

Head of Department:

**Isroilov Jamshid Dilshodovich**

**Reception days:** Monday - Saturday (15: 00-16: 00)

**Phone:** (+99871) 238-65-72

**E-mail:** [j.isroilov@tuit.uz](mailto:j.isroilov@tuit.uz)

### **History of the Department of Mobile Communication Technologies**

The department of "Mobile Communication Technologies" has a rich history, starting with the formation of two departments - "Radio Communication Devices" and "Radio Engineering Systems" of the Tashkent Electrotechnical Institute of Communications, in 1960. Over the years, the work of the department has had its own development and reorganization. Subsequently, in 2008, these departments were merged into the Department of Radio Communication Devices and Systems.

The first head of the Department of Radio Communication Devices was senior lecturer Rashid Ibrahimovich Mansurov in the period 1960-1969.

Subsequently, the department was headed by candidates of technical sciences, associate professors Prakhov Viktor Ivanovich in the period 1969-1980, and Vasilyeva Margarita Georgievna in the period 1980-1993.

Since 1993, the head of the department "Radio Communication Devices" was Doctor of Physical and Mathematical Sciences, Professor, Academician of the Academy of Sciences of the Republic of Uzbekistan Telman Dadaevich Radjabov. He was an academician of the International Academy of Communications, the New York Academy and the San Francisco Industrial Academy, and the Association of Natural and Social Sciences.

Also, academician Telman Dadaevich Radjabov was the rector of the Tashkent Electrotechnical Institute of Communications from 1992 to 1998.

After the merger of the two departments "Radio Communication Devices" and "Radio Engineering Systems" in 2008, the head of the department was Doctor of Physical and Mathematical Sciences, Professor, Academician T.D. Radjabov. He headed the department until 2012.

Subsequently, from 2012 to 2017, the department was headed by candidate of technical sciences, associate professor Davronbekov Dilshod Abduzhalilovich.

From 2017 to 2020, the department was headed by candidate of technical sciences, associate professor Pulatov Sherzod Utkurovich.

From 2020 to 2023, the department was headed by PhD, associate professor Madaminov Khaidar Khudayarovich.

From May 2023, Ph.D. was reappointed as the head of the department. Associate Professor Pulatov Sh.U., and from December 29, 2024, PhD, Associate Professor Isroilov Zhamshid Dilshodovich was appointed head of the Department of Mobile Communication Technologies.

Over the years, associate professors Goldfeld L.N., Spirin V.Ya., Lisovsky V.A., Galiev A.L., Maslov A.V.,

Karimov R.K., Negrienko A. worked at the Department of Radio Communication Devices. G., Sazonov S.A., Chen A.L., Korsuntsev P.P., senior teachers Filgus Ya.E., Starikov A.G., Dyachenko I.P., Karelina E.V., Tsareva A.N. , Morozova T.M., Baeva N.N., Tarasov A.V., Abdusagatov K.Kh., Kondashechkin A., Gigmatov Sh., Kuzmina G.N., who conducted lectures, laboratory and practical classes.

Subsequently, Professor Nasyrov M.Sh., Associate Professor Davronbekov D.A., senior teachers Candidates of Technical Sciences Khalikov F.Kh., Ni E.V., Sultanova M.O., Zhiltsova O.A. worked at the Department of Radio Communication Devices . and assistants Nazarov M.M., Mirkarimov D.Kh., Aripova U.Kh. and Akhmedova G.N.

Teachers of the Department of Radio Communication Devices were the first to prepare audio recordings of lectures and time diagrams explaining them, electrical diagrams, drawings, slides when organizing classes in disciplines using the modular and block method. Associate Professors Vasilieva M.G., Prakhov V.I., Goldfeld L.N. showed particular relevance in carrying out these works. and senior teacher Karelina E.V.

The Department of "Radio Communication Devices" in 1999 organized its branches at the Tashkent Television Tower and at the NPO "Academasbob" of ANRUz. The head of the branches was Candidate of Technical Sciences, Associate Professor Atamukhamedov M.B. and candidate of physical and mathematical sciences Kabilov A.K.

During 1993-2004, teachers and assistants Sh.U. Pulatov, D.A. Davronbekov, S. Abrosov, F.Kh. Khalikov. and Imonkul M. defended their Ph.D. theses. In 2002, his doctoral dissertation was defended by Associate Professor of the Department Galiev A.L.

As for the Department of Radio Engineering Systems, it was organized in 1970. It separated from the Department of Radio Transmitting Devices, organized in 1960. At first, until 1986, it was called the Department of Radio Communications and Radio Engineering Systems and belonged to the Faculty of Multichannel Electrical Communications. Since 1986, it began to be called the department of "Radio communication devices and radio systems."

In 1996, it was transferred to the faculty of "Radio Communications, Broadcasting and Television" and was renamed "Radio Relay and Satellite Communication Systems".

Starting from the 2003-2004 academic year, the department was renamed "Radio Engineering Systems".

The heads of the department in 1970 - 1972 were associate professor V.I. Kazansky, senior lecturer S.A. Vasiliev. (1972 - 1974), associate professors Abramants O.A. (1974 - 1977), Spirin V.Ya. (1977 - 1997) and since 1997, associate professor Ibraimov R.R.

