

**METHODOLOGY OF TEACHING RUSSIAN LANGUAGE
IN INSTITUTIONS OF HIGHER EDUCATION**

G. Narimonova,

*Department of Russian Language, Namangan State University,
Namangan, Uzbekistan*

Abstract. *This article examines the methodology of teaching Russian as a foreign language in non-philological educational institutions. A comprehensive analysis of scientific and methodological literature has been conducted. In order to generalize accumulated theoretical and practical experience and apply it to optimize the educational process, questions related to the application of general teaching methods, text analysis and its typology, reading instruction, the teaching of academic oral speech, and new computer technologies have been considered and substantiated.*

Keywords: *non-linguistic (non-philological) higher education institutions, Russian as a foreign language, teaching methodology, technologies, method.*

Methodology is both a theoretical and applied science, in which the teacher's expertise and the ability to adapt general methodological recommendations to specific teaching conditions always play a significant role.

In non-linguistic higher education institutions, Russian as an academic subject is perceived not as a system to be described, but as a means of communication in both written and oral forms. Therefore, for this category of students, the methodology sets the task of studying Russian for participation in language communication—in other words, the goal is to develop the students' communicative competence in Russian: reading, speaking, listening, and writing.

Currently, in all non-philological institutions of higher education, Russian is taught as a foreign language. For international students enrolled in preparatory faculties as well as for future professionals—bachelor's, master's, and doctoral



students, as well as interns—Russian, like other general education subjects, is considered mandatory.

Undoubtedly, the methodology of teaching Russian as a foreign language has become one of the main directions in non-linguistic higher education institutions. This is occurring for several reasons.

The scientific and methodological literature presents several main approaches to the methodology of teaching Russian as a foreign language to students of non-philological universities. These include:

- the general methodology of teaching Russian as a foreign language in non-philological universities;
- the study and analysis of texts, their structure, and their unity with text typology;
- the study of oral scientific and printed language;
- the process of teaching reading;
- new computer technologies.

Let us focus on the history of the application of teaching methodologies for students in non-philological universities.

In the 1970s, one of the foundational works on this topic was O.D. Mitrofanova's book "The Scientific Style of Speech: Problems of Development." This work addressed both the linguistic and methodological foundations of teaching Russian as a foreign language.

The book also provides answers to the following questions: when to begin specialized instruction; which types of texts to use—general scientific, popular scientific, or highly specialized; what role terminological vocabulary plays; and which system of exercises should be implemented to maximize the effectiveness of instruction. The features of the scientific style of speech, its lexical composition, as well as the morphological and syntactic characteristics of scientific language, are described in detail, and a typology of texts is presented.

Let us highlight several rules that, in our view, remain especially relevant today. O.D. Mitrofanova emphasizes that Russian is a compulsory, yet not a core



subject in any non-philological university, since the main purpose of education should be “the formation of qualified specialists with a broad scientific outlook, sufficient knowledge, and an understanding of reality.” According to the author, the primary objective of instruction is understanding practical rules and applying the language in communicative practice.

A new stage in the development of the theory of teaching students in non-philological higher education is represented by E.I. Motina’s work, “Language and Specialty: Linguistic and Methodological Foundations for Teaching Russian to Non-Philologists.” This scholarly work is devoted to the issue of developing the linguistic foundations of non-philological students. The researcher considers it advisable to organize the process of teaching students the language of their specialty based on the linguistic material of the disciplines they are studying.

We fully agree with the author’s view that “teaching the language of a specialty should be based on material from a specific field of scientific knowledge, and this material should be presented exactly as it is realized within that branch of science.” At the same time, E.I. Motina emphasizes that the Russian language instructor should not merely follow the lead of the subject teacher or work solely with materials already covered in specialized classes. Instead, it is necessary to analyze examples of texts for each core subject and work directly with those texts.

In this context, a new question arises for researchers and methodologists: what characteristics should a typical specialized text possess? The answer can be found in L.P. Klobukova’s work “Teaching the Language of Specialization,” where the text serves as the highest unit of such education. The author asserts that it is justified to use any type of text at any stage of instruction. When creating a text, the following features must be taken into account: “the functional-semantic type of the text; the main theme presented and the perspective from which it is addressed; the topic and problems explored in the text; the text’s affiliation with a particular functional-stylistic register; the speech form (oral or written); the mode of text presentation; the number of communicators involved in creating the text; the text genre; the structure and content of the text; and the level at which the text is perceived.”



