

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaoa.com/index.php/3>

THEORY AND PRACTICE OF TRANSLATION IN THE DIGITAL AGE: FROM CLASSICAL FOUNDATIONS TO NEURAL NETWORK MODELS

Gulnoza Narimonova

Teacher of Namangan State University,
Namangan, Uzbekistan

Kamlia Abduraxmanova

Student of Namangan State University,
Namangan, Uzbekistan
abduraxmanovakamila07@gmail.com

Abstract

The article explores the multifaceted world of translation activity, encompassing theoretical foundations, practical methodologies, and technological innovations. The author provides a detailed analysis of the specific features of various types of translation (technical, medical, literary, and interpreting), examines the key challenges faced by linguists, and offers a forecast for the development of the profession in the coming years. The paper presents an in-depth overview of translation automation tools and emphasizes the indispensable role of the human factor in interpreting complex cultural codes.

Keywords: Translation, simultaneous interpreting, localization, artificial intelligence, CAT systems, machine translation.

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaopenaccess.com/index.php/3>

Introduction

Translation is the most ancient art that has made the existence of human civilization in its present form possible. Without the exchange of knowledge, technologies, and cultural values, humanity would have remained fragmented groups. Today, translation activity is a vast industry that integrates linguistics, psychology, history, and advanced technologies. This paper examines in detail how the translation process is structured, what types of translation activities exist, and why even the most advanced artificial intelligence of 2026 still requires a human editor.

Translation is not merely the substitution of words from one language with words from another. It is a process of transferring meanings, cultural codes, and emotions across boundaries that may seem insurmountable. In a world where globalization has erased physical distances, translators remain the “invisible builders” who construct bridges between nations.

The history of translation is inseparably linked with the history of civilization. The very word “translation” in the Latin tradition (*translatio*) literally means “carrying across.” From the very beginning, it was a matter of state and spiritual importance, when two tribes speaking different dialects sought to negotiate peace or exchange goods. In the Middle Ages, translators were almost sacred figures. The Toledo School of Translators in Spain and the House of Wisdom in Baghdad preserved the heritage of antiquity: thanks to them, the works of Aristotle and Plato did not disappear but were translated into Arabic and later back into Latin. In those times, a translator’s mistake could cost a life or lead to a religious schism. Today, the stakes are no less high, although the context has shifted toward political and commercial spheres.

In linguistics, translation is defined as the transfer of a message expressed in one language (the source language — SL) by means of another language (the target language — TL). However, this definition is simplified. Professional translation implies the preservation of three levels:

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaopenaccess.com/index.php/3>

1. **Semantic level:** the precise meaning of what is stated.
2. **Stylistic level:** the manner of expression (formal, ironic, academic, etc.).
3. **Pragmatic level:** the impact of the text on the reader. If the original is intended to provoke laughter, the translation must also be humorous, even if this requires a complete change of wording.

There are concepts that do not have direct equivalents. This is the so-called “non-equivalent vocabulary” or “lexical gaps.” For example, the Russian word “sutki” (a full 24-hour period) cannot be translated into many languages with a single word. The translator is compelled to use descriptive translation or seek contextual substitutions. This transforms the linguist’s work into a creative endeavor and a continuous process of solving intellectual challenges.

Translation activity can be classified according to various criteria: by the nature of texts, by the mode of perception, and by the degree of automation.

Written translation requires maximum accuracy and perseverance.

Technical translation involves working with documentation, patents, and manuals. Metaphors are unacceptable here. The primary requirement is terminological unambiguity.

Legal translation requires knowledge of the legal systems of different countries. The translator must understand the difference between Anglo-Saxon and continental legal systems. An error in a single term (for example, “property” versus “ownership”) may lead to the termination of a contract.

Medical translation is the most responsible type. The translator works with surgical protocols, test results, and descriptions of medicines. Errors here cost lives.

Literary translation is a “reincarnation” of the text. A translator of fiction must be a talented writer. They convey the rhythm of prose, wordplay, and the atmosphere of an era.

Interpreting is work carried out “in real time,” where there is no opportunity to consult a dictionary.

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaopenaccess.com/index.php/3>

Simultaneous interpreting is the pinnacle of translation mastery. The interpreter sits in a booth and speaks at the same time as the speaker. The psychophysiological strain is so intense that after 20 minutes the brain begins to “overheat”; therefore, simultaneous interpreters work in pairs.

