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Date of birth: 04 November 1990

Nationality: Azerbaijan Republic

EDUCATION

September 2008 – August 2013, South-Russian State Polytechnic University, Novocheerkassk, Russia

The specialist degree: nanotechnology in electronics, graduated with distinction

June 2015, Training at the Petrozavodsk State University, Petrozavodsk, Russia:

"Development and production of micro- and nanoelectromechanical systems (MINEMS) and devices of oxide electronics based on nanomaterials with new properties"

January 2019 – February 2024 - PhD student at the Ministry of Science and Education of the Republic of Azerbaijan Institute of Physics, Baku, Azerbaijan

Thesis defended on February 21, 2024

EMPLOYMENT HISTORY

August 2013 – September 2017, Research Engineer at GS Nanotech, Gusev, Russia

January 2018 – July 2021, research fellow at Ministry of Science and Education of the Republic of Azerbaijan Institute of Physics, Baku, Azerbaijan

July 2021– Present, Senior research fellow at Ministry of Science and Education of the Republic of Azerbaijan Institute of Physics, Baku, Azerbaijan

ACHIEVEMENTS

Papers published in peer reviewed journals: 18; Google Scholar h-index: 7.

COMPETENCIES & INTERESTS

Google Scholar link: <https://scholar.google.com/citations?user=wjxkBIUAAA&hl=en>

LinkedIn: <https://www.linkedin.com/in/elvin-alizade-02924b57/>

Azerbaijan language: Native speaker;

English language: Intermediate;

Russian language: Native speaker;

Teaching experience: Teaching and mentoring master degree students (Research Methodology and Thesis Writing)

Professional Skills: Optics, Spectroscopic Ellipsometry measurements and treatment of ellipsometric data, also for anisotropic materials; Work in Cleanroom environment, Electron Microscopy (SEM); Energy-dispersive X-ray spectroscopy EDS; X-ray Microscopy; Knowledge and experience of technologies for the production of thin-film structures; Photolithography; Knowledge and experience of packaging technology and assembly of integrated circuits; AutoCAD (Basic knowledge); ANSYS (Basic knowledge); Matlab; ArtCam Reliability (Semiconductor industry), Stress test, Failure analysis, FTA, Failure rate, MTTF, MTBF, JEDEC, Statistical processing of experimental data, numerical analysis.

Fields of interest: Optics, Metasurfaces, Metamaterials, Integrated photonics, Optical properties of Nanostructure, Nanostructures and nanotechnologies, Spectroscopy, Additive technologies for application in photonics, Semiconductors

PUBLICATIONS

Papers:

