



KVANT NAZARIYASINING TABIATDAGI TALQINI.

Muxtaram Boboqulova Xamroyevna

Osiyo Xalqaro Universiteti

“Umumtexnik fanlar” kafedراسi assisenti

muhtaramboboqulova607@gmail.com

<https://doi.org/10.5281/zenodo.10690735>

ANNOSTATSIYA.

Klassik fizika va kvant nazariyasi o'rtasidagi munosabatlar fizika falsafasi uchun markaziy ahamiyatga ega va kvant mexanikasining har qanday talqini bu munosabatni aniqlashtirishi kerak. Gravitatsiyadan tashqari, kvant mexanikasi deyarli barcha ma'lum bo'lgan hodisalarni, atomlarning tuzilishi, kimyo va kondensatsiyalangan moddalardan yadro tuzilishi va elementar zarralar fizikasigacha tushuntiradi. Bularning barchasini misli ko'rilmagan aniqlik bilan bajaradi. Ammo kashf etilganidan deyarli 90 yil o'tgach, biz hali ham o'lchov muammosi bilan bo'lgani kabi, kvant mexanikasi haqida ham chuqur tushunchaga ega emasmiz, degan umumiy kelishuv mavjud. G'oyalar va usullarning kombinatsiyasi o'lchov muammosini to'liq hal qilmaydi, lekin klassik vaziyat ba'zi holatlar va kvant nazariyasi kuzatilishi mumkin bo'lgan narsalarni yo'q qilish natijasida paydo bo'lishini ta'kidlaydi.

Kalit so'zlar:kvant nazariyasi,gravitatsiya,elementar zarralar.

Kvant nazariyasi ham hayotimizni ta'minlovchi zamonaviy texnologiyalarning asosini tashkil etadi. Zamonaviy hisoblash texnikasining asosini tashkil etuvchi tranzistorni loyihalash va modellashtirish uchun kvant nazariyasi talab qilinadi. Xuddi shu narsa optik aloqa tarmoqlari (telekommunikatsiya sanoatining asosi) va optik ma'lumotlarni saqlash (masalan, CD va DVD diskleri) ning asosini tashkil etuvchi lazer va yorug'lik diodiga ham tegishli. Ilg'or kvant kompyuterlari va kvant shifrlash kabi texnologiyalar ham hayotimizga tez kirib bormoqda. Kvant nazariyasining eksperimental muvaffaqiyatlari tufayli kvant nazariyasining matematik qoidalari jismoniy dunyo faoliyatining asosiy xususiyatlarini to'g'ri aks ettirishiga shubha yo'q. To'qson yil oldin tuzilganidan beri, bu qoidalar klassik fizikaning asosini tashkil etuvchi voqelik nuqtai nazaridan saqlanishi mumkin bo'lmagan jismoniy voqelikni tasvirlaydigan juda kuchli belgilar mavjud edi. Biroq, moddiy dunyoni tushunishda kvant formalizmining aniq tabiati noaniqligicha qolmoqda. Kvant fizikasi klassik fizikadan farqli o'laroq, fizik tizimlarni modellashtirish uchun qo'llanilishi mumkin bo'lgan matematik asosga ega. Ushbu vaziyat qanday sodir bo'lganini tushunish uchun ba'zi tarixiy yondashuvlarni ko'rib chiqish foydali bo'ladi. Nyuton mexanikasi Yerdagi jismlarning harakatini ham, sayyoralar, oylar va





kometalarning orbitalarini batafsil astronomik kuzatishlarini ham tushuntirib berdi; Maksvell elektromagnetizmi elektr va magnit hodisalarini (jumladan, yorug'lik hodisasini miqdoriy tushuntirish) har tomonlama tushunish imkonini berdi va termodinamika, issiqlik hodisasi va issiqlikni foydali mexanik harakatga aylantirish jarayoni haqida batafsil ma'lumot berdi. Biroq, ba'zi bir savol belgilari ham bor edi: bu nazariyalarga o'jarlik bilan qarshilik ko'rsatadigan empirik faktlar mavjud edi. Ushbu faktlardan biri qizdirilgan ob'ektlar tomonidan chiqarilgan yorug'lik chastotalari bilan bog'liq edi (klassik nazariyalar hatto tajriba ma'lumotlarini sifat jihatidan ham hisobga olmadi). Bu faktlarga (Maks Plank tashabbusi bilan) berilgan vaqtinchalik tushuntirishlar klassik fizikaning matematik asosini almashtiradigan fizik nazariyalar uchun mutlaqo yangi nazariy asos bo'lgan kvant nazariyasining rivojlanishiga olib keladi.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

Kvant nazariyasidagi bu klassik bo'lmagan xususiyatlarni yoritish uchun ba'zi fiziklar mavjud tushunchalarni sharhlashga yoki yangi tushunchalarni ishlab chiqishga harakat qildilar, ularda bu xususiyatlar o'ziga xos misollar sifatida qabul qilinishi mumkin va shu bilan klassik bo'lmagan xususiyatlarni o'z ichiga oladi. Masalan, Bor to'ldiruvchilik tushunchasini ishlab chiqdi. Ushbu kontseptsiyaga ko'ra;

- Har qanday tajribada eksperimental asboblardan va kuzatishning ishtirok etish jarayonini an'anaviy tushunchalar bilan tushuntirib bo'lmaydi.
- Eksperimental jarayon davomida kuzatish va kuzatilayotgan narsa o'rtasida aniq chegara o'tkazib bo'lmaydi; chunki kuzatish jarayoni kuzatilayotgan narsaga ta'sir qiladi.
- Atom dunyosini tasvirlash uchun to'liq va zarracha kabi tushunchalar qo'llanilishi muqarrar, ammo har xil eksperimental vaziyatlar uchun turli modellardan foydalanish kerak. Ushbu turli xil modellar va vaziyatlarni "qarama-qarshi" deb emas, balki "bir-birini to'ldiruvchi" sifatida ko'rish kerak, chunki ular bir xil eksperimental sharoitlarda paydo bo'lmaydi. (Masalan, elektron bir eksperimental holatda zarracha, boshqasida to'liqdir.)