In addition to the above-mentioned teachers, senior teachers worked at this department: Vuloyorgis A.I., Chizhevsky V.I., Belkind L.V., Mangeldina V.D., Kravchenko E.F., Rozhkov V.N.

Since 1974, the department has been replenished with candidates of sciences Ibraimov R.R., Dzhalolov I.K., Romanenko B.A. Since 1977, Yakubova U.M., Negrienko A.G., Levental M.Ya. began working. and Kuzmin A.P.

Since 2005, the department consisted of employees: associate professor Ibraimov R.R., senior teacher Vasiliev S.A., Belkind L.V., Kavilovova R.Yu., Khatamov A.P., Rakhatdinov E.S., assistants Mirzaev D. A., Madaminova Kh.Kh., Abdukayumova S.A., Tashmanova E.B. and laboratory assistant Martyshin M.

In 2004, under a grant from Motorola, the departments were equipped with a computer lab, in which

students also performed laboratory work in the disciplines they studied.

Teachers of the department carried out state budgetary and contractual research work. A special place among them is occupied by such topics as "The use of an artificial Earth satellite in the collection, processing and management of the water basin of the Aral Sea", "The problem of distribution of digital broadcasting and television programs through satellites", "Development and research of methods for remote measurement of the main characteristics of systems and channels connections." Based on the results of the research carried out, a number of scientific articles were published by Arslanov A.R. Leventhal I.Ya., Ph.D. theses defended.

In connection with the development of information technologies and the intensive development of mobile communications in the Republic of Uzbekistan, a need arose for qualified personnel in the field of wireless technologies, in particular mobile cellular communications. New areas of study were opened at the department, an educational and methodological complex for training specialists in mobile communications was prepared, and in 2013 the department was renamed "Mobile Communication Technologies".

In collaboration with leading companies and mobile communications industries "Uzmobile", "Unitel", "Coscom", training laboratories have been organized to study modern mobile communication systems and equipment 2G, 3G, 4G standards CDMA, GSM, WCDMA and LTE.

Currently, a new lecture hall and laboratories equipped with modern measuring equipment are being prepared for the study of wireless broadband systems and satellite communications.

Teachers of the Department of Mobile Communications Technologies provide guidance on final qualifying works for bachelors and dissertations for masters in current areas of mobile communications.

Employees of the department actively participate in scientific-technical and scientific-methodological conferences at the international and republican level.

## SUBJECTS TEACHED AT THE DEPARTMENT

### **Bachelor's degree:**

- Satellite communication
- Mobile communication
- Wireless broadband networks
- Radio frequency transmitting and receiving devices
- Radio transmitting and receiving devices in mobile communication systems
- Radio transmitting and receiving devices
- Digital signal processing in mobile communication systems
- Wireless Internet of Things systems
- Modern mobile communication technologies
- Design of mobile communication networks
- Mobile communication systems and technologies
- Wireless network

**Master's degree:**

- LTE technology
- Wireless Internet of Things
- Digital radio communication
- Space technology
- Satellite positioning and navigation systems.
- Design of nodes and devices of satellite communication systems
- Satellite systems and communication networks.
- Reliability of radio equipment
- Digital communication
- Radio relay and satellite communications
- Digital radio relay line
- GSM and mobile networks management
- Innovative telecommunication technologies 5G/6G.
- Satellite connection

**Direction of the department:****Bachelor's degree**

5350100-Telecommunication technologies (Mobile systems)

**Master's degree**

70611701-Mobile communication systems

70611703-Satellite communication systems

**PROFESSORAL AND TEACHING STAFF OF THE DEPARTMENT**

- Isroilov J.D. head of the department
- Davronbekov D.A. Professor
- Pisetsky Yu.V. Professor
- Ibraimov R.R. assistant professor
- Pulatov Sh.U. assistant professor
- Sultonova M.O. assistant professor
- Aliyev U.T. Senior Lecturer
- Khatamov A.P. Senior Lecturer
- Alimdjanov Kh.F. Senior Lecturer
- Faizullaeva B.B. assistant
- Abdullayeva H.K. assistant
- Gafurov A.Sh. assistant
- Khaidaraliyeva Kh.F. trainee teacher

**Part-time teachers**

- Abdukadirov A.Kh. assistant professor
- Madaminov Kh.Kh. assistant professor
- Nazarov M. M. senior lecturer
- Shamsiyev A.S. Senior Lecturer
- Votinov K.A. assistant

**Department partners:**

- Joint Stock Company Uztelecom Center for Operation of Mobile Networks "Uzmobile"

- Limited Liability Company "Unitel"
- Limited Liability Company "Coscom"
- State Unitary Enterprise Center for Electromagnetic Compatibility
- Limited Liability Company Unicon.uz
- Limited Liability Company Bitel service

## **ADDITIONAL WORK WITH STUDENTS**

In order to form and develop their desire for scientific research, to further expand their independent thinking skills, the "Young mobile engineer" circle was organized at the department.

The main goals and objectives of the circle are:

- consolidation of theoretical knowledge acquired by students through practical work;
- awakening students' interest in design and research and supporting their development;
- developing students' ability to think independently;

In this circle, students can work with technical means with great interest, make their own models and designs under the guidance of experienced mentors.

At the end of each academic year, students with their works actively participate in annual interfaculty competitions and exhibitions held at the university, and the most talented and gifted students also participate in republican exhibitions.