Consecutive interpreting involves the speaker delivering a segment of speech and then pausing. At this moment, the interpreter reproduces what has been said. The most important skill here is interpreter’s note-taking (a system of special symbols for recording ideas on the spot).

Liaison (bilateral) interpreting is used at business meetings, where the interpreter facilitates communication between two interlocutors, translating statements in both directions.

New directions have emerged, such as localization and transcreation.

Localization (L10n) is the adaptation of a product to the culture of a region. This applies to video games and software. It is necessary to change not only the text but also date formats, currency, colors, and even plot elements if they are offensive to the local population.

Transcreation is a blend of translation and copywriting. It is used in marketing. An advertising slogan by Apple or Nike is not translated literally — it is recreated in another language so that it evokes the same emotions.

By 2026, technologies have definitively ceased to be mere dictionaries. They have become full-fledged assistants.

CAT systems (Computer-Aided Translation) are programs (such as Trados, Smartcat, and Memsource) that create Translation Memories. If a translator once translated the sentence “Press the red button,” the program will store it. The next time, in a 1,000-page document, it will automatically insert the translation in all similar segments. This accelerates work by three to five times and ensures terminological consistency.

Neural Machine Translation (NMT) systems, such as Google Translate or DeepL, now use deep learning. They analyze millions of texts and capture

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaopenaccess.com/index.php/3>

context. However, they still “hallucinate” (fabricate facts) and handle irony poorly.

The emergence of models such as Gemini and GPT has transformed the market. The service of MTPE (Machine Translation Post-Editing) is now in demand — post-editing of machine translation. The machine performs the “draft” work in seconds, and the specialist revises the text, correcting logical and stylistic errors. The modern translator is a qualified analyst rather than a “walking dictionary.” A translator must possess key competencies, such as knowledge of grammar and stylistics; understanding of the history, politics, and economics of the countries whose languages are studied; the ability to work with translation software and neural networks; and adherence to confidentiality and neutrality.

The profession of translator is considered one of the most stressful, especially in interpreting. It requires quick reaction and the ability to concentrate in a noisy environment.

Will artificial intelligence replace translators? In the mass segment (simple correspondence, product descriptions) — yes. However, in fields where the cost of error is high (medicine, law, diplomacy), humans will remain the guarantors of quality. Artificial intelligence lacks an understanding of cultural subtext — the “soul” of language.

Under conditions of globalization, languages increasingly borrow words from English. Translators act as “filters,” striving to preserve the uniqueness of their native language by selecting adequate equivalents for foreign terms.

Translation is a living process that is constantly evolving. Today, it is no longer sufficient simply to “know a language.” One must be a researcher, a technologist, and a diplomat. Despite the power of technology, genuine translation remains an act of human communication. The profession of translator is not disappearing; rather, it is transforming into the profession of an “intercultural consultant,” helping people to understand one another.

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaoa.com/index.php/3>

REFERENCES

1. G. Narimonova. Interactive teaching methods in foreign language lessons // JournalNX- A Multidisciplinary Peer Reviewed Journal. Vol.10, Iss.12, pp.13-17 (2024)
2. Psycholinguistics as a tool for in-depth study of speech and language. - Science and Education. 2022, Vol.3, Iss.2, pp.546-550
3. Abdullayeva S., Narimonova G. External laws of language development. Proceedings of International Educators Conference. Vol.2, Iss.3, pp.59-62.
4. Наримонова Г. Ключевые тенденции развития русского литературного языка. Евразийский журнал академических исследований. Том 2, №6, стр.544-546.
5. Наримонова Г.Н. Внешние законы развития языка. НамГУ - научный вестник одарённых студентов. Том 1, № 1, стр.215-218
6. Narimonova G. Modern Information Technologies in Teaching the Russian Language. Journal of Pedagogical Inventions and Practices. 2023. Vol.27, pp.3-5.
7. Narimonova G. Changes in the Russian Language in the Modern Period and Language Policy. Texas Journal of Philology, Culture and History. 2023. Vol.25, pp.40-43.
8. Narimonova G. Key trends in the development of the Russian literary language. Eurasian Journal of Academic Research. 2023. Vol. 2, Iss. 6, pp. 544-546.
9. G.N. Narimonova. External laws of language development. Scientific bulletin of gifted students of NamSU. 2023. Vol. 1, Iss. 1, pp. 215-218.
10. Г. Наримонова. Ключевые тенденции развития русского литературного языка. Евразийский журнал академических исследований. 2022. Том 2, № 6, стр.544-546.
11. Наримонова Г.Н. Психологические аспекты изучения русского языка // «Методы и технологии в преподавании РКИ в контексте современных