Hozirda bizda kvant nazariyasini qo'llab-quvvatlaydigan voqelik haqida tushuncha yo'qligi sababli, kvant nazariyasi asos bo'lgan moddiy dunyoning xususiyatlari noma'lum. Kengroq ma'noda fanlararo nuqtai nazardan, kvant nazariyasining asosini tashkil etuvchi voqelikni tushunmaslik kvant nazariyasining mohiyati fanning boshqa sohalariga va kengroq aytganda, boshqa

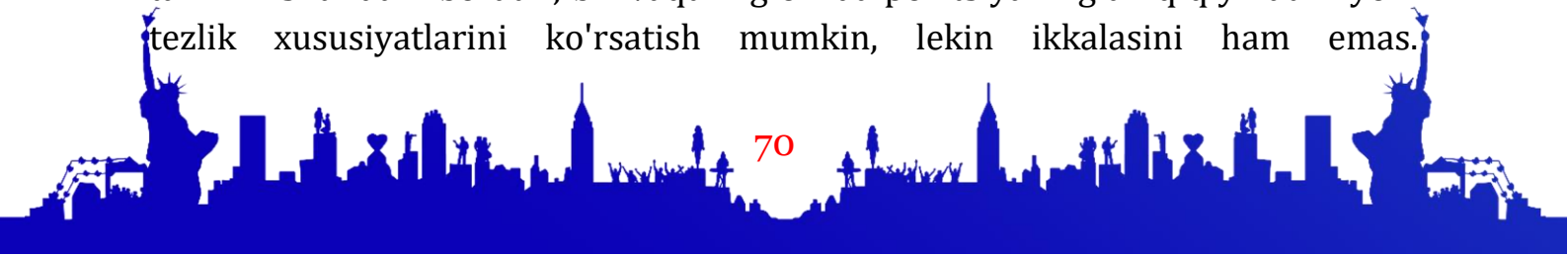




sohalarga to'g'ri kelmasligini bildiradi. Garchi bu usullar muhim ma'lumot bergan bo'lsa-da, ularning asosiy cheklovi kvant nazariyasidan ma'lum bir tarzda foydalanishidir. Klassik fizika tabiiy ravishda matematiklashtirilsa, inson haqiqatni aniq tushunadi. Biroq, kvant formalizmi klassik fizika asosidagi matematik asosda topilmaydigan ko'plab matematik konstruktsiyalarga ega. Masalan, tizimlarning holatlari kompleks vektor fazoda kompleks vektorlar bilan, holatlarning vaqtinchalik evolyutsiyasi esa bu vektorlarning unitar transformatsiyalari bilan ifodalanadi. Ehtimol, bu holatning jismoniy sabablari bor, ammo bu sabablar nima? Yuqorida tilga olingan kvant nazariyasini yechish harakatlari bu savolga javob bera olmaydi.

Xulosa.

So'nggi yillarda kvant nazariyasida g'oyalarning mosligini aniqlashga harakat qilish kerakligi tushunildi. Ya'ni, nazariyani ma'lum bir tarzda qabul qilishdan ko'ra, kvant nazariyasini olish mumkin bo'lgan oddiy tamoyillarni shakllantirish ustida ishlash kerak. Kvant nazariyasini shu tarzda qayta qurish kvant nazariyasining fizik mazmunini tabiiy tilda ifodalangan aniq ifodalar to'plamiga o'tkazadi; Shunday qilib, kvant nazariyasining butun mazmuni zarur kontseptual tahlil uchun mavjud bo'ladi. Natijada, kvant nazariyasini turli xil boshlang'ich nuqtalarga asoslangan batafsil qayta qurish davom etmoqda. Biroq, hozirgacha mavjud ishlarning hech biri mavhum matematik taxminlarni kiritmasdan kvant nazariyasini standart shaklda ololmadi. Berilgan tajribada olingan har bir o'lchov natijalari ketma-ketligi haqiqiy sonlar juftligi bilan ifodalanadi va bu ketma-ketlikning har ikkala komponentining funksiyasini bajarish ehtimoli uzluksiz emas. Simmetriya va konsistensiyaning asosiy shartlaridan foydalanib, va shunday deb faraz qilmasdan, bu juft haqiqiy sonlar boshqa algebraik tuzilishga ega emas, bu juftliklar uni murakkab arifmetik qoidalarga muvofiq manipulyatsiya qilish kerakligi aniqlandi. Bundan tashqari, ushbu kompleks raqamlar Feynmanning yig'indisi qoidalariga bo'ysunishi aniqlandi, bu modullar kvadrati bilan birlashtirilib, natijalar ketma-ketligi ehtimolini beradi. Yondashuvning mohiyatini tashkil etuvchi ikki tomonlama taxmin jismoniy tizimda o'tkazilgan o'lchov faqat tizim erkinlik darajalarining yarmi haqida ma'lumot berishi mumkin degan fikrni ifodalaydi. Bu Bor tomonidan yaratilgan to'ldiruvchilik printsiplarining rasmiylashtirilishi. Klassik mexanikada zarrachaga bir vaqtning o'zida joylashuv va tezlikning aniq qiymatlari berilishi mumkin deb taxmin qilinadi. Biroq, kvant nazariyasining taxmini shundan iboratki, bir vaqtning o'zida pozitsiyaning aniq qiymatini yoki tezlik xususiyatlarini ko'rsatish mumkin, lekin ikkalasini ham emas.