Also, the department annually carries out career guidance work with students of colleges and lyceums.

## **RESEARCH WORKS**

The Department of Mobile Communication Technologies will carry out research work in the areas of cellular and satellite communications, open and linear optical communication lines, reliability of communication systems, as well as electromagnetic safety.

There are a number of published research papers such as:

1. Р.Р.Ибраимов, Д.А.Давронбеков, М.О.Султонова. Телекоммуникационные каналы связи на основе атмосферных оптических систем передачи в Республике Узбекистан: монография. - "Fan va ta'lif". - 2023. - 120 с.
2. Д.А.Давронбеков, З.Т.Хакимов, Ж.А.Арипов. Разработка методов и устройств повышения эффективности волоконно-оптических систем передачи информации // Монография. "Fan ziyyosi". - Ташкент. - 2022. - 176 с.
3. Давронбеков Д.А., Матёкубов Ў.К. Мобиль алоқа тизимлари ишончлилигини баҳолаш модел ва алгоритмлари // Монография. "Sadreddin Salim Buxoriy" Durdon. Бухоро-2022. - 124 б.
4. Hotamov A. Madaminov H.X. "Radiomonitoring tizimida keng diapazondagi nurlanish manbalarni aniqlovchi antenna tizimini yaratish". Monografiya- Т.: / TATU. Tashkent 2021.
5. Madaminov H.X., Nazarov A.M., Xotamov A. "Mobil aloqa stansiyasilaridan tarqaluvchi signal sathlarini binolarda taqsimlanishi". Monografiya - Т.: / TATU. Tashkent 2021.
6. Давронбеков Д., Хакимов З. Методы улучшения спектральных характеристик волоконно-оптических систем передачи информации // Монография. "Yoshlar nashriyoti uyi". Ташкент-2020. - 112 с.
7. Раджабов Т.Д., Назаров А.М., Камардин А.И., Симонов А.А., Пулатов Ш.У. Вакуумные и фотонные технологии создания рельефных, композиционных и экранирующих покрытий. Монография. Т.: Изд. «Тафаккур», 2019 г. -135 с.
8. Д.А.Давронбеков, Абдурахманов К.П., Султонова М.О., Истроилов Ж.Д., Кириакиди А.С.

- Идентификация мобильных устройств по IMEI // Монография. ТУИТ, Ташкент - 2019. - 108 с.
9. Раджабов Т.Д., Назаров А.М., Симонов А.А, Камардин А.И. Технические средства и вакуумные технологии защиты документов и изделий от фальсификации. Т.: ТГТУ, 2018.-126 с.
  10. Д.А.Давронбеков "Методи оценки надёжности цифровых элементов радиотехнических систем" / Монография. ТУИТ, Ташкент - 2017г. -168 с.

## **EDUCATIONAL AND METHODOLOGICAL WORK OF THE DEPARTMENT**

The educational and methodological base of the department of "Mobile Communication Technologies" consists of textbooks, teaching aids, teaching aids published by professors of the department.

1. Давронбеков Д.А., Тзанова С.С., Пулатов Ш.У. Учебник «Спутниковые системы позиционирования и навигации». Prepare for publication.
2. Давронбеков Д.А., У.Т.Алиев. «Беспроводные системы IoT». Prepare for publication.
3. Писецкий Ю.В. Учебник Спутниковая связь Часть I. - Т.: "Aloqachi". -2023. - 305 с.
4. Писецкий Ю.В., Назаров А.М., Пулатов Ш.У., Мадаминов Х.Х., Вотинов К.А. Учебное пособие для проведения практических занятий по дисциплине Спутниковая связь. - Т.: "Aloqachi". -2023. - 190 с.
5. X. Madaminov, Y.V. Pisetskiy, U.T. Aliev, M.O. Sultonova. "Mobil aloqa" fanidan darslik. - Т.: "Aloqachi". -2023. - 252 с.
6. Д.А.Давронбеков "Надёжность радиотехнических систем учебник" Т.: "Tafakkur tomchilari". - 2021. - 192 с.
7. Ибраимов Р.Р., Пулатов Ш.У., Хатамов А.П., Мадаминов Х.Х., Хакимов З.Т. Учебник по курсу «GSM и управление мобильностью». Для специальности 5А350901 -Мобильные системы связи / ТУИТ. Ташкент 2021. 216 с.
8. Madaminov H.X., Ibraimov R.R., Khatamov A.P., Khotamov A., Xakimov Z.T. "GSM va mobililikni boshqarish". Darslik, - Т.: TATU. Tashkent 2021.-188 b.
9. A.Davronbekov, Sh.U.Pulatov, U.T.Aliyev, Yu.V.Pisetskiy. Mobil aloqa tizimlarining uzatish va qabil qilish qurilmalari / darslik. : "Aloqachi". - 2020. - 210 b.
10. Davronbekov, M.Sultonova. Yangi avlod kuchaytirgichlarining texnika va texnologiyasi / o'quv qo'llanma. Т.: "Aloqachi". - 2020. - 160 b.
11. Davronbekov, U.T.Aliyev. "Teleradioeshittirishda uzatish va qabul qilish qurilmalari" darslik. Т.: "Aloqachi". - 2019. - 256 b.
12. А.Давронбеков, У.Т.Алиев " Передающие и приёмные устройства в телерадиовещании / учебник." Т.: "Aloqachi". - 2019. - 266 с.
13. Р.Ибраимов, Д.Давронбеков, Ш.У.Пулатов, А.П.Хатамов. Спутниковые системы связи и приложения / учебное пособие Т.: "Aloqachi". - 2018. 365 с.
14. Ibraimov, D.A.Davronbekov, M.O.Sultonova, E.B.Tashmanov, U.T.Aliyev. Simsiz aloqa tizimlari va dasturlari (1-qism) / darslik. - Т.: "Aloqachi". - 2018. - 216 b.
15. Xalikov, D.A.Davronbekov, J.F.Kurbanov. Raqamli mobil aloqa vositalari / darslik. - Т.: "O'zbekiston faylasuflari milliy jamiyati" nashriyoti. - 2018. - 556 b.
16. Abduqodirov, D.A.Davronbekov. Mobil baylanis sistemalarinin 4G avladi / o'quv qollana. - Т.: "Aloqachi". - 2018. - 344 b.
17. Davronbekov, Sh.U.Pulatov, M.O.Sultonova, U.T.Aliyev, E.B.Tashmanov. "Simsiz keng polosali texnologiyalar" / darslik. - Т.: "Aloqachi". - 2018. - 304 b.
18. Ibraimov, D.A. Davronbekov, E.B. Toshmanov, Y.V. Pisetskiy "Simsiz aloqa tizimlari va dasturlash" (1-qism), Darslik. Т.: "Aloqachi" - 2017-234 b.
19. Р.Ибраимов, Д.Давронбеков, Э.Б.Тошманов, Ю.В.Писецкий. "Системы беспроводной связи и программирование (част 1)/ учебное пособие. - Т.: "Aloqachi". - 2017. - 234 с.
20. Abduqodirov, D.Davronbekov. Mobil aloqa tizimlarining 4G avlodi / o'quv qo'llanma. - Т.: "O'quv-