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaoa.com/index.php/3>

- образовательных парадигм». Международная научно-практическая конференция. 2024. Наманган. 7-8 октября.
12. G.Narimonova, Z.Turgunpulatova. Methodology of teaching Russian language and literature // Ta'limning zamonaviy transformatsiyasi. 2024. Vol.7, Iss.5, pp.239-245.
 13. G.Narimonova. Psycholinguistic bases of work with the text at the lessons of Russian language and literature // Western European Journal of Linguistics and Education. 2024. Vol.2, Iss.4, pp.164-172.
 14. G. Narimonova. Interactive methods of teaching in foreign language classes // Scientific Bulletin of NamSU. Special issue, pp.891-896. (2024)
 15. R.G. Rakhimov. Clean the cotton from small impurities and establish optimal parameters // The Peerian Journal. Vol. 17, pp.57-63 (2023)
 16. R.G. Rakhimov. The advantages of innovative and pedagogical approaches in the education system // Scientific-technical journal of NamIET. Vol. 5, Iss. 3, pp.293-297 (2023)
 17. F.G. Uzoqov, R.G. Rakhimov. Movement in a vibrating cotton seed sorter // DGU 22810. 03.03.2023
 18. F.G. Uzoqov, R.G. Rakhimov. The program "Creation of an online platform of food sales" // DGU 22388. 22.02.2023
 19. F.G. Uzoqov, R.G. Rakhimov. Calculation of cutting modes by milling // DGU 22812. 03.03.2023
 20. F.G. Uzoqov, R.G. Rakhimov. Determining the hardness coefficient of the sewing-knitting machine needle // DGU 23281. 15.03.2023
 21. N.D. Nuritdinov, M.N. O'rmonov, R.G. Rahimov. Creating special neural network layers using the Spatial Transformer Network model of MatLAB software and using spatial transformation // DGU 19882. 03.12.2023
 22. F.G. Uzoqov, R.G. Rakhimov, S.Sh. Ro'zimatov. Online monitoring of education through software // DGU 18782. 22.10.2022

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaopenaccess.com/index.php/3>

23. F.G. Uzoqov, R.G. Rakhimov. Electronic textbook on "Mechanical engineering technology" // DGU 14725. 24.02.2022
24. F.G. Uzoqov, R.G. Rakhimov. Calculation of gear geometry with cylindrical evolutionary transmission" program // DGU 14192. 14.01.2022
25. R.G. Rakhimov. Clean the surface of the cloth with a small amount of water // Scientific Journal of Mechanics and Technology. Vol. 2, Iss. 5, pp.293-297 (2023)
26. R.G. Rakhimov. Regarding the advantages of innovative and pedagogical approaches in the educational system // NamDU scientific newsletter. Special. (2020)
27. R.G. Rakhimov. A cleaner of raw cotton from fine litter // Scientific journal of mechanics and technology. Vol. 2, Iss. 5, pp.293-297 (2023)
28. R.G. Rakhimov. On the merits of innovative and pedagogical approaches in the educational system // NamSU Scientific Bulletin. Special. (2020)
29. R.G. Raximov, M.A. Azamov. Creation of automated software for online sales in bookstores // Web of Scientists and Scholars: Journal of Multidisciplinary Research. Vol. 2, Iss. 6, pp.42-55 (2024)
30. R.G. Raximov, M.A. Azamov. Technology for creating an electronic tutorial // Web of Scientists and Scholars: Journal of Multidisciplinary Research. Vol. 2, Iss.6, pp.56-64 (2024)
31. R.G. Rakhimov, A.A. Juraev. Designing of computer network in Cisco Packet Tracer software // The Peerian Journal. Vol. 31, pp.34-50 (2024)
32. R.G. Rakhimov, E.D. Turonboev. Using educational electronic software in the educational process and their importance // The Peerian Journal. Vol. 31, pp.51-61 (2024)
33. Sh. Korabayev, J. Soloxiddinov, N. Odilxonova, R. Rakhimov, A. Jabborov, A.A. Qosimov. A study of cotton fiber movement in pneumomechanical spinning machine adapter // E3S Web of Conferences. Vol. 538, Article ID 04009 (2024)