1. S.G. Asadullayeva, N.A. Ismaylova, E. H. Allzade, N.T. Mamedov, A.I. Bayramov, M. A. Musayev and I.I. Abbasov, Photoluminescence and spectroscopic ellipsometry of single crystal MnGa₂S₄. Bull Mater Sci 47, 115 (2024).
<https://doi.org/10.1007/s12034-024-03197-1>
2. A.H. Bayramov, E.A. Bagiyev, E.H. Alizade, J.N. Jalilli, N.T. Mamedov, Z.A. Jahangirli, S.G. Asadullayeva, Y.N. Aliyeva, M. Cuscunà, D. Lorenzo et al. Two-Channel Indirect-Gap Photoluminescence and Competition between the Conduction Band Valleys in Few-Layer MoS₂. Nanomaterials, 14, 96 (2024).
<https://doi.org/10.3390/nano14010096>
3. Z.S. Aliev, E.H. Alizade, D.A. Mammadov, J.N. Jalilli, Y.N. Aliyeva, N.A. Abdullayev, S.S. Ragimov, S.M. Bagirova, S. Jahangirov, N.T. Mamedov, E.V. Chulkov, Spectroscopic ellipsometry and Raman spectroscopy of Bi_{1-x}Sb_xTe solid solutions with x≤0.1, Thin Solid Films **768**, 139727 (2023).
<https://doi.org/10.1016/j.tsf.2023.139727>
4. N.T. Mamedov, E.H. Alizade, A.H. Bayramov, A. Tavkheldze, D.A. Mammadov, J.N. Jalilli, Y.N. Aliyev, Z.A. Jahangirli, L. Jangidze, N. Kitoshvili, Free carrier plasma edge and plasmonic excitations in heavily doped surface grating n-type Si, Thin Solid Films **771**, 139751 (2023). <https://doi.org/10.1016/j.tsf.2023.139751>
5. Э.Г. Ализаде, Исследование плазмонного резонанса в Bi₂Se₃ и Sb₂Te₃ методом инфракрасной спектральной эллипсометрии, Оптика и спектроскопия, 130, 2, 249-253, (2022). DOI: [10.21883/OS.2022.02.51991.2599-21](https://doi.org/10.21883/OS.2022.02.51991.2599-21)
6. N.A. Abdullaev, I.R. Amiraslanov, Z.S. Aliev, Z.A. Jahangirli, I.Yu. Sklyadneva, E.G. Alizade, Y.N. Aliyeva, M.M. Otrokov, V.N. Zverev, N.T. Mamedov, E.V. Chulkov, Lattice dynamics of Bi₂Te₃ and vibrational modes in raman scattering of topological insulators MnBi₂Te_{4-n}(Bi₂Te₃), Jetp Lett. **115**, 749–756, (2022).
<https://doi.org/10.1134/S0021364022600987>
7. I.R. Amiraslanov, Z. S. Aliev, P.A. Askerova, E.H. Alizade, Y.N. Aliyeva, N.A. Abdullayev, Z.A. Jahangirli, M.M. Otrokov, N.T. Mamedov, E.V. Chulkov, Crystal structure and Raman active lattice vibrations of magnetic topological insulators MnBi₂Te_{4-n}(Bi₂Te₃) (n = 0, 1, . . . , 6), Physical Review B **106** (18), 184108 (2022).
<https://doi.org/10.1103/PhysRevB.106.184108>
8. N.T. Mamedov, E.H. Alizade, Z.S. Aliev, Y.N. Aliyeva, Kh.N. Akhmedova, S.M. Bagirova, T.G. Mammadov, N. A. Abdullayev, I.R. Amiraslanov, S. S. Ragimov, and Z.A. Jahangirli, Spectroscopic ellipsometry and free carrier plasma edge: topological insulators case, Proceedings of the 7th international conference MTP-2021: Modern trends in Physics Abstract Book, 1, Baku, 23-30, (2021)