ta'lim metodika" DUK. - 2015 .- 328 b.

## **TOPICS OF CANDIDATE AND DOCTORAL DISSERTATIONS DEFENDED AT THE DEPARTMENT**

1. Матёкубов Уткир Каримович. "Разработка моделей и алгоритмов оценки надежности систем мобильной связи" в 2021 г. Кандидатская диссертация по специальности: «05.04.02 Радиотехника, радионавигация, радиолокация, телевизионные системы и устройства. Мобильные волоконно-оптические системы связи». Научный руководитель, доктор технических наук, профессор Давронбеков Д.А.
2. Хакимов Зафар Тулаганович. "Методы и устройства повышения эффективности волоконно-оптических систем передачи данных" в 2021 г. Диссертация кандидата технических наук по специальности: «05.04.02 Радиотехника, радионавигация, радиолокация, телевизионные системы и устройства. Мобильные волоконно-оптические системы связи». Научный руководитель, доктор технических наук Давронбеков Д.А.
3. Исраилов Джамшид Дильшодович. "Разработка алгоритмов идентификации и регистрации устройств мобильной связи" в 2020 г. Кандидатская диссертация по специальности: «05.04.02- Радиотехника, радионавигация, радиолокация, телевизионные системы и устройства. Мобильные волоконно-оптические системы связи». Научный руководитель, доктор технических наук Давронбеков Д.А.
4. Мадаминов Хайдар Худаярович. "Прогнозирование распределения уровней поля базовых станций мобильной связи внутри помещений" 2019 г. Кандидатская диссертация по специальности: «05.04.02 Радиотехника, радионавигация, радиолокация, телевизионные системы и устройства. Мобильные волоконно-оптические системы связи». Научный руководитель, доктор технических наук Назаров А.М.
5. Писецкий Юрий Валерьевич. "Методы и устройства дистанционного мониторинга" в 2018 г. Докторская диссертация по специальности: «05.04.02- Радиотехника, радионавигация, радиолокация, телевизионные системы и устройства. Мобильные волоконно-оптические системы связи». Научный руководитель, доктор технических наук, профессор Арипов Х.К.
6. Джалилов Музаффар Мухитдинович. "Система цифровой обработки телевизионных изображений для мониторинга обнаружения и распознавания статика-пространственных объектов" в 2017 г. Кандидатская диссертация по специальности: «05.04.02- Радиотехника, радионавигация, радиолокация, телевизионные системы и устройства. Мобильные волоконно-оптические системы связи». Научный руководитель, доктор технических наук, академик Раджабов Т.Д.

## **GRANTS OF THE DEPARTMENT**

1. Давронбеков Д.А. № 1506/21Ф "Модели и методы повышения надежности высокоскоростных сетей передачи данных" на сумму 425 млн. от АК «Узбектелеком».
2. Давронбеков Д.А. Учебно-научно-исследовательская лаборатория "СПУТНИКОВОЙ СВЯЗИ".
3. Давронбеков Д.А. Создание программного продукта для выявления дубликатов и клонов мобильных устройств.