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaopenaccess.com/index.php/3>

34. U.I. Erkaboev, R.G. Rakhimov, N.A. Sayidov. Mathematical modeling determination coefficient of magneto-optical absorption in semiconductors in presence of external pressure and temperature // *Modern Physics Letters B*. 2021, 2150293 pp, (2021).
35. U.I. Erkaboev, R.G. Rakhimov, J.I. Mirzaev, N.A. Sayidov. The influence of external factors on quantum magnetic effects in electronic semiconductor structures // *International Journal of Innovative Technology and Exploring Engineering*. 9, 5, 1557-1563 pp, (2020).
36. Erkaboev U.I., Rakhimov R.G., Sayidov N.A. Influence of pressure on Landau levels of electrons in the conductivity zone with the parabolic dispersion law // *Euroasian Journal of Semiconductors Science and Engineering*. 2020. Vol.2., Iss.1.
37. Rakhimov R.G. Determination magnetic quantum effects in semiconductors at different temperatures // VII Международной научнопрактической конференции «Science and Education: problems and innovations». 2021. pp.12-16.
38. Gulyamov G, Erkaboev U.I., Rakhimov R.G., Sayidov N.A., Mirzaev J.I. Influence of a strong magnetic field on Fermi energy oscillations in two-dimensional semiconductor materials // *Scientific Bulletin. Physical and Mathematical Research*. 2021. Vol.3, Iss.1, pp.5-14
39. Erkaboev U.I., Sayidov N.A., Rakhimov R.G., Negmatov U.M. Simulation of the temperature dependence of the quantum oscillations' effects in 2D semiconductor materials // *Euroasian Journal of Semiconductors Science and Engineering*. 2021. Vol.3., Iss.1.
40. Gulyamov G., Erkaboev U.I., Rakhimov R.G., Mirzaev J.I. On temperature dependence of longitudinal electrical conductivity oscillations in narrow-gap electronic semiconductors // *Journal of Nano- and Electronic Physic*. 2020. Vol.12, Iss.3, Article ID 03012.

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaopenaccess.com/index.php/3>

41. Erkaboev U.I., Gulyamov G., Mirzaev J.I., Rakhimov R.G. Modeling on the temperature dependence of the magnetic susceptibility and electrical conductivity oscillations in narrow-gap semiconductors // International Journal of Modern Physics B. 2020. Vol.34, Iss.7, Article ID 2050052.
42. Erkaboev U.I., R.G.Rakhimov. Modeling of Shubnikov-de Haas oscillations in narrow band gap semiconductors under the effect of temperature and microwave field // Scientific Bulletin of Namangan State University. 2020. Vol.2, Iss.11. pp.27-35
43. Gulyamov G., Erkaboev U.I., Sayidov N.A., Rakhimov R.G. The influence of temperature on magnetic quantum effects in semiconductor structures // Journal of Applied Science and Engineering. 2020. Vol.23, Iss.3, pp. 453–460.
44. Erkaboev U.I., Gulyamov G., Mirzaev J.I., Rakhimov R.G., Sayidov N.A. Calculation of the Fermi–Dirac Function Distribution in Two-Dimensional Semiconductor Materials at High Temperatures and Weak Magnetic Fields // Nano. 2021. Vol.16, Iss.9. Article ID 2150102.
45. Erkaboev U.I., R.G.Rakhimov. Modeling the influence of temperature on electron Landau levels in semiconductors // Scientific Bulletin of Namangan State University. 2020. Vol.2, Iss.12. pp.36-42
46. Erkaboev U.I., Gulyamov G., Mirzaev J.I., Rakhimov R.G., Sayidov N.A. Calculation of the Fermi-Dirac Function Distribution in Two-Dimensional Semiconductor Materials at High Temperatures and Weak Magnetic Fields // Nano. 2021. Vol.16, Iss.9, Article ID 2150102.
47. Erkaboev U.I., Rakhimov R.G., Sayidov N.A., Mirzaev J.I. Modeling the temperature dependence of the density oscillation of energy states in two-dimensional electronic gases under the impact of a longitudinal and transversal quantum magnetic fields // Indian Journal of Physics. 2022. Vol.96, Iss.10, Article ID 02435.