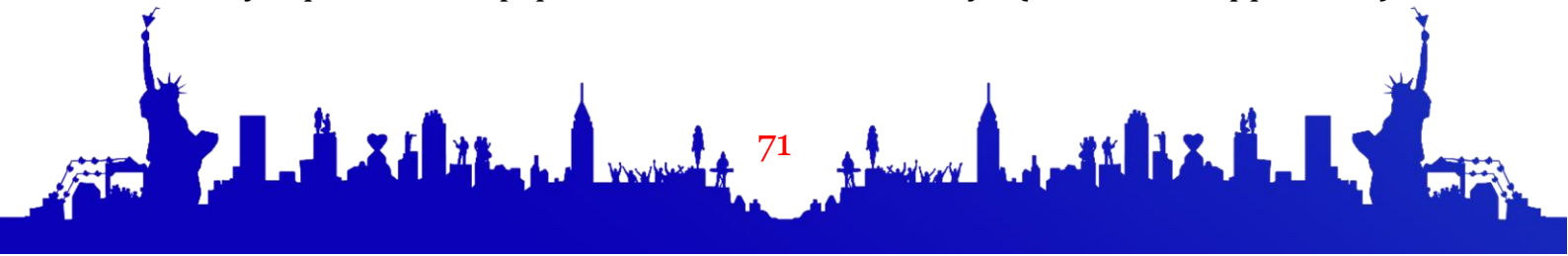


Fundamental klassik kontseptsiyadagi ushbu kvant cheklovini tushunish uchun Bor "To'ldiruvchilik printsiplari" ni ishlab chiqdi. Ushbu printsiplarga ko'ra, fizik hodisaning har qanday tavsifi ma'lum bir empirik tartibga solish bilan chambarchas bog'liq bo'lib, bunday tartibga solish klassik tafakkurda hodisani to'liq tavsiflash uchun bir xil darajada zarur bo'lgan hodisaning boshqa tomonlarini istisno qilish uchun ishlatiladi. Kier Kegaard falsafiy tafakkurining dialektik jihatidan qisman ilhomlangan bu tamoyil umumiy falsafiy tamoyilning alohida holatidir. Prinsiplarning umumiylikni kashf qilib, Bor va boshqalar aqliy va organik sohalaridagi o'xshash hodisalarni ko'rsatdilar. Masalan, Pauli jismoniy to'ldiruvchilik va aqliy tajribaning ongsiz va ongli tomonlari o'rtasidagi munosabat o'rtasidagi o'xshashlikni ishlab chiqdi. Zamonaviy psixologiya esa ongsiz psixikaning asosan ob'ektiv realligini ochib beradi; ularning har biri ongni, ya'ni kuzatishni keltirib chiqaradi, printsiplarning jihatidan nazorat qilib bo'lmaydigan ongsiz mazmun bilan o'zaro ta'sirni tashkil qiladi; Bu holat ongsiz voqelikning ob'ektiv xarakterini cheklaydi va voqelikni ma'lum bir sub'ektivlik bilan ajratib turadi.

Maqola doirasida ikkita asosiy taxmin qilingan. Birinchidan, noaniqlikning operativ taxmini mavjud, ya'ni ehtimollik o'lchovlarga xosdir. Ikkinchidan, to'ldiruvchilik ma'lum bir tajribada tizimni nazariy tavsiflash uchun zarur bo'lgan erkinlik darajasining faqat yarmiga erishish mumkinligini o'z ichiga oladi. Ushbu ikkala taxmin ham klassik fizikaning mexanik nuqtai nazaridan noaniqlik (o'lchov natijasi tizimning holati bilan belgilanadi) va asosiy tamoyillar (ya'ni, printsiplarning ravishda, erishish mumkin bo'lgan bitta mezon mavjud) bilan tizimning erkinlik darajalaridir. hammasi). Agar noaniqlik va bir-birini to'ldiruvchilik berilgan deb qabul qilinsa, tabiatni qanday tushunish taklif qilinadi? Kvant nazariyasini qayta qurish, yuqorida tasvirlanganidek, yangi "Tabiat tushunchasi" yo'lidagi muhim ishdir, chunki u bizning e'tiborimizni faqat oz sonli noklassik bo'lmagan xususiyatlarga qaratadi, lekin u hali ham bir pog'onadir.

Foydalangan adabiyotlar:

1. Bobokulova, M. (2024). IN MEDICINE FROM ECHOPHRAPHY USE. Development and innovations in science, 3(1), 94-103.
2. Bobokulova, M. (2024). INTERPRETATION OF QUANTUM THEORY AND ITS ROLE IN NATURE. Models and methods in modern science, 3(1), 94-109.
3. Bobokulova, M. (2024, January). RADIO WAVE SURGERY. In Международная конференция академических наук (Vol. 3, No. 1, pp. 56-66).



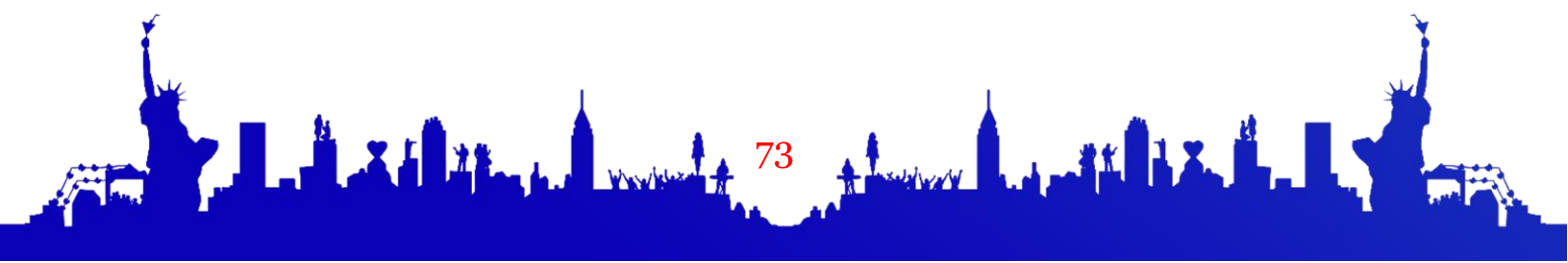


4. Bobokulova, M. (2024). UNCERTAINTY IN THE HEISENBERG UNCERTAINTY PRINCIPLE. Академические исследования в современной науке, 3(2), 80-96.
5. Bobokulova, M. (2024). BLOOD ROTATION OF THE SYSTEM PHYSICIST BASICS. Инновационные исследования в науке, 3(1), 64-74.
6. Bobokulova, M. (2024). THE ROLE OF NANOTECHNOLOGY IN MODERN PHYSICS. Development and innovations in science, 3(1), 145-153.
7. Bobokulova, M. X. (2023). STOMATOLOGIK MATERIALLARNING FIZIK-MEXANIK XOSSALARI. Educational Research in Universal Sciences, 2(9), 223-228.
8. Xamroyevna, B. M. (2023). ORGANIZM TO 'QIMALARINING ZICHLIGINI ANIQLASH. GOLDEN BRAIN, 1(34), 50-58.
9. Bobokulova, M. K. (2023). IMPORTANCE OF FIBER OPTIC DEVICES IN MEDICINE. Multidisciplinary Journal of Science and Technology, 3(5), 212-216.
10. Khamroyevna, M. B. (2023). PHYSICO-CHEMICAL PROPERTIES OF BIOLOGICAL MEMBRANES, BIOPHYSICAL MECHANISMS OF MOVEMENT OF SUBSTANCES IN THE MEMBRANE. Multidisciplinary Journal of Science and Technology, 3(5), 217-221.
11. Bobokulova, M. K. (2024). TOLALI OPTIKA ASBOBLARINING TIBBIYOTDAGI AHAMIYATI. GOLDEN BRAIN, 2(1), 517-524.
12. Latipova, S. (2024). YUQORI SINFLARDA GEOMETRIYA MAVZUSINI O'QITISHDA YANGI PEDAGOGIK TEXNOLOGIYALAR VA METODLAR. SINKVEYN METODI, VENN DIAGRAMMASI METODLARI HAQIDA. Theoretical aspects in the formation of pedagogical sciences, 3(3), 165-173.
13. Latipova, S. (2024, February). SAVOL-JAVOB METODI, BURCHAKLAR METODI, DEBAT (BAHS) METODLARI YORDAMIDA GEOMETRIYANI O'RGANISH. In Международная конференция академических наук (Vol. 3, No. 2, pp. 25-33).
14. Latipova, S., & Sharipova, M. (2024). KESIK PIRAMIDA MAVZUSIDA FOYDALANILADIGAN YANGI PEDAGOGIK TEXNOLOGIYALAR. 6X6X6 METODI, BBB (BILARDIM, BILMOQCHIMAN, BILIB OLDIM) METODLARI HAQIDA. Current approaches and new research in modern sciences, 3(2), 40-48.
15. Latipova, S. (2024). 10-11 SINFLARDA STEREOOMETRIYA OQITISHNING ILMIY VA NAZARIY ASOSLARI. Академические исследования в современной науке, 3(6), 27-35.
16. Latipova, S. (2024). HILFER HOSILASI VA UNI HISOBLASH USULLARI. Центральноазиатский журнал образования и инноваций, 3(2), 122-130.