## **CERTIFICATES FOR SOFTWARE PRODUCTS OF THE DEPARTMENT (DGU)**

1. Давронбеков Д.А., Хакимов З.Т., Писецкий Ю.В., Турсунов Б.Б., Иргашев Р.Ю. Программа ЭВМ: Свидетельство о депонировании объектов интеллектуальной собственности № 1681 электронного депозитария autor.uz. 10.01.2014. «Calculation of REA software reliability»

2. Votinov Kirill Alekseyevich, Yo'ldoshev Jaloliddin Fayzulla o'g'li, Pulatov Sherzod Utkurovich, Matyaqubov Bobur Kutlimurat o'g'li, Pisetskiy Yuriy Valerevich. «Maishiy chiqindilarni monitoring qilish uchun dastur». DGU 27720. 21.09.2023.
3. Давронбеков Д., Матёкубов Ў.К. Надежность системы BTS-BSC с различными видами линий связи между ними / Свидетельство об официальной регистрации программы для электронно-вычислительных машин №DGU 09101, 29.09.2020.
4. Давронбеков Д.А., Хакимов З.Т., Истроилов Д.Д., Давронбеков Н.Д. Расчет топологии эквидистантного неаподизованного фильтра на поверхностно-акустических волнах / Свидетельство об официальной регистрации программы для электронно-вычислительных машин №DGU 09706, 14.12.2020.
5. Давронбеков Д.А., Матёкубов Ў.К. Расчет живучести сети мобильной связи. Ситуация 2 / Свидетельство об официальной регистрации программы для электронно-вычислительных машин №DGU 10181, 09.02.2021.
6. Давронбеков Д.А., Матёкубов Ў.К. Расчет живучести сети мобильной связи. Ситуация 1 / Свидетельство об официальной регистрации программы для электронно-вычислительных машин №DGU 10182, 09.02.2021.
7. Давронбеков Д.А., Хакимов З.Т., Истроилов Д.Д., Ахмедов Б.И., Давронбеков Н.Д. Расчет геометрических размеров фильтров на ПАВ / Свидетельство об официальной регистрации программы для электронно-вычислительных машин №DGU 10183, 09.02.2021.
8. Давронбеков Д.А., Хакимов З.Т., Истроилов Д.Д., Давронбеков Н.Д., Алимджанов Х.Ф., Ахмедов Б.И., Норкобилов С.А. Аппроксимация спектральной характеристики волоконно-оптической линии связи / Свидетельство об официальной регистрации программы для электронно-вычислительных машин №DGU 10795, 15.04.2021.
9. Хатамов Р.А., Зиёдуллаев М.З., Давронбеков Д.А., Нигматов Р.О., Истроилов Ж.Д., Уринкулов О.Н., Абдуллаев М.М., Султанов А.А., Исаков А.Ф., Джаматов М.Х. Professor-o'qituvchilar faoliyati samaradorligini hisoblash va baholash axborot tizimi ma'lumotlar bazasi // O'zbekiston Respublikasi Adliya vazirligining Ma'lumotlar bazasining rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №BGU 00798. 09.11.2022
10. Давронбеков Д.А., Норкобилов С.А., Шарипов Х.Р., Норкобилова Ф.А., Хайруллаев А.Ф. Paxta g'aramlaridagi harorat va namlikni masofadan o'lhash dasturi (Wi-Fi tarmoq orqali) // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 20391. 15.12.2022
11. Давронбеков Д.А., Алимджанов Х.Ф., Хакимов З.Т., Истроилов Ж.Д. Inshootlarning qismlari orasidagi siljish va surilishlarni masofadanmonitoring qilish dasturi // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 21065. 26.12.2022
12. Davronbekov D.A., Xayrullayev A.F., Shuhratov Sh.Sh., Norkobilov S.A.Tor polosali simsiz IoT qurilmalarini identifikasiya qilish dasturi (Klient qismi) // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 22366. 21.02.2023
13. Davronbekov D.A., Xayrullayev A.F., Shuhratov Sh.S., Xujamatov X.E., Jurayeva N.I. Tor polosali simsiz IoT qurilmalarini identifikasiya qilish dasturi (Server qismi) // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 22373. 21.02.2023
14. Давронбеков Д.А., Арипов Ж.А. Расчет среднего времени доставки сообщений (пакетов) k-го приоритета сети передачи данных при идеальной надежности // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 18414. 06.09.2022
15. Давронбеков Д.А., Арипов Ж.А., Джаббаров Ш.Ю. Расчет среднего времени доставки сообщений (пакетов) k-го приоритета сети передачи данных при реальной надежности //