With the emergence of textbooks and teaching materials oriented toward Russian as a foreign language, the question arises regarding the place and role of instructional vocabulary in the overall process of language learning or in the sublanguage of a particular specialty. T.I. Trubnikova proposes a system for describing the sublanguages of specializations, characterizes methods for using such dictionaries to study the lexical and grammatical features of specialized sublanguages and to develop various types of speech activity, and also establishes criteria for constructing Russian vocabulary based on specialized terminology. The researcher notes that “specialized instructional vocabulary is compiled by Russian language instructors together with subject-matter specialists, under the general methodological guidance of Russian language experts. A specialized instructional dictionary should combine the features of both an encyclopedic and an explanatory dictionary, with a thematic organization of the content.”

In our view, a specialized instructional dictionary is not merely a useful resource, but an essential tool in the preparation of future specialists. Students of non-philological institutions must regularly consult such a dictionary to clarify specialized terms or new words at any stage of their studies. Therefore, the criteria for compiling a specialized dictionary—based on the selection of linguistic units—are important issues within the methodology of teaching Russian as a foreign language.

Teaching Russian oral scientific speech to non-philological students is just as important as teaching written speech and has been discussed by methodologists and researchers since the 1990s. In particular, T.G. Kopytkova proposed a methodology for teaching dialogic communication to students of non-philological universities. To implement her approach, the author developed a system of exercises: conditionally communicative, non-communicative, and fully communicative. Given that the conditions of the tasks should elicit not only specific verbal responses from students but also the ability to engage in communication and adapt to a group or unfamiliar environment, the author created a set of exercises aimed at developing dialogic communication skills.



It is worth noting that at the present stage, the training of specialists in non-linguistic higher education institutions has become more pragmatic. Students have a clear understanding of their level of proficiency in Russian and know exactly where they can apply their professional knowledge and how essential this knowledge is for them.

The practical outcomes of this approach include the emergence of a language learning environment in universities and institutes (including e-learning); the development of electronic courses, virtual lessons, in-person and distance learning courses, teleconferences, webinars, and electronic collections of educational texts; as well as the initial development of multimedia educational and methodological complexes, comprehensive textbooks on linguistics and regional studies, and more.

Today, priority in teaching Russian as a foreign language is given to intelligent technologies (Smart Education). Researchers are interested in issues such as the development of intelligent textbooks for Russian as a foreign language, the possibilities of using mobile technologies in Russian language instruction, and the web-quest as a form of organizing students' independent work.

Thus, the use of computer technologies is currently not only a necessary but also a mandatory component of the language education process in non-philological universities.

All the aforementioned aspects and directions in teaching Russian as a foreign language in non-philological universities attest to the considerable scientific and methodological experience accumulated in this field. However, at present, significant changes are taking place, connected with the emergence of new student contingents, reduction of classroom hours, the presence of students of different ages in study groups, the increase in the number of groups, and new communicative needs of learners. Accordingly, new aspects are emerging in the application of methods, principles, and educational resources in teaching Russian as a foreign language.

In any case, instructors working in non-philological universities must rely on accumulated scientific and pedagogical experience and continue searching for new



content-related, organizational, and linguistic-methodological solutions to optimize the educational process.

REFERENCES

1. Abdullaeva, M.N. (2021). Aspects and Directions in Teaching Russian as a Foreign Language at Non-Philological Universities. Humanitarian Bulletin, No. 3.
2. Lukoshkina, N.L. Methodological Principles for Creating Professionally Oriented Autonomous Computer-Based Courses for Adults in Foreign Language Reading (Based on the Example of Russian). Dissertation for the degree of Candidate of Pedagogical Sciences. Kursk, 2020.
3. Rakhmonov, S.M., Chesnokov, M.P. Methodology of Teaching Russian as a Foreign Language: Textbook. 3rd ed., revised. Tashkent: Yangi Avlod, 2021.
4. Sultonova, O.B. The Process of Teaching the Russian Language to Foreign Bachelors of a Technical University: Problems and Specifics. Humanitarian Bulletin, 2013, No. 3(5).
5. Farmonov, N.M. Practical Methodology for Teaching in Non-Philological Universities. Moscow: Russian Language, 2021, No. 1
6. Narimonova N.G. Psycholinguistics as a tool for in-depth study of speech and language. - Science and Education. 2022, Vol.3, Iss.2, pp.546-550
7. G. Narimonova. Interactive teaching methods in foreign language lessons // JournalNX- A Multidisciplinary Peer Reviewed Journal. Vol.10, Iss.12, pp.13-17 (2024)
8. Psycholinguistics as a tool for in-depth study of speech and language. - Science and Education. 2022, Vol.3, Iss.2, pp.546-550
9. Abdullayeva S., Narimonova G. External laws of language development. Proceedings of International Educators Conference. Vol.2, Iss.3, pp.59-62.
10. Наримонова Г. Ключевые тенденции развития русского литературного языка. Евразийский журнал академических исследований. Том 2, №6, стр.544-546.