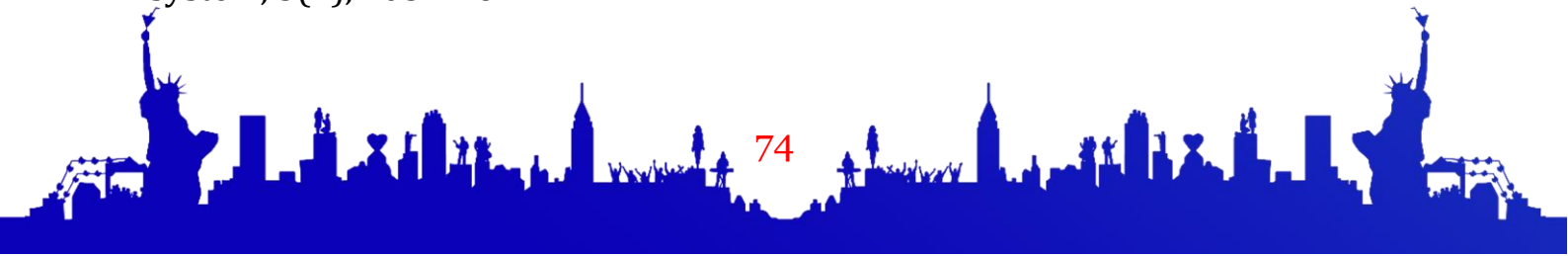


17. Latipova, S. (2024). HILFER MA'NOSIDA KASR TARTIBLI TENGLAMALAR UCHUN KOSHI MASALASI. *Development and innovations in science*, 3(2), 58-70.
18. Latipova, S. (2024). KESIK PIRAMIDA TUSHUNCHASI. KESIK PIRAMIDANING YON SIRTINI TOPISH FORMULALARI. *Models and methods in modern science*, 3(2), 58-71.
19. Shahnoza, L. (2023, March). KASR TARTIBLI TENGLAMALARDA MANBA VA BOSHLANG'ICH FUNKSIYANI ANIQLASH BO'YICHA TESKARI MASALALAR. In "Conference on Universal Science Research 2023" (Vol. 1, No. 3, pp. 8-10).
20. qizi Latipova, S. S. (2024). CAPUTO MA'NOSIDAGI KASR TARTIBLI TENGLAMALARDA MANBA FUNKSIYANI ANIQLASH BO 'YICHA TO 'G 'RI MASALALAR. *GOLDEN BRAIN*, 2(1), 375-382.
21. Latipova, S. S. (2023). SOLVING THE INVERSE PROBLEM OF FINDING THE SOURCE FUNCTION IN FRACTIONAL ORDER EQUATIONS. *Modern Scientific Research International Scientific Journal*, 1(10), 13-23.
22. Latipova, S. (2024). GEOMETRIYADA EKSTREMAL MASALALAR. В DEVELOPMENT OF PEDAGOGICAL TECHNOLOGIES IN MODERN SCIENCES (Т. 3, Выпуск 3, сс. 163–172).
23. Latipova, S. (2024). EKSTREMUMNING ZARURIY SHARTI. В SOLUTION OF SOCIAL PROBLEMS IN MANAGEMENT AND ECONOMY (Т. 3, Выпуск 2, сс. 79–90).
24. Latipova, S. (2024). FUNKSIYANING KESMADAGI ENG KATTA VA ENG KICHIK QIYMATI. В CURRENT APPROACHES AND NEW RESEARCH IN MODERN SCIENCES (Т. 3, Выпуск 2, сс. 120–129).
25. Latipova, S. (2024). EKSTREMUMLARNING YUQORI TARTIBLI HOSILA YORDAMIDA TEKSHIRILISHI. IKKINCHI TARTIBLI HOSILA YORDAMIDA EKSTREMUMGA TEKSHIRISH. В SCIENCE AND INNOVATION IN THE EDUCATION SYSTEM (Т. 3, Выпуск 3, сс. 122–133).
26. Latipova, S. (2024). BIR NECHA O'ZGARUVCHILI FUNKSIYANING EKSTREMUMLARI. В THEORETICAL ASPECTS IN THE FORMATION OF PEDAGOGICAL SCIENCES (Т. 3, Выпуск 4, сс. 14–24).
27. Latipova, S. (2024). SHARTLI EKSTREMUM. В МЕЖДУРОДНАЯ КОНФЕРЕНЦИЯ АКАДЕМИЧЕСКИХ НАУК (Т. 3, Выпуск 2, сс. 61–70).
28. Latipova, S. (2024). KASR TARTIBLI HOSILALARGA BO'LGAN ILK QARASHLAR. В CENTRAL ASIAN JOURNAL OF EDUCATION AND INNOVATION (Т. 3, Выпуск 2, сс. 46–51).