O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 18415. 06.09.2022

16. Давронбеков Д.А., Арипов Ж.А., Джураев Р.Х. Расчет функции распределения вероятности своевременной доставки сообщений (пакетов) к-го приоритета при идеальной надежности // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 18416. 06.09.2022 (0,33)
17. Давронбеков Д.А., Арипов Ж.А., Хужаматов Х.Э., Маткурбонов Д.М. Расчет функции распределения вероятности своевременной доставки сообщений (пакетов) к-го приоритета при реальной надежности // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 18417. 06.09.2022
18. Davronbekov D.A., Norkobilov S.A., Xasanbayev R.D., Norqulova D.R. Программа для дистанционного измерения температуры и влажности бунтов хлопка (по сотовой сети) // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 18888. 24.10.2022
19. Davronbekov D.A., Foziljonov X.I., Faziljanov I.R., Sattarov X.A. Программа расчета спектра периодических сигналов // O'zbekiston Respublikasi Adliya vazirligi huzuridagi Intellektual mulk Agentligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 15232. 24.03.2022.
20. Давронбеков Д.А., Ибраимов Р.Р., Султонова М.О. Ёғингарчиликнинг томчилари ва сув миқдори параметрларини ҳисоблаш // O'zbekiston Respublikasi Adliya vazirligi huzuridagi Intellektual mulk Agentligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan O'tkazilganligi to'g'risidagi guvohnoma. №DGU 16086. 11.05.2022
21. Davronbekov D.A., Norkobilov S.A. Программный модуль дистанционного мониторинга уровня заряда аккумулятора // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 27905. 07.10.2023.
22. Davronbekov D.A., Norkobilov S.A., Rustamova Sh.U. Программный модуль дистанционного мониторинга влажности хлопкового бунта // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 27906. 07.10.2023.
23. Davronbekov D.A., Norkobilov S.A. Программный модуль дистанционного мониторинга температуры хлопкового бунта // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 27907. 07.10.2023.
24. Davronbekov D.A., Xayrullayev A.F., Jurayeva N.I. Past kuchlanishli havo elektr uzatish liniyalari holatini masofadan nazorat qilish qurilmasi uchun ma'lumotlarni yig'ish dasturi // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 27522. 18.09.2023.
25. Davronbekov D.A., Aripov J.A. Программа имитационного моделирования диагностического контроля в высокоскоростных сетях передачи данных // O'zbekiston Respublikasi Adliya vazirligining Elektron hisoblash mashinalari uchun yaratilgan dasturning rasmiy ro'yxatdan o'tkazilganligi to'g'risidagi guvohnoma. №DGU 27558. 20.09.2023
26. Abdullayeva Xurshida Karimberdi qizi. "Elektron hisoblash mashinalari uchun yaratilgan dasturlar va ma'lumotlar bazalarining huquqiy himoyasi to'g'risida". №DGU 28576. 17.10.2023
27. Sultonova M.O., Fayzullayeva B.B. "Тола-оптик алока элементларининг

самарадорлигини ошириш модели ва усулларини ишлаб чикиш дастурий

таъминоти" // O'zbekiston respublikasi adliya vazirligi huzuridagi intellektual mulk agentligi. № DGU

13158 . 22.10.2022.

28. Fayzullayeva B.B., Abdullayeva X.K. "Bluetooth hc-05 qurulmasi orqali qurulmalarga buyruq berish va ularning holati haqida ma'lumot oluvchi dastur yaratish"//O'zbekiston respublikasi adliya vazirligi huzuridagi intellektual mult agentligi. DGU 18778. 09.02.2023
29. Fayzullayeva B.B. "Multiservis tarmoqlarida neyro-noravshan texnologiya asosida paketlarning tushish vaqtini aniqlash dasturi"//O'zbekiston Respublikasi adliya vazirligi huzuridagi intellektual mult agentligi. DGU № 25535. 18.05.2023
30. Fayzullayeva Barno Bahodirovna, Sultonova Maxbubaxon Odilovna "Ochiq optik tizimlar asosidagi sotali aloqa magistral bazaviy tarmoqlari" bo'yicha dasturiy ta'minot yaratdim. №DGU 13158. 22.10.2021
31. Sultonova Maxbubaxon Odilovna "Bluetooth modulning turli tezliklarda ishlashini o'rganish dasturi" bo'yicha dasturiy ta'minot yaratdim. №DGU 22522. 09.02.2023
32. Sultonova Maxbubaxon Odilovna Atmosfera optik uzatish tizimlari aloqa kanalining dinamik diapazonini hisoblash usuli № DGU 29798 17.11.2023
33. Aliyev Ulugbek Turayevich, Sultonova Maxbubaxon Odilovna Kuchaytirgish kaskadlarining asosiy sifat ko'satkichlari DGU 31495 12.12.2023
34. Sultonova Maxbubaxon Odilovna, Akbarova Margubaxon Adilovna Axborot-kutubxona xizmati samaradorligi DGU 32357 03.01.2024
35. Гафуров А.Ш., Б.Б. Файзуллаева., Адимжанов Ҳ.Ф., Мадаминов Ҳ.Ҳ., Султонова М.О., Алиев У.Т., Абдуллаева Х.К. "Bluetooth HC-05 qurilmasi orqali qurulmalarga buyruq berish va ularning holati haqida ma'lumot olishining imitatsion modelini". DGU 18778. 17.10.2022.
36. Gafurov A.Sh. "Elektron hisoblash mashinalariuchun yaratilgan dasturlar va ma'lumotlar bazalarining huquqiy himoyasi to'g'risida". DGU 30026. 17.11.2023.
37. Fayzullayeva B.B. UZ; Aliyev Ulug'bek To'raevich UZ; Alimjanov Xayot Farhadovich UZ; Gafurov Asror Shoraim o'g'li UZ «Smart eshik imitasjon modeli»

№ DGU 16339.19.04.2022

39. Алиев У.Т. Муминов Б.Б., Тажиев Ж.А., Исройлов Ж.Д., Бекмирзаев О. "Android mobil платформаси ёрдамида шахсий компьютерларни бошқариш" № DGU 04678, 23.08.2017
40. 40. Aliyev U.T. "Sotali aloqa parametrlarini hisoblash". DGU №23379, 02.2023
41. Aliyev U.T., Sultonova M.O. "Axborot-kutubxona xizmati samaradorligi". DGU №32357, 06.01.2024