10. Наримонова Г.Н. Внешние законы развития языка. НамГУ - научный вестник одарённых студентов. Том 1, № 1, стр.215-218
11. Narimonova G. Modern Information Technologies in Teaching the Russian Language. Journal of Pedagogical Inventions and Practices. 2023. Vol.27, pp.3-5.
12. 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.
13. 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.
14. G.N. Narimonova. External laws of language development. Scientific bulletin of gifted students of NamSU. 2023. Vol. 1, Iss. 1, pp. 215-218.
15. Г. Наримонова. Ключевые тенденции развития русского литературного языка. Евразийский журнал академических исследований. 2022. Том 2, № 6, стр.544-546.
16. Наримонова Г.Н. Психологические аспекты изучения русского языка // «Методы и технологии в преподавании РКИ в контексте современных образовательных парадигм». Международная научно-практическая конференция. 2024. Наманган. 7-8 октября.
17. G.Narimonova, Z.Turgunpulatova. Methodology of teaching Russian language and literature // Ta'limning zamonaviy transformatsiyasi. 2024. Vol.7, Iss.5, pp.239-245.
18. 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.
19. G. Narimonova. Interactive methods of teaching in foreign language classes // Scientific Bulletin of NamSU. Special issue, pp.891-896. (2024)
20. R.G. Rakhimov. Clean the cotton from small impurities and establish optimal parameters // The Peerian Journal. Vol. 17, pp.57-63 (2023)



21. 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)
22. F.G. Uzoqov, R.G. Rakhimov. Movement in a vibrating cotton seed sorter // DGU 22810. 03.03.2023
23. F.G. Uzoqov, R.G. Rakhimov. The program "Creation of an online platform of food sales" // DGU 22388. 22.02.2023
24. F.G. Uzoqov, R.G. Rakhimov. Calculation of cutting modes by milling // DGU 22812. 03.03.2023
25. F.G. Uzoqov, R.G. Rakhimov. Determining the hardness coefficient of the sewing-knitting machine needle // DGU 23281. 15.03.2023
26. 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
27. F.G. Uzoqov, R.G. Rakhimov, S.Sh. Ro'zimatov. Online monitoring of education through software // DGU 18782. 22.10.2022
28. F.G. Uzoqov, R.G. Rakhimov. Electronic textbook on "Mechanical engineering technology" // DGU 14725. 24.02.2022
29. F.G. Uzoqov, R.G. Rakhimov. Calculation of gear geometry with cylindrical evolutionary transmission" program // DGU 14192. 14.01.2022
30. 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)
31. R.G. Rakhimov. Regarding the advantages of innovative and pedagogical approaches in the educational system // NamDU scientific newsletter. Special. (2020)
32. 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)
33. R.G. Rakhimov. On the merits of innovative and pedagogical approaches in the educational system // NamSU Scientific Bulletin. Special. (2020)



34. 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)
35. 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)
36. R.G. Rakhimov, A.A. Juraev. Designing of computer network in Cisco Packet Tracer software // The Peerian Journal. Vol. 31, pp.34-50 (2024)
37. 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)
38. Sh. Korabayev, J. Soloxiddinov, N. Odilkhonova, 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)
39. 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).
40. 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).
41. 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.
42. 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.
43. 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
44. 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.
45. 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.
46. 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.
47. 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
48. 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.
49. 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.
50. 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
51. 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.
52. 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.
53. 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.
54. 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.
55. 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).
56. 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)
57. 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).
58. 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)



59. 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 presence of transverse strong magnetic field // E3S Web of Conferences. 401, 04042 (2023)
60. 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.
61. 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.
62. 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.
63. 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.
64. 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.
65. 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.
66. U.I. Erkaboev, R.G. Rakhimov, N.Y. Azimova. Determination of oscillations of the density of energy states in nanoscale semiconductor materials at different



temperatures and quantizing magnetic fields // Global Scientific Review. 2023. Vol.12, pp.33-49

67. 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.

68. 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.

69. 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.

70. 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.

71. 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

72. У.И. Эркабоев, Р.Г. Рахимов, Ж.И. Мирзаев, Н.А. Сайидов, У.М. Негматов. Вычисление осцилляций плотности энергетических состояний в гетеронаноструктурных материалах при наличии продольного и поперечного сильного магнитного поля // Научные основы использования информационных технологий нового уровня и современные проблемы автоматизации : I Международной научной конференции, 25-26 апреля 2022 года. стр.341-344.

73. 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



74. 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 зоны 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.
75. 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
76. 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
77. 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.
78. 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)
79. 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



80. 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.
81. 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
82. 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.
83. 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.
84. 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.
85. 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.
86. 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.
87. 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.



88. 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.
89. 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
90. 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.
91. 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
92. 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 наноэлектроники». Ташкент, 27-28 октября 2023 г. стр.66-68.
93. 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