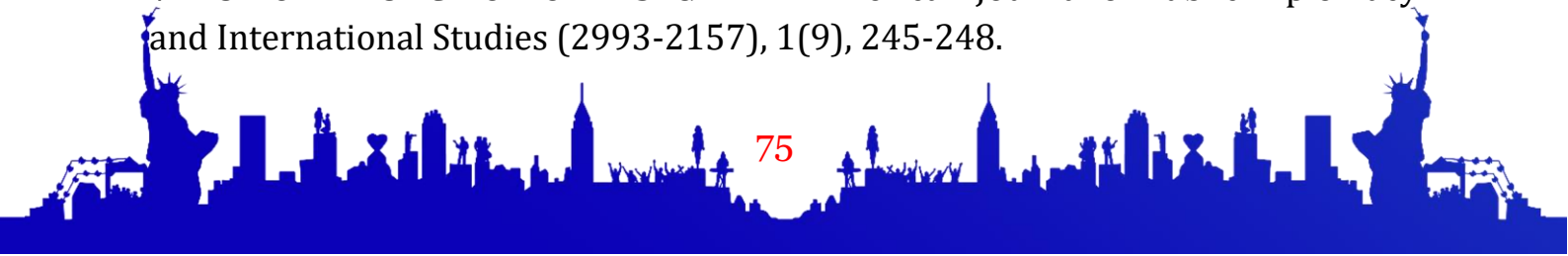


29. Latipova, S. (2024). TURLI EKSTREMAL MASALALAR. BAZI QADIMIY EKSTREMAL MASALALAR. В CENTRAL ASIAN JOURNAL OF EDUCATION AND INNOVATION (T. 3, Выпуск 2, сс. 52–57).
30. Latipova, S. (2024). FUNKSIYA GRAFIGINI YASASHDA EKSTREMUMNING QO'LLANILISHI. В CENTRAL ASIAN JOURNAL OF EDUCATION AND INNOVATION (T. 3, Выпуск 2, сс. 58–65).
31. Latipova, S. (2024). BIRINCHI TARTIBLI HOSILA YORDAMIDA FUNKSIYANING EKSTREMUMGA TEKSHIRISH, FUNKSIYANING EKSTREMUMLARI. В CENTRAL ASIAN JOURNAL OF EDUCATION AND INNOVATION (T. 3, Выпуск 2, сс. 66–72).
32. Boboqulova, M. (2024). FIZIKA O'QITISHNING INTERFAOL METODLARI. В CENTRAL ASIAN JOURNAL OF EDUCATION AND INNOVATION (T. 3, Выпуск 2, сс. 73–82).
33. Murodov, O. (2024). INNOVATIVE INFORMATION TECHNOLOGIES AND NEW METHODS AND TOOLS FOR THEIR APPLICATION IN TODAY'S EDUCATION. В CENTRAL ASIAN JOURNAL OF EDUCATION AND INNOVATION (T. 3, Выпуск 2, сс. 83–92).
34. Sharipova, M., & Latipova, S. (2024). TAKRORIY GRUPPALASHLAR. Development of pedagogical technologies in modern sciences, 3(3), 134-142.
35. Sharipova, M. (2024). TAQQOSLAMA TUSHUNCHASI VA UNING XOSSLARI. Current approaches and new research in modern sciences, 3(2), 68-78.
36. Sharipova, M. (2024). IKKI O'ZGARUVCHILI TENGSIZLIKLAR SISTEMASINI TAQQOSLAMALAR USULI BILAN YECHISH. Development and innovations in science, 3(2), 97-105.
37. Sharipova, M. (2024). BIRINCHI DARAJALI TAQQOSLAMALARNI YECHISH USULLARI. Solution of social problems in management and economy, 3(2), 60-69.
38. Latipova, S., & Sharipova, M. (2024). KESIK PIRAMIDA MAVZUSIDA FOYDALANILADIGAN YANGI PEDAGOGIK TEXNOLOGIYALAR. 6X6X6 METODI, BBB (BILARDIM, BILMOQCHIMAN, BILIB OLDIM) METODLARI HAQIDA. Current approaches and new research in modern sciences, 3(2), 40-48.
39. Sharipova, M. (2024). IN THE FORM OF AN UNBOUNDED PARALLELEPIPED IN THE FIELD NONLOCAL BORDERLINE CONDITIONAL LINEAR THE REVERSE IS THE CASE. Science and innovation in the education system, 3(1), 105-116.