## PATENTS FOR INVENTION

1. Патент Руз № IAP 04465 / Раджабов Т.Д., Назаров А.М., Давронбеков Д.А., Симонов А.А., Хакимов З.Т., Пичко С.В. Устройство для диагностики и оптимизации спектральных характеристик оптоволоконных систем передачи информации // Расмий ахборотнома. – 2012. - №1(129).
2. Патент РУз № IAP 04944. Способ изготовления заготовки активированных оптических волокон / Раджабов Т.Д., Иногамов А.М., Камардин А.И., Симонов А.А., Давронбеков Д.А., Таженов К.Е// Расмий ахборотнома. – 2014. - №9(161).
3. Патент РУз № IAP 05166. Устройство для диагностики предразрушений и деформации твердотельных конструкций / Раджабов Т.Д., Давронбеков Д.А., Курбанов А.А., Хакимов З.Т., Рахимов Б.Н., Насритдинов Н.М., 19.01.2016.

## SCIENTIFIC ARTICLES IN SCOPUS

1. Long He, Hongbin He, Kunkun Zuo, Dilmurod Davronbekov, Fengxiang Wang. Efficiency Optimal Predictive Control of Induction Motor Based on Loss Model Method // 2023 26th International Conference on Electrical Machines and Systems (ICEMS) - p.2113-2118

**DOI:** 10.1109/ICEMS59686.2023.10345139

2. J.Istroilov, D.Davronbekov, Z.Khakimov, M.Abdullaev, N.Turaxodjaev. Assessment of the reliability of the information system for identifying mobile devices by IMEI code // E3S Web of Conferences 402, 03040 (2023) - 12 p.

<https://doi.org/10.1051/e3sconf/202340203040>

3. D.A.Davronbekov, U.K.Matyokubov, T.A.Matqurbanov. Analytical Expressions and Model of Optical Communication Network Reliability Index Estimation // 2022 International Conference on Information Science and Communications Technologies (ICISCT) - 6 p.

**DOI:** 10.1109/ICISCT55600.2022.10146912

4. R.Ibraimov, D.Davronbekov, M.Sultonova. Evaluation of the Possibility of Use of Atmospheric Optical Systems In Transport Networks Of Mobile Communication on the Criterion Of Reliability // 2022 International Conference on Information Science and Communications Technologies (ICISCT) - 4 p.

**DOI:** 10.1109/ICISCT55600.2022.10146880

5. D.Davronbekov, J.Aripov, Sh.Jabbarov, R.Djuraev, D.Matkurbanov. Influence Of Packet Switching And Routing Methods On The Reliability Of The Data Transmission Network And The Application Of Artificial Neural Networks // Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), IHCI-2022, Tashkent. - 13741 LNCS, P.284-296. [https://doi.org/10.1007/978-3-031-27199-1\\_29](https://doi.org/10.1007/978-3-031-27199-1_29)

6. N.I.Juraeva, D.A.Davronbekov. Features and Principle of Operation of Fiber Lasers based on Active Fiber Doped with Rare-Earth Ions // 2022 2nd International Conference on Technological Advancements in Computational Sciences (ICTACS) - 4 p.  
**DOI:** 10.1109/ICTACS56270.2022.9988280

7. D.A.Davronbekov, U.K.Matyokubov. Influence of Communication Lines on Reliability in Mobile Communication Systems // 2021 International Conference on Information Science and Communications Technologies: Applications, Trends and Opportunities, ICISCT - 2021. DOI: 10.1109/ICISCT52966.2021.9670377

8. D.A.Davronbekov, U.K.Matyokubov. Algorithms for Calculating the Structural Reliability of a Mobile Communication System // 2021 International Conference on Information Science and Communications Technologies: Applications, Trends and Opportunities, ICISCT - 2021. DOI: 10.1109/ICISCT52966.2021.9670315

9. D.A.Davronbekov, U.T.Aliev, Sh.U.Pulatov, J.D.Istroilov, F.X.Fayzullaev Features of Technologies for Transmission of Radio and Television in 4G / 5G Networks // 2021 International Conference on Information Science and Communications Technologies: Applications, Trends and Opportunities, ICISCT - 2021. DOI: 10.1109/ICISCT52966.2021.9670182

10. J.D.Istroilov, S.A.Norkobilov, D.A.Davronbekov, A.S.Shamsiyev. Features Application of Sensor Networks for Measurement of Raw Cotton Bunts // 2021 International Conference on Information Science and Communications Technologies: Applications, Trends and Opportunities, ICISCT - 2021.