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaopenaccess.com/index.php/3>

48. Erkaboev U.I., Negmatov U.M., Rakhimov R.G., Mirzaev J.I., Sayidov N.A. Influence of a quantizing magnetic field on the Fermi energy oscillations in two-dimensional semiconductors // International Journal of Applied Science and Engineering. 2022. Vol.19, Iss.2, Article ID 2021123.
49. Erkaboev U.I., Gulyamov G., Rakhimov R.G. A new method for determining the bandgap in semiconductors in presence of external action taking into account lattice vibrations // Indian Journal of Physics. 2022. Vol.96, Iss.8, pp. 2359-2368.
50. U. Erkaboev, R. Rakhimov, J. Mirzaev, U. Negmatov, N. Sayidov. Influence of the two-dimensional density of states on the temperature dependence of the electrical conductivity oscillations in heterostructures with quantum wells // International Journal of Modern Physics B. **38**(15), Article ID 2450185 (2024).
51. U.I. Erkaboev, R.G. Rakhimov. Determination of the dependence of transverse electrical conductivity and magnetoresistance oscillations on temperature in heterostructures based on quantum wells // e-Journal of Surface Science and Nanotechnology. **22**(2), pp.98-106. (2024)
52. U.I. Erkaboev, N.A. Sayidov, J.I. Mirzaev, R.G. Rakhimov. Determination of the temperature dependence of the Fermi energy oscillations in nanostructured semiconductor materials in the presence of a quantizing magnetic field // Euroasian Journal of Semiconductors Science and Engineering. **3**(2), pp.47-52 (2021).
53. U.I. Erkaboev, N.A. Sayidov, U.M.Negmatov, J.I. Mirzaev, R.G. Rakhimov. Influence temperature and strong magnetic field on oscillations of density of energy states in heterostructures with quantum wells HgCdTe/CdHgTe // E3S Web of Conferences. **401**, 01090 (2023)
54. U.I. Erkaboev, N.A. Sayidov, U.M.Negmatov, R.G. Rakhimov, J.I. Mirzaev. Temperature dependence of width band gap in $\text{In}_x\text{Ga}_{1-x}\text{As}$ quantum well in

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaopenaccess.com/index.php/3>

- presence of transverse strong magnetic field // E3S Web of Conferences. 401, 04042 (2023)
55. Erkaboev U.I., Rakhimov R.G., Sayidov N.A., Mirzaev J.I. Modeling the temperature dependence of the density oscillation of energy states in two-dimensional electronic gases under the impact of a longitudinal and transversal quantum magnetic fields // Indian Journal of Physics. 2023. Vol.97, Iss.4, 99.1061-1070.
 56. G. Gulyamov, U.I. Erkaboev, R.G. Rakhimov, J.I. Mirzaev, N.A. Sayidov. Determination of the dependence of the two-dimensional combined density of states on external factors in quantum-dimensional heterostructures // Modern Physics Letters B. 2023. Vol. 37, Iss.10, Article ID 2350015.
 57. U.I. Erkaboev, R.G. Rakhimov. Determination of the dependence of the oscillation of transverse electrical conductivity and magnetoresistance on temperature in heterostructures based on quantum wells // East European Journal of Physics. 2023. Iss.3, pp.133-145.
 58. U.I. Erkaboev, R.G. Rakhimov, J.I. Mirzaev, U.M. Negmatov, N.A. Sayidov. Influence of a magnetic field and temperature on the oscillations of the combined density of states in two-dimensional semiconductor materials // Indian Journal of Physics. 2024. Vol. 98, Iss. 1, pp.189-197.
 59. U. Erkaboev, R. Rakhimov, J. Mirzaev, N. Sayidov, U. Negmatov, A. Mashrapov. Determination of the band gap of heterostructural materials with quantum wells at strong magnetic field and high temperature // AIP Conference Proceedings. 2023. Vol. 2789, Iss.1, Article ID 040056.
 60. U.I. Erkaboev, R.G. Rakhimov. Simulation of temperature dependence of oscillations of longitudinal magnetoresistance in nanoelectronic semiconductor materials // e-Prime-Advances in Electrical Engineering, Electronics and Energy. 2023. Vol. 5, Article ID 100236.
 61. U.I. Erkaboev, R.G. Rakhimov, N.Y. Azimova. Determination of oscillations of the density of energy states in nanoscale semiconductor materials at