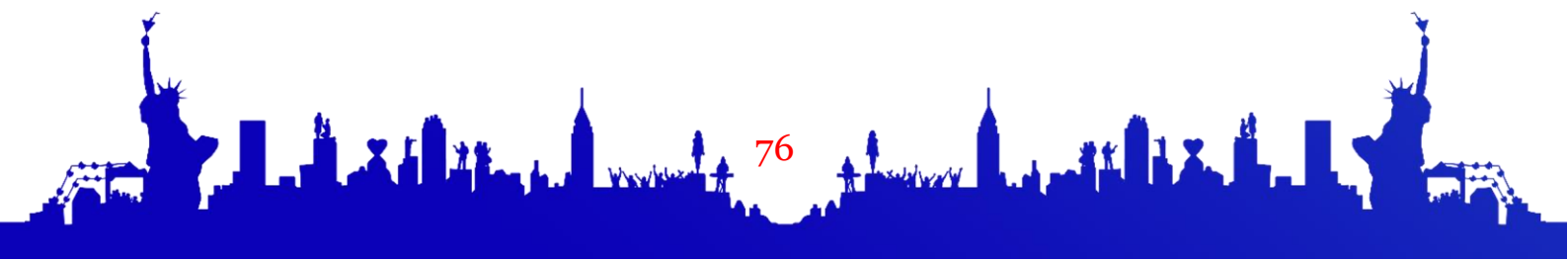


40. Sharipova, M. (2024). FUNCTIONAL SPACES. IN SHORT REFLECTION PRINCIPLE. Current approaches and new research in modern sciences, 3(1), 131-142.
41. Sharipova, M. (2024). A IS CORRECT OF THE INTEGRAL TO THE ECONOMY APPLICATIONS. Solution of social problems in management and economy, 3(1), 116-125.
42. Sharipova, M. (2024). ASYMMETRY AND KURTOSIS COEFFICIENTS. Theoretical aspects in the formation of pedagogical sciences, 3(1), 216-225.
43. Sharipova, M. (2024). TWO MULTIPLE OF THE INTEGRAL APPLICATIONS. Инновационные исследования в науке, 3(1), 135-140.
44. Tursunov, B. J., & Allanazarov, G. O. (2019). Perspektivnye tehnologii proizvodstva po uluchsheniyu kachestva benzina. Theory and practice of contemporary science, 3(45), 305-308.
45. Турсунов, Б. Ж., & Алланазаров, Г. О. (2019). Перспективные технологии производства по улучшению качества бензина. Теория и практика современной науки, (3 (45)), 305-308.
46. Tursunov, B. Z. (2023). Analysis of Concepts About the Effect of an Explosion in Solid Wednesday. American Journal of Public Diplomacy and International Studies (2993-2157), 1(10), 296-304.
47. Tursunov, B. Z. (2023). Methods of Control of Explosion Energy Distribution in Rocks. Intersections of Faith and Culture: American Journal of Religious and Cultural Studies (2993-2599), 1(10), 108-117.
48. Tursunov, B. Z. (2023). WASTE-FREE TECHNOLOGY FOR ENRICHMENT OF PURIFIC COPPER-ZINC ORE. American Journal of Public Diplomacy and International Studies (2993-2157), 1(9), 288-293.
49. Tursunov, B. Z. (2023). ANALYSIS OF MODERN METHODS FOR OIL SLUDGE PROCESSING. American Journal of Public Diplomacy and International Studies (2993-2157), 1(9), 280-287.
50. Jumaev, K., & Tursunov, B. (2022, December). Environmentally friendly technology for obtaining fuel briquettes from oil waste. In IOP Conference Series: Earth and Environmental Science (Vol. 1112, No. 1, p. 012005). IOP Publishing.
51. Madina Polatovna Sharipova. (2023). Applications of the double integral to mechanical problems. International journal of sciearchers, 2(2), 101-103.
52. Sharipova, M. P. L. (2023). FINDING THE MAXIMUM AND MINIMUM VALUE OF A FUNCTION ON A SEGMENT. American Journal of Public Diplomacy and International Studies (2993-2157), 1(9), 245-248.





53. Sharipova, M. P. (2023). FUNKSIYALARNI KOEFFITSIENTLAR ORQALI FUNKSIYALARNI YAKINLASHTIRISH HAQIDA MA'LUMOTLAR. GOLDEN BRAIN, 1(34), 102–110.
54. Sharipova, M. (2023, December). RELATIONSHIPS BETWEEN STRAIGHT LINES AND PLANES IN SPACE. In Международная конференция академических наук (Vol. 2, No. 12, pp. 60-66).
55. Sharipova, M. (2023). FRACTIONAL DERIVATIVES. Академические исследования в современной науке, 2(27), 106-113.
56. Sharipova, M. (2023). CORRECT PLACED AND CORRECT NOT PLACED ISSUES. Models and methods in modern science, 2(13), 115-121.
57. Sharipova, M. (2023). HEAT SPREAD EQUATION. Инновационные исследования в науке, 2(12), 50-56.
58. Madina Polatovna Sharipova. (2023). HIGH MATH SCORE AND INTERVAL ASSESSMENT. American Journal of Public Diplomacy and International Studies (2993-2157), 1(10), 420–424.
59. Madina Polatovna Sharipova. (2023). IN HIGHER MATHEMATICS, THE EXTREMUM OF A MULTIVARIABLE FUNCTION. American Journal of Public Diplomacy and International Studies (2993-2157), 1(10), 425–429.
60. Sharipova, M. P. (2024). ISSIQLIK TARQALISH TENGLAMASI UCHUN KOSHI MASALASI. GOLDEN BRAIN, 2(1), 525–532.
61. Axmedova, Z. (2024). KOMPYUTER TESTLARINING MAQSADLARI, MAZMUNI VA TUZILISHI. Theoretical aspects in the formation of pedagogical sciences, 3(3), 211-222.
62. Axmedova, Z. (2024). NODAVLAT O'QUV MARKAZLARI TIZIMI PLATFORMASI UCHUN MOBIL ILOVA YARATISH. Академические исследования в современной науке, 3(6), 162-179.
63. Axmedova, Z. (2024). NODAVLAT O'QUV MARKAZLARI TIZIMI PLATFORMASI UCHUN MA'LUMOTLAR BAZASINI YARATISH. Science and innovation in the education system, 3(3), 83-93.
64. Akhmedova, Z. (2024). STRUCTURES OF SMALL DATABASE MANAGEMENT SYSTEMS. Solution of social problems in management and economy, 3(1), 97-107.
65. Akhmedova, Z. (2024). DATA BY COMBINING MAIL THROUGH TO SEND METHODS. Theoretical aspects in the formation of pedagogical sciences, 3(1), 198-207.