DOI: 10.1109/ICISCT52966.2021.9670181

11. Z.S.Abdimuratov, Z.D.Manbetova, M.N.Imankul, K.S.Chezhimbayeva, D.A.Davronbekov. Absorbers of electromagnetic radiation based on shungite species // News of the National Academy of Sciences of the Republic of Kazakhstan, Series of Geology and Technical Sciences, 2021, 1(445), P. 6-12

<https://doi.org/10.32014/2021.2518-170X.11>

12. D.A.Davronbekov, Z.T.Khakimov. Joint application of a running wave amplifier and acousto-optical configurable filter for linearization of the passage spectral characteristics of FOCLEs // 2020 International Conference on Information Science and Communications Technologies, ICISCT 2020

DOI: 10.1109/ICISCT50599.2020.9351490

13. B.O.Tuychiyev, D.A.Davronbekov. Models and algorithms for the optimal processing of spatio-temporal signals by the method of fractal // 2020 International Conference on Information Science and Communications Technologies, ICISCT 2020

DOI: 10.1109/ICISCT50599.2020.9351501

14. D.A.Davronbekov, U.T.Aliev, J.D.Isroilov, X.F.Alimdjanov, B.I.Akhmedov. Integrated solutions energy harvesting systems // 2020 International Conference on Information Science and Communications Technologies, ICISCT 2020

DOI: 10.1109/ICISCT50599.2020.9351518

15. Matyokubov U.K., Davronbekov D.A. The impact of mobile communication power supply systems on communication reliability and viability and their solutions // International Journal of Advanced Science and Technology, 2020, 29(5), стр. 3374-3385

16. D.A.Davronbekov, J.D.Isroilov, B.I.Akhmedov. Principle of Organizing Database Identification on Mobile Devices by IMEI // International Conference on Information Science and Communications Technologies: Applications, Trends and Opportunities, ICISCT 2019. DOI: 10.1109/ICISCT47635.2019.9012000

17. D.A.Davronbekov, Z.S.Abdimuratov, Z.D.Manbetova. Measurement of Electromagnetic Radiation Levels from Mobile Radiotelephones // International Conference on Information Science and Communications Technologies: Applications, Trends and Opportunities, ICISCT 2019. DOI: 10.1109/ICISCT47635.2019.9012052

18. D.A.Davronbekov, U.T.Aliev, J.D.Isroilov, X.F.Alimdjanov. Power Providing Methods for Wireless Sensors // International Conference on Information Science and Communications Technologies: Applications, Trends and Opportunities, ICISCT 2019. DOI: 10.1109/ICISCT47635.2019.9011850

19. D.A.Davronbekov, U.T.Aliev, J.D.Isroilov. Using the energy of electromagnetic radiation as a source of power // 2017 International Conference on Information Science and Communications Technologies, ICISCT 2017

DOI: 10.1109/ICISCT.2017.8188565

20. D.Davronbekov. Features measurement parameters and control functioning of integrated chips // 2016 International Conference on Information Science and Communications Technologies, ICISCT 2016. DOI: 10.1109/ICISCT.2016.7777379

21. Hakimov Z.T., Davronbekov D.A. Equalization of Spectral Characterist of Optical Signals by Acousto-Optic Filters // 2007 3<sup>rd</sup> IEEE/IFIP International Conference in Central Asia on Internet, ICI 2007.

DOI: 10.1109/CANET.2007.4401704

22. R.R.Ibraimov, M.O.Sultonova, X.Xujamatov "The Integral Distribution Function of the Kilometric Attenuation of Infrared Radiation in the Atmosphere Fergana Region of the Republic of Uzbekistan" Webology, Volume 18, Special Issue on Current Trends in Management and Information Technology, October, 2021

23. R.R.Ibraimov, D.A.Davronbekov, M.O.Sultonova "Features of building fronthaul networks in 4G/5G on the basis of wireless optical communication channels". Neuroquantology | september 2022 | volume 20 | issue 11|page 1555-1564| DOI: 10.14704/NQ.2022.20.12.NQ77327.

24. M.O.Sultonova, U.T.Aliev, M.O. Akbarova "The views of central asian thinkers on the culture of life and their role in the development of society". Neuroquantology | october 2022 | volume 20 | issue 12 |page 3223-3231| DOI: 10.14704/NQ.2022.20.12.NQ77327.
25. U.T.Aliev, Kh.X. Madaminov. "Analysis of the Problems and Opportunities of the Built-in Satellite and Terrestrial IoT Networks in the Conditions of the Republic of Uzbekistan". Journal of Pharmaceutical Negative Results | Volume 13 | Special Issue 10 | 2022 (СКОПУС) p. 439-444
26. U.T.Aliev, Davronbekov D.A, Isroilov J.D., Alimdjanov X.F. "Power providing methods for wireless sensors". International Conference on "Information Science and Communications Technologies (ICISCT) Applications, Trends and Opportunities" Tashkent-2019. -3p
27. Ibraimov R., Sultonova M. AlievU.T. "The impact of precipitation communication failure FSO". International Conference on "Information Science and Communications Technologies (ICISCT) Applications, Trends and Opportunities". Tashkent-2021/ -10p
28. V.V. Gubenko, A.P. Xatamov, U.T. Aliev. "Peculiarities of devices for wireless conversion and accumulation of electrical energy". International Conference on "Information Science and Communications Technologies (ICISCT) Applications, Trends and Opportunities". Tashkent-2022/ -6p
29. Y. V. Pisetskiy, B.I. Ahmedov, K.A. Votinov, O.Sh. Pulatov, G.N Akhmedova, Software Implementation of the Detection System of Distributed Network Attacks Type "Denial of Service", 2020 International Conference on Information Science and Communications Technologies (ICISCT), 04-06 November 2020, DOI: 10.1109/ICISCT50599.2020.9351448