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaoa.com/index.php/3>

- different temperatures and quantizing magnetic fields // Global Scientific Review. 2023. Vol.12, pp.33-49
62. U.I. Erkaboev, R.G. Rakhimov, U.M. Negmatov, N.A. Sayidov, J.I. Mirzaev. Influence of a strong magnetic field on the temperature dependence of the two-dimensional combined density of states in InGaN/GaN quantum well heterostructures // Romanian Journal of Physics. 2023. Vol. 68, Iss. 5-6, pp.614-1.
63. R. Rakhimov, U. Erkaboev. Modeling of Shubnikov-de Haas oscillations in narrow band gap semiconductors under the effect of temperature and microwave field // Scientific Bulletin of Namangan State University. 2020. Vol.2, Iss. 11, pp.27-35.
64. U. Erkaboev, R. Rakhimov, J. Mirzaev, N. Sayidov, U. Negmatov, M. Abduxalimov. Calculation of oscillations in the density of energy states in heterostructural materials with quantum wells // AIP Conference Proceedings. Vol. 2789, Iss.1, Article ID 040055.
65. R. Rakhimov, U. Erkaboev. Modeling the influence of temperature on electron Landau levels in semiconductors // Scientific and Technical Journal of Namangan Institute of Engineering and Technology. 2020. Vol. 2, Iss. 12, pp.36-42.
66. U.I. Erkaboev, R.G. Rakhimov. Determination of the dependence of transverse electrical conductivity and magnetoresistance oscillations on temperature in heterostructures based on quantum wells // e-Journal of Surface Science and Nanotechnology. 2023
67. У.И. Эркабоев, Р.Г. Рахимов, Ж.И. Мирзаев, Н.А. Сайидов, У.М. Негматов. Вычисление осцилляций плотности энергетический состояний в гетеронаноструктурных материалах при наличии продольного и поперечного сильного магнитного поля // Научные основы использования информационных технологий нового уровня и

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaopenaccess.com/index.php/3>

- современные проблемы автоматизации : I Международной научной конференции, 25-26 апреля 2022 года. стр.341-344.
68. U.I. Erkaboev, R.G. Rakhimov. Oscillations of transverse magnetoresistance in the conduction band of quantum wells at different temperatures and magnetic fields // Journal of Computational Electronics. 2024. Vol. 23, Iss. 2, pp.279-290
69. У.И. Эркабоев, Р.Г. Рахимов, Ж.И. Мирзаев, Н.А. Сайидов, У.М. Негматов. Расчеты температурная зависимость энергетического спектра электронов и дырок в разрешенной зоне квантовой ямы при воздействии поперечного квантующего магнитного поля // Научные основы использования информационных технологий нового уровня и современные проблемы автоматизации : I Международной научной конференции, 25-26 апреля 2022 года. стр.344-347.
70. U.I. Erkaboev, R.G. Rakhimov, J.I. Mirzaev, N.A. Sayidov, U.M. Negmatov. Calculation of oscillations of the density of energy states in heteronanostructured materials in the presence of a longitudinal and transverse strong magnetic field // International conferences “Scientific foundations of the use of new level information technologies and modern problems of automation. 2022. pp.341-344
71. U.I. Erkaboev, R.G. Rakhimov, J.I. Mirzaev, N.A. Sayidov, U.M. Negmatov. Calculations of the temperature dependence of the energy spectrum of electrons and holes in the allowed zone of a quantum well under the influence of a transverse quantizing magnetic field // International conferences “Scientific foundations of the use of new level information technologies and modern problems of automation. 2022. pp.344-347
72. R.G. Rakhimov, U.I. Erkaboev. Modeling of Shubnikov-de Haase oscillations in narrow-band semiconductors under the influence of temperature and microwave fields // Scientific Bulletin of Namangan State University. 2022. Vol. 4, Iss.4, pp.242-246.