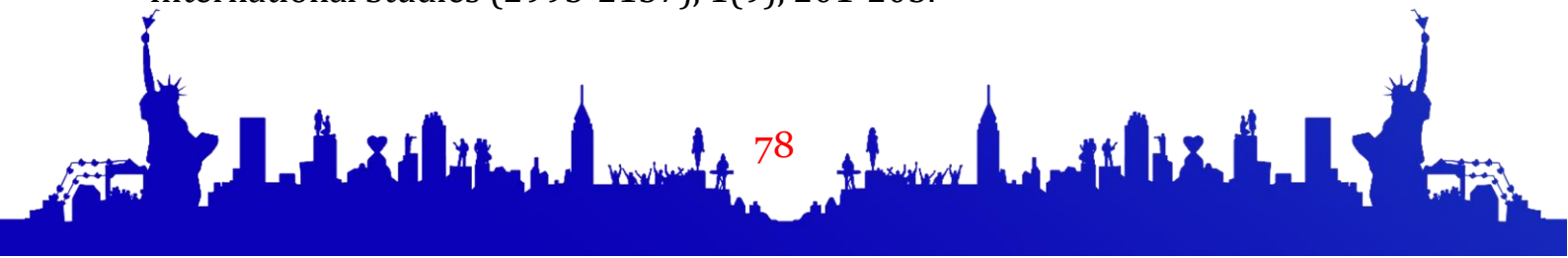


66. Akhmedova, Z., & Rahmatova, N. (2024). LMS (LEARNING MANAGEMENT SYSTEM) LEARNING MANAGEMENT SYSTEM FEATURES. Science and innovation in the education system, 3(1), 85-94.
67. Akhmedova, Z. (2024). CREATION OF A DATABASE FOR THE SYSTEM PLATFORM OF NON-GOVERNMENT EDUCATIONAL CENTERS. Development of pedagogical technologies in modern sciences, 3(1), 106-116.
68. qizi Sharopova, M. M. (2023). RSA VA EL-GAMAL OCHIQ KALITLI SHIFRLASH ALGORITMI ASOSIDA ELEKTRON RAQMLI IMZOLARI. RSA OCHIQ KALITLI SHIFRLASH ALGORITMI ASOSIDAGI ELEKTRON RAQAMLI IMZO. Educational Research in Universal Sciences, 2(10), 316-319.
69. Sharopova, M. M. qizi . (2023). JAVA TILI YORDAMIDA OB'EKTGA YUNALTIRILGAN DASTURLASH ASOSLARI BILAN TANISHISH. GOLDEN BRAIN, 1(34), 111-119.
70. Sharopova, M. (2023). CHOOSE: COMPOSITION OR INHERITANCE. Science and innovation in the education system, 2(13), 96-102.
71. Sharopova, M. (2023). JAVA PROGRAMMING IN THE LANGUAGE HERITAGE TO DO SYNTAX. Current approaches and new research in modern sciences, 2(12), 82-87.
72. Sharopova, M. (2023). ARRAY AND ARRAYS INSTALLATION. Development of pedagogical technologies in modern sciences, 2(12), 102-107.
73. Sharopova, M. (2023). CLASSES AGAIN APPLY. Solution of social problems in management and economy, 2(13), 106-111.
74. qizi Sharopova, M. M. (2023). INTRODUCING" PROGRAM CONTROL OPERATORS" IN THE JAVA PROGRAMMING LANGUAGE. Multidisciplinary Journal of Science and Technology, 3(5), 222-231.
75. qizi Sharopova, M. M. (2023). Working with folders in the JAVA programming language. Multidisciplinary Journal of Science and Technology, 3(5), 232-236.
76. Sharopova, M. (2024). CREATION OF A DATABASE FOR THE SYSTEM PLATFORM OF NON-GOVERNMENT EDUCATIONAL CENTERS. Current approaches and new research in modern sciences, 3(1), 185-191.
77. Sharopova, M. (2024). DSA ERI STANDARD. ELECTRONIC DIGITAL SIGNATURE OF GOST R 34.10-94. Theoretical aspects in the formation of pedagogical sciences, 3(1), 169-178.
78. Sharopova, M. (2024). COLLECTORS.(OBJECT CONTAINERS). Development of pedagogical technologies in modern sciences, 3(1), 93-101.





79. Sharopova, M. (2024). JAVA PROGRAMMING IN THE LANGUAGE FLOWING INPUT AND RELEASE. Solution of social problems in management and economy, 3(1), 84-93.
80. Akhmedova, Z. (2024). IPHONE OPERATIONAL IN THE SYSTEM MOBILE APPLICATIONS TO CREATE INTENDED PROGRAMMING ENVIRONMENTS. Current approaches and new research in modern sciences, 3(1), 111-121.
81. Axmedova, Z. I. (2024). LEARNING MANAGEMENT SYSTEM IMKONIYATLARI. GOLDEN BRAIN, 2(1), 509-516.
82. Axmedova, Z. I. (2023). MA'LUMOTLAR BAZASI BOSHQARISH TIZIMLARI. GOLDEN BRAIN, 1(34), 40-49.
83. Akhmedova, Z. (2023). CREATION AND PLACEMENT OF INTERACTIVE ELEMENTS. Solution of social problems in management and economy, 2(13), 120-128.
84. Ikromovna, A. Z. (2023). Programming Environments for Creating Mobile Applications on the Android Operating System. American Journal of Public Diplomacy and International Studies (2993-2157), 1(10), 305-309.
85. Akhmedova, Z. (2023). EDUCATIONAL MANAGEMENT SYSTEMS, ELECTRONIC EDUCATION: TASKS AND OPPORTUNITIES. Theoretical aspects in the formation of pedagogical sciences, 2(21), 171-177.
86. Ikromovna, A. Z. (2023). SQL (STRUCTURED QUERY LANGUAGE) CAPABILITIES OF THE STATISTICAL DATABASE LANGUAGE. Multidisciplinary Journal of Science and Technology, 3(5), 274-280.
87. Ikromovna, A. Z. (2023). SQL (STRUCTURED QUERY LANGUAGE) STATISTICAL PACKAGES OF CAPABILITIES. Best Journal of Innovation in Science, Research and Development, 2(12), 781-787.
88. Zulxumor, A. (2022). IMPLEMENTATION OF INTERACTIVE COURSES IN THE EDUCATIONAL PROCESS. ILMIY TADQIQOT VA INNOVATSIYA, 1(6), 128-132.
89. Axmedova, Z. (2023). MOODLE TIZIMI VA UNING IMKONIYATLARI. Development and innovations in science, 2(11), 29-35.
90. Ikromovna, A. Z. (2023). USING THE USEFUL ASPECTS OF THE MOODLE SYSTEM AND ITS POSSIBILITIES. American Journal of Public Diplomacy and International Studies (2993-2157), 1(9), 201-205.
91. Ikromovna, A. Z. (2023). USING THE USEFUL ASPECTS OF THE MOODLE SYSTEM AND ITS POSSIBILITIES. American Journal of Public Diplomacy and International Studies (2993-2157), 1(9), 201-205.



