompozitlərin hibridinin yaradilması üçün pyezoelektrik fazalı altlığın alınması texnologiyası. AJP FİZİKA 2021 volume XXVII №3, section: Az http://physics.gov.az/physart/299_2021_03_03_az.pdf
34. Bahruz Suleymanli , Enver Nakhmedov , Oktay Alekperov, Farida Tatardar , Bilal Tanatar. Motion of two-dimensional quantum particle under a linear potential in the presence of Rashba and Dresselhaus spin–orbit interactions/ Solid State Communications, Volume 342, 1 February 2022, 114582. 1-s2.0-S0038109821003665-main.pdf
35. B. Emdadi , A. Asimov , F. Tatardar. Graphene-Based Cathode Materials For Dye-Sensitized Solar Cells: A Review/ AJP FIZIKA 2022 volume XXVIII № 2, section En. http://physics.gov.az/archen.html
36. B. Emdadi, A. Asimov, F. Tatardar. QUANTUM DOTS DYE-SOLAR CELLS SENSITIZED: A REVIEW http://www.physics.gov.az/archen.html
37. F.N. Tatardar. New materials for the electromechanical and acoustoelectric transducers/ AJP FIZIKA 2022 section C: Conference L.M. Imanov http://www.physics.gov.az/index_main2.html
38. F.N. Tatardar. Effects Of Electric Discharge Plasma Treatment on The Polymer Composites/ AJP FIZIKA 2022 section C: Conference M.H. Shahtakhtinski http://www.physics.gov.az/index_main2.html
39. Bahruz Suleymanlia, , Enver Nakhmedov , Farida Tatardar, and Bilal Tanatar. The diagrammatic method of Berezinskii for one-dimensional disordered wire with spin-orbit interaction/ Physica E: Low-dimensional Systems and Nanostructures. 2023 https://ui.adsabs.harvard.edu/abs/2023PhyE..14615550S/abstract
40. F.N Tatardar, M.A Kurbanov, I.S Ramazanova, G.K Guliyeva, A. Nuraliyev, Z.A Dadashov. New materials for the electromechanical and acoustoelectric transducers/ Ferroelectrics. Volume 606, Issue 1. Page 30-38, 2023 https://www.tandfonline.com/doi/abs/10.1080/00150193.2023.2189840
41. Levent Paralı, Farida Tatardar, Muhterem Koç, Ali Sarı, Rasoul Moradi. The piezoelectric response of electrospun PVDF/PZT incorporated with pristine graphene nanoplatelets for mechanical energy harvesting, Volume 35, article number 41, 2024. https://link.springer.com/article/10.1007/s10854-023-11798-5
42. Mirzayev M.N.; Imanova G.T.; Neov D.; Rasul M.; Bekpulatov I.R.; Khallokov F.K.; Popov E.P.; Hasanov K.; Ismayilova S.; Mauyey B.; Mirzayeva D.M.; Tatardar F.; Dinu M.; Kaminski G.; Vladescu A. Surface evaluation of carbonitride coating materials at high temperature: an investigation of oxygen adsorption on crystal surfaces by molecular dynamics simulation. Journal of Materials Science: Materials in Electronics. 2024. https://link.springer.com/article/10.1007/s10934-024-01627-3
43. Muhterem Koç, Farida Tatardar, Nahida Musayeva, Sevinj Guluzade, Ali Sar,Levent Paralı. The piezoelectric properties of three-phase electrospun PVDF/PZT/Multiwalled Carbone Nanotube composites for energy harvesting applications. Journal of Alloys and Compounds, Elsevier, Volume 1003, 175578, 2024. https://www.sciencedirect.com/science/article/pii/S0925838824021650
44. Salamat Q.; Tatardar F.; Moradi R.; Soylak M. Recent Advancement and Prospects of Novel Nanomaterial-Based Solid-Phase Extraction (SPE) Techniques. Analytical Letters. 2025 https://www.tandfonline.com/doi/abs/10.1080/00032719.2024.2347454

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46. Muhterem Koç, Sevinj Guluzade, Farida Tatardar, Nahida Nazim Musayeva,Ali Sarı, Levent Paralı*, The piezoelectric nanogenerators based on PVDF/BaTiO3/MWCNT ternary composite prepared by the electrospinning method, Journal of Materials Science-Q2, Impact Factor: 3.9, 2025, Journal of Materials Science, Volume 60, pages 25481–25503, (2025). https://link.springer.com/article/10.1007/s10853-025-11872-9
47. Yirou Feng, Hao Wu, Wandi Zhao, Duanyang Liu, Farida Tatardar***,** Levent Parali***,** Guodong Zhu***.** Synergetic Enhancement of Piezoelectric P(VDF-TrFE) Devices toward Weak Signal Perception. ACS Applied Electronic Materials, Volume 8, Issue 2Pages 732-1026. 2026. https://doi.org/10.1021/acsaelm.5c02329
48. Qamar Salamat, Farida Tatardar, Valida Fatalieva & Mustafa Soylak. Fibre bio-nanocomposites and their applications in environmental chemistry. International Journal of Environmental Analytical Chemistry. 2026 https://doi.org/10.1080/03067319.2026.2621946
49. Mengyun Zhang, Wanxun Li, Chenru Zhao, Farida Tatardar, Levent Parali, Anna Guliakova, Guodong Zhu. Optoelectrical stacked dielectric-gated organic thin film transistors for artificial synaptic simulation. Organic Electronics Volume 153, June 2026, 107413. https://doi.org/10.1016/j.orgel.2026.107413
50. Chenru Zhao, Jiawei Xu, Wanxun Li, Shixin Liu, Ruochen Liu, Farida Tatardar, Levent Parali, Anna A Guliakova, Guodong Zhu. From Proximity to Contact Perception of Piezoelectric Extended-Gate Amorphous Oxide Thin Film Transistors. *ACS Appl. Mater. Interfaces* 2026, 18, 18, 26448–26461. https://doi.org/10.1021/acsami.6c00084