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaoa.com/index.php/3>

73. R.G. Rakhimov. The advantages of innovative and pedagogical approaches in the education system // Scientific-technical journal of NamIET. Vol. 5, Iss. 3, pp.292-296 (2020)
74. Р.Г. Рахимов, У.И. Эркабоев. Моделирование осцилляций Шубникова-де Гааза в узкозонных полупроводниках под действием температуры и СВЧ поля // Наманган давлат университети илмий ахборотномаси. 2019. Vol. 4, Iss. 4, pp.242-246
75. U.I. Erkaboev, R.G. Rakhimov, J.I. Mirzaev, N.A. Sayidov, U.M. Negmatov. Modeling the Temperature Dependence of Shubnikov-De Haas Oscillations in Light-Induced Nanostructured Semiconductors // East European Journal of Physics. 2024. Iss. 1, pp. 485-492.
76. M. Dadamirzaev, U. Erkaboev, N. Sharibaev, R. Rakhimov. Simulation the effects of temperature and magnetic field on the density of surface states in semiconductor heterostructures // Iranian Journal of Physics Research. 2024
77. U.I. Erkaboev, N.Yu. Sharibaev, M.G. Dadamirzaev, R.G. Rakhimov. Effect of temperature and magnetic field on the density of surface states in semiconductor heterostructures // e-Prime-Advances in Electrical Engineering, Electronics and Energy. 2024. Vol.10, Article ID 100815.
78. U.I. Erkaboev, Sh.A. Ruzaliev, R.G. Rakhimov, N.A. Sayidov. Modeling Temperature Dependence of The Combined Density of States in Heterostructures with Quantum Wells Under the Influence of a Quantizing Magnetic Field // East European Journal of Physics. 2024. Iss.3, pp.270-277.
79. U.I. Erkaboev, N.Yu. Sharibaev, M.G. Dadamirzaev, R.G. Rakhimov. Modeling influence of temperature and magnetic field on the density of surface states in semiconductor structures // Indian Journal of Physics. 2024.
80. U.I. Erkaboev, G. Gulyamov, M. Dadamirzaev, R.G. Rakhimov, J.I. Mirzaev, N.A. Sayidov, U.M. Negmatov. The influence of light on transverse magnetoresistance oscillations in low-dimensional semiconductor structures // Indian Journal of Physics. 2024.

Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaoa.com/index.php/3>

81. Р.Г. Рахимов. Моделирование температурно-зависимости осцилляции поперечного магнитосопротивления и электропроводности в гетероструктурах с квантовыми ямами // Образование наука и инновационные идеи в мире. 2024. Vol. 37, Iss. 5, pp.137-152.
82. N. Sharibaev, A. Jabborov, R. Rakhimov, Sh. Korabayev, R. Sapayev. A new method for digital processing cardio signals using the wavelet function // BIO Web of Conferences. 2024. Vol. 130, Article ID 04008.
83. A.M. Sultanov, E.K. Yusupov, R.G. Rakhimov. Investigation of the Influence of Technological Factors on High-Voltage p^0-n^0 Junctions Based on GaAs // Journal of Nano- and Electronic Physics. 2024. Vol. 16, Iss. 2, Article ID 01006.
84. U.I. Erkaboev, R.G. Rakhimov, J.I. Mirzaev, N.A. Sayidov, U.M. Negmatov. Influence of temperature and light on magnetoresistance and electrical conductivity oscillations in quantum well heterostructured semiconductors // Romanian Journal of Physics. 2024. Vol. 69, pp.610
85. У.И. Эркабоев, Р.Г. Рахимов, Ж.И. Мирзаев, Н.А. Сайидов, У.М. Негматов, С.И. Гайратов. Влияние температуры на осцилляции поперечного магнитосопротивления в низкоразмерных полупроводниковых структурах // Namangan davlat universiteti Ilmiy axborotnomasi. 2023. Iss. 8, pp.40-48.
86. U. Erkaboev, N. Sayidov, R. Raximov, U. Negmatov, J. Mirzaev. Kvant o'rali geterostrukturalarda kombinatsiyalangan holatlar zichligiga magnit maydon va haroratning ta'siri // Namangan davlat universiteti Ilmiy axborotnomasi. 2023. Iss. 6, pp.16-22
87. У.И. Эркабоев, Р.Г. Рахимов. Вычисление температурной зависимости поперечной электропроводности в квантовых ямах при воздействии квантующего магнитного поля // II- Международной конференции «Фундаментальные и прикладные проблемы физики полупроводников, микро- и нанoeлектроники». Ташкент, 27-28 октября 2023 г. стр.66-68.



Eureka Journal of Language, Culture & Social Change (EJLCSC)

ISSN 2760-4926 (Online) Volume 2, Issue 2, February 2026



This article/work is licensed under CC by 4.0 Attribution

<https://eurekaoa.com/index.php/3>

88. R.G.Rakhimov. Simulation of the temperature dependence of the oscillation of magnetosistivity in nanosized semiconductor structures under the exposure to external fields // Web of Technology: Multidimensional Research Journal. 2024. Vol.2, Iss.11, pp.209-221