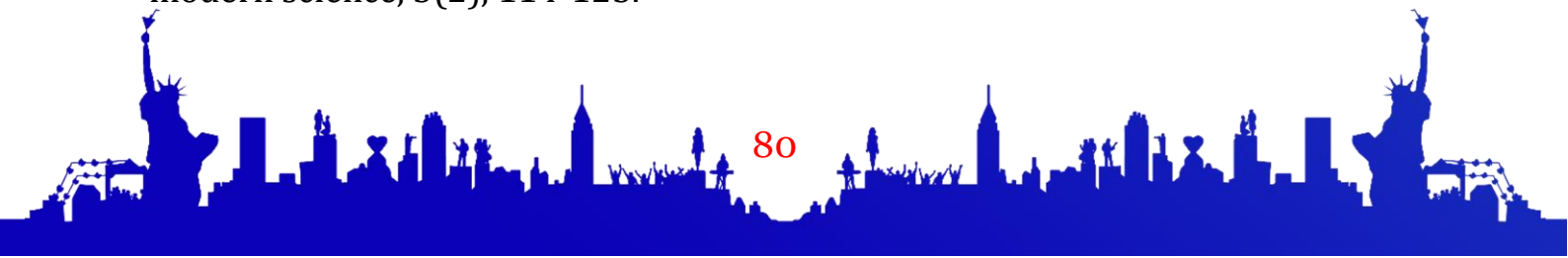


92. Axmedova, Z. I. (2023). LMS TIZIMIDA INTERAKTIV ELEMENTLARNI YARATISH TEXNOLOGIYASI. Educational Research in Universal Sciences, 2(11), 368-372.
93. Murodov, O. (2024). DEVELOPMENT OF AN AUTOMATED PARAMETER CONTROL SYSTEM ROOMS AND WORKSHOPS BASED ON CLOUD TECHNOLOGIES. Академические исследования в современной науке, 3(2), 16-27. Murodov, O. T. R. (2023). Zamonaviy ta'limda axborot texnologiyalari va ularni qo'llash usul va vositalari. Educational Research in Universal Sciences, 2(11), 481-486.
94. Муродов, О. Т. (2023). РАЗРАБОТКА АВТОМАТИЗИРОВАННОЙ СИСТЕМЫ УПРАВЛЕНИЯ ТЕМПЕРАТУРЫ И ВЛАЖНОСТИ В ПРОИЗВОДСТВЕННЫХ КОМНАТ. GOLDEN BRAIN, 1(26), 91-95.
95. Murodov, O. T. R. (2023). INFORMATIKA DARSLARINI TASHKIL ETISHDA INNOVATSION USULLARDAN FOYDALANISH. GOLDEN BRAIN, 1(32), 194-201.
96. Murodov, O. T. R. (2023). INFORMATIKA FANINI O'QITISHDA YANGI INNOVATSION USULLARDAN FOYDALANISH METODIKASI. GOLDEN BRAIN, 1(34), 130-139.
97. Turakulovich, M. O. (2023). DEVELOPMENT AND INSTALLATION OF AN AUTOMATIC TEMPERATURE CONTROL SYSTEM IN ROOMS. International Multidisciplinary Journal for Research & Development, 10(12).
98. MURODOV, O. T. (2023). INNOVATIVE INFORMATION TECHNOLOGIES AND NEW METHODS AND TOOLS FOR THEIR APPLICATION IN TODAY'S EDUCATION. International Multidisciplinary Journal for Research & Development, 10(12).
99. Muradov, O. (2024, January). APPLICATION OF BASIC PRINCIPLES AND RULES OF INNOVATIVE PEDAGOGICAL TECHNOLOGIES TO EDUCATIONAL PROCESSES. In Международная конференция академических наук (Vol. 3, No. 1, pp. 46-55).
100. Muradov, O. (2024). BASIC PRINCIPLES AND RULES OF INNOVATIVE PEDAGOGICAL TECHNOLOGIES IN THE EDUCATIONAL PROCESS. Models and methods in modern science, 3(1), 84-93.
101. Muradov, O. (2024). APPLIED TO THE CURRENT TRAINING PROCESS REQUIREMENTS. Инновационные исследования в науке, 3(1), 54-63.
102. Murodov, O. (2024). DEVELOPMENT OF AN AUTOMATED PARAMETER CONTROL SYSTEM ROOMS AND WORKSHOPS BASED ON CLOUD TECHNOLOGIES. Академические исследования в современной науке, 3(2), 16-27.





103. Behruz Ulug'bek o'g, Q. li.(2023). Mobil ilovalar yaratish va ularni bajarish jarayoni. International journal of scientific researchers, 2(2).
104. Karimov, F. (2022). ANIQ INTEGRALNI TAQRIBIY HISOBLASH. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu.uz), 14(14).
105. Quvvatov, B. (2024). GLOBAL IN VIRTUAL LEARNING MOBILE APP CREATION INFORMATION SYSTEMS AND TECHNOLOGIES. Science and innovation in the education system, 3(1), 95-104.
106. Quvvatov, B. (2024). SQL DATABASES AND BIG DATA ANALYTICS: NAVIGATING THE DATA MANAGEMENT LANDSCAPE. Development of pedagogical technologies in modern sciences, 3(1), 117-124.
107. Quvvatov, B. (2024). CONSTRUCTION OF SPECIAL MODELS THROUGH DIFFERENTIAL EQUATIONS AND PRACTICAL SOLUTIONS. Solution of social problems in management and economy, 3(1), 108-115.
108. Quvvatov, B. (2024). FINDING SOLUTIONS OF SPECIAL MODELS BY INTEGRATING INTEGRAL EQUATIONS AND MODELS. Current approaches and new research in modern sciences, 3(1), 122-130.
109. Quvvatov, B. (2024). WEB FRONT-END AND BACK-END TECHNOLOGIES IN PROGRAMMING. Theoretical aspects in the formation of pedagogical sciences, 3(1), 208-215.
110. Behruz Ulug'bek o'g, Q. (2023). USE OF ARTIFICIAL NERVOUS SYSTEMS IN MODELING. Multidisciplinary Journal of Science and Technology, 3(5), 269-273.
111. Behruz Ulugbek og, Q. (2023). TECHNOLOGY AND MEDICINE: A DYNAMIC PARTNERSHIP. International Multidisciplinary Journal for Research & Development, 10(11).
112. Quvvatov, B. (2024). DIFFERENTIAL TENGLAMALAR VA AMALIY ECHIMLAR ORQALI MAXSUS MODELLARNI QURISH. Menejment va iqtisodiyotda ijtimoiy muammolarni hal qilish , 3 (1), 108-115.
113. Behruz Ulug'bek o'g', Q. (2023). SUN'IY NERV TIZIMLARIDAN MODELLASHDA FOYDALANISH. Fan va texnologiyaning ko'p tarmoqli jurnali , 3 (5), 269-273.
114. Behruz Ulug'bek og', Q. (2023). TEXNOLOGIYA VA TIBBIYOT: DİNAMİK HАMKORLIK. Tadqiqot va ishlanmalar bo'yicha xalqaro multidisipliner jurnali , 10 (11).
115. Quvvatov, B. (2024). ALGEBRAIK ANIQLIGI YUQORI BOLGAN KVADRATUR FORMULALAR. GAUSS KVADRATUR FORMULALARI. Models and methods in modern science, 3(2), 114-125.





116. Quvvatov, B. (2024). ALGEBRAIK ANIQLIGI YUQORI BOLGAN KVADRATUR FORMULALAR. ORTOGONAL KOPHADLAR. Инновационные исследования в науке, 3(2), 47-59.

117. Quvvatov, B. (2024, February). ALGEBRAIK ANIQLIGI YUQORI BOLGAN KVADRATUR FORMULALAR. REKURSIV TRAPETSIYALAR QOIDASI. In Международная конференция академических наук (Vol. 3, No. 2, pp. 41-51).