9. E. J. Ahmadov, E. N. Orujlu, D.M. Babanly, D. A. Mammadov, E. H. Alizade, I. A. Mamedova, N. A. Abdullayev, N. T. Mamedov, M. B. Babanly, Phase equilibria of the $\text{Sb}_2\text{Te}_3+2\text{BiI}_3\leftrightarrow\text{Bi}_2\text{Te}_3+2\text{SbI}_3$ reciprocal system: synthesis and characterization of the cation-substituted $\text{Bi}_{1-x}\text{Sb}_x\text{Te}$ solid solutions, *Journal of Alloys and Compounds*, Volume 929, 167388, (2022) <https://doi.org/10.1134/S0020168514060065>
10. Xu. Bing, Y. Zhang, E. H. Alizade, Z. A. Jahangirli, F. Lyzwa, E. Sheveleva, P. Marsik, Y. K. Li, Y. G. Yao, Z. W. Wang, B. Shen, Y. M. Dai, V. Kataev, M. M. Otrokov, E. V. Chulkov, N. T. Mamedov, & Christian Bernhard, Infrared study of the multiband low-energy excitations of the topological antiferromagnet MnBi_2Te_4 , *Physical Review B* **103** (12), L121103, (2021) <https://doi.org/10.1103/PhysRevB.103.L121103>
11. Y. N. Aliyeva, E.A. Bagiev, E.H. Alizade, J.N. Jalili, A.H. Bayramov, N.T. Mamedov, Dielectric function and crystallinity of polycrystalline films, *Proceedings of the of 7th International Conference MTP-2021: Modern Trends in Physics*, December 15-17, 2021 BAKU STATE UNIVERSITY, BAKU, 15-22 (2021).
12. E. Alizade, Surface plasmon polariton observation in narrow-gap semiconductors Bi_2Se_3 and Sb_2Te_3 , *AJP FIZIKA*, XXVII (2), 38-40, (2021)
13. A. Yu. Gamzayeva, E. G. Alizade, N.T. Mamedov, N.A. Abdullaye, Y. N. Aliyeva, Kh. N. Akhmedova, G. H. Azhdarov, K. Sh. Kahramanov, S. A. Nemov, Optical properties of polyethylene filled with Bi_2Te_3 nanocrystallites, *Semiconductors* **53**, 224–228 (2019). <https://doi.org/10.1134/S106378261902009X>
14. A. I. Bayramov, N. T. Mamedov, T. D. Dzhaifarov, Y. N. Aliyeva, Kh. N. Ahmadova, E. H. Alizade, S. A. Asadullayeva, M. S. Sadigov, Sh. Kh. Ragimov, Photoluminescence and optical transitions in C_{60} fullerene thin films deposited on glass, silicon and porous silicon, *Thin Solid Film* **690**, 137566, (2019) <https://doi.org/10.1016/j.tsf.2019.137566>
15. A. Bayramov, E. Alizade, S. Mammadov, A. Tavkhelidze, N. Mamedov, Y. Aliyeva, K. Ahmedova, S. Asadullayeva, L. Jangidze, & G. Skhiladze, Optical properties of surface grating Si-based multilayer structure, *Journal of Vacuum Science & Technology B* **37** (6), 061807 (2019). <https://doi.org/10.1116/1.5120799>
16. R.R. Guseynov, V.A. Tanriverdiyev, G.L. Belenky, G. Kipshidze, Y.N. Aliyeva, Kh.V. Aliguliyeva, E.G. Alizade, Kh.N. Ahmadova, N.A. Abdullayev, N.T. Mamedov, V.N. Zverev, Electrical and optical properties of unrelaxed $\text{InAs}_{1-x}\text{Sb}_x$ heteroepitaxial structures, *Semiconductors* **53**, 906–910 (2019). <https://doi.org/10.1134/S1063782619070091>
17. N. Mamedov, E. Alizade, Z. Jahangirli, Z. Aliev, N. Abdullayev, S. Mammadov, I. Amiraslanov, Y.G. Shim, K. Wakita, S.Ragimov, A. Bayramov, M.Babanly, A. Shikin, E. Chulkov, Infrared spectroscopic ellipsometry and optical spectroscopy of plasmons in classic 3d topological insulators, *Journal of Vacuum Science & Technology B* **37** (6), 062602 (2019). <https://doi.org/10.1116/1.5122776>

18. Z. Jahangirli, E. Alizade, Z. Aliev, M. Otrokov, N. Ismayilova, S. Mammadov, I. Amiraslanov, N. Mamedov, G. Orudjev, M. Babanly, A. Shikin, E. Chulkov, Electronic structure and dielectric function of Mn-Bi-Te layered compounds, Journal of Vacuum Science & Technology B **37** (6), 062910 (2019). <https://doi.org/10.1116/1.5122702>

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19. Z.S. Aliev, E.H. Alizade, S.S. Ragimov, N.A. Abdulayev, M.B. Babanly, N.T. Mamedov, Spectroscopic ellipsometry and Raman spectroscopy of $\text{Bi}_{1-x}\text{Sb}_x\text{Te}$ solid solutions with $x \leq 0.1$, ICSE-9 Abstract Book, Beijing, 194 (2022).
20. N. T. Mamedov, E. H. Alizade, A. H. Bayramov, A. Tavkhelidze, Y. N. Aliyeva, Z. A. Jahangirli, S. N. Mammadov, L. Jangidze, N. Kitoshvili, Free carrier plasma edge and plasmonic excitations in heavily doped surface grating Si, Abstract Book ICSE-9 Abstract Book, Beijing, 248 (2022).
21. A. H. Bayramov, A. Tavkhelidze, E. H. Alizade, L. Jangidze, N. Kitoshvili, Y. N. Aliyeva, S. Q. Asadullayeva, S. N. Mammadov, Z. A. Jahangirli, N. T. Mamedov, Strongly polarized interband optical transitions and luminescence in heavily doped surface grating n-type silicon, ICSE-9 Abstract Book, Beijing, 249 (2022).
22. E. H. Alizade, J. N. Jalilli, Y. N. Aliyeva, D. Lorenzo, M. Cuscuna, A. H. Bayramov, N. T. Mamedov, Dielectric function of polycrystalline MoO_3 thin films, ICSE-9 Abstract Book, Beijing, 238 (2022).
23. N.T. Mamedov, E.H. Alizade, Z.A. Jahangirli, Z.S. Aliev, I.R. Amiraslanov, S.N. Mammadov, M.M. Otrokov, E.V. Chulkov, Spectroscopic Ellipsometry and Ab-Initio Studies of MnBi_2Te_4 and $\text{MnBi}_{0.5}\text{Sb}_{1.5}\text{Te}_4$: Dielectric function and free carrier plasma edge, ICSE-9 Abstract Book, Beijing, 194 (2022).
24. Y.N. Aliyeva, E.A. Bagiev, E.H. Alizade, J.N. Jalili, A.H. Bayramov, N.T. Mamedov, Dielectric function and crystallinity of polycrystalline films, Book of Abstracts. 7th International Conference MTP-2021: Modern trends in Physics Abstract Book December 15-17, 2021 BAKU STATE UNIVERSITY, BAKU, 160 (2021).
25. A.H. Bayramov, N.T. Mamedov, T.D. Dzhafarov, Y.N. Aliyeva, Kh. N. Ahmadova, E. H. Alizade, S. Q. Asadullayeva, S. N. Mammadov, M.S. Sadigov, Sh.Kh. Ragimov, Optical properties of fullerene embedded porous silicon, ICSE-8 Abstract Book, Barselona, 281 (2019).
26. E. H. Alizade, S. N. Mammadov, A. Tavkhelidze, N. T. Mamedov, A. H. Bayramov, Y. N. Aliyeva, K. N. Ahmedova, L. Jangidze, G. Skhiladze, Optical properties of nano-grating Si-based multilayer structure, ICSE-8 Abstract Book, Barselona, 159 (2019).
27. N.T. Mamedov, E.H. Alizade, Z.S. Aliev, S.N. Mammadov, N.A. Abdulayev, I.R. Amiraslanov, A.I. Bayramov, M.B. Babanly, J.N. Jalilli, A.M. Shikin, E.V. Chulkov,

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28. E.H. Alizade, S.N. Mammadov, Z.A. Jahangirli, M.M. Otkov, Z.S. Aliev, I.R. Amiraslanov, M.B. Babanly, N.T. Mamedov, A.M. Shikin, E.V. Chulkov, Electronic structure and dielectric function of Mn-Bi-Te layered compounds, ICSE-8 Abstract Book, Barselona, 188 (2019).
29. N.T. Mamedov, Z.S. Aliev, E.H. Alizade, S.N. Mammadov, M.B. Babanly, I.R. Amiraslanov, A.M. Shikin, E.V. Chulkov, Plasmons and interband optical transitions in BiTeI semiconductor, ICSE-8 Abstract Book, Barselona, 187 (2019).
30. N. Mamedov, Z. Jahangirli, I.R. Amiraslanov, Z.S. Aliyev, N. Abdullayev, A. Shikin, E.V. Chulkov, V. Zverev, S. Mammadov, E. Alizade, Ternary compounds of Mn-Bi-Te family: electronic structure, optical properties and prospective application, 21st International conference on Ternary and Multinary Compounds (ITMC-21), Abstract Book, 60, (2018)

REFERENCES

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