

REPORT OF “MATHEMATICAL ANALYSIS” DEPARTMENT ON SCIENTIFIC AND SCIENTIFIC ACTIVITY FOR 2018

The staff of “Mathematical Analysis” department consists of 11 research associates, including 2 doctor of sciences, professor, one corresponding member of ANAS.

1. Vagif Guliyev – head of department (doct. phys. math. sci. prof. Corr. member of ANAS).
2. Rovshan Bandaliyev- sen. res. ass. (doct. math. sci. prof. of ANAS).
3. Elman Ibrahimov – doct. phys. math. sci., ass. prof., lead. res. ass.
4. Hajibeyov Mubariz- cand. phys. math. sci., ass. prof., lead. res. ass.
5. Zaman Safarov - cand. phys. math. sci., ass. prof., lead. res. ass.
6. Elmira Hajiyeva – cand. phys. math. sci., res. ass.
7. Mehriban Omarova – ph. doctor in math., sen. res. ass.
8. Lala Aliyeva - ph. doctor in math., sen. res. ass.
9. Fatayi Isayev – cand. phys. math. sci., res. ass.
10. Aytekin Abdullayeva – ph. doctor in math., res. ass.
11. Aynur Mammadova – res. ass.

I. SCIENTIFIC PART

In 2018, according to the affirmed plan, six scientific works on the themes of “Modern problems of harmonic analysis” were carried out.

Work 1: Global regularity of non-divergent elliptic equations with discontinuous coefficient in local Orlicz-Morrey-type spaces.

Executor: Head of department, corr. member of ANAS, prof. V.S. Guliyev, ph. doctor in math., ass. prof., sen. res. ass. M.N. Omarova

Global regularity of non-divergent elliptic equations with discontinuous coefficient in local Orlicz-Morrey-type spaces was studied and criteria for boundedness of fractional maximum operator and its commutator in Orlicz-Morrey spaces were found. Thus, necessary and sufficient conditions for boundedness of fraction maximum operator’s commutator in Orlicz and generalized Orlicz-Morrey spaces were proved. Based on the results of researches , the following papers were published.

The list of published papers:

1. V.S. Guliyev, M.N. Omarova, M.A. Ragusa and A. Scapellato, *Commutators and generalized local Morrey spaces*. **Journal of Mathematical Analysis and Applications**, 457 (2) (2018), 1388-1402. (IF 1.138) **Q1**

2. V.S. Guliyev, A.A. Ahmadli, M.N. Omarova, L.G. Softova, *Global regularity in Orlicz-Morrey spaces of solutions to nondivergence elliptic equations with VMO coefficients*. **Electron. J. Differential Equations**, Vol. 2018 (2018), No. 110, pp. 1-24. (IF 0.944) **Q1**
3. V.S. Guliyev, F. Deringoz, *Some characterizations of Lipschitz spaces via commutators on generalized Orlicz-Morrey spaces*. **Mediterranean Journal of Mathematics** (2018) 15:180, 1-19. (IF 1.000) **Q1**
4. V.S. Guliyev, R.V. Guliyev, M.N. Omarova, *Riesz transforms associated with Schrödinger operator on vanishing generalized Morrey spaces*. **Applied and Computational Mathematics**, 17 (1) (2018), 56-71. (IF 2.365) **Q1**
5. V.S. Guliyev, A. Akbulut, F.M. Namazov, *Morrey type estimates for commutator of fractional integral associated with Schrodinger operators on the Heisenberg group*, **Advances in Difference Equations**, 2018, 2018:260, 1-20. (IF 1.066) **Q1**
6. V.S. Guliyev, A. Akbulut, *Commutator of fractional integral with Lipschitz functions associated with Schrödinger operator on local generalized Morrey spaces*. **Boundary Value Problems**, (2018) 2018:121. (IF 1.156) **Q2**
7. F. Deringoz, V.S. Guliyev, S.G. Hasanov, *Commutators of fractional maximal operator on generalized Orlicz-Morrey spaces*. **Positivity**, 22 (1) (2018), 141-158. (IF 0.920) **Q2**
8. V.S. Guliyev, J.J. Hasanov, X.A. Badalov, *Maximal and singular integral operators and their commutators on generalized weighted Morrey spaces with variable exponent*. **Mathematical Inequalities and Applications**, 21 (1) (2018), 41-61. (IF 0.649) **Q2**
9. R.A. Bandaliyev, V.S. Guliyev, S.G. Hasanov, *Two-weighted inequalities for Riesz potential in p -convex weighted modular Banach function space*, **Ukrainian Mathematical Journal**, 69 (11) (2018), 1673-1688. (IF 0.343) **Q4**
10. F. Deringoz, V.S. Guliyev, S.G. Hasanov, *Maximal operator and its commutators on generalized weighted Orlicz-Morrey spaces*. **Tokyo Journal of Mathematics**, 40 (2) (2018), 1-23. (IF 0.242) **Q4**
11. V.S. Guliyev, F. Deringoz, S.G. Hasanov, *Commutators of fractional maximal operator on Orlicz spaces*. **Mathematical Notes**, 104 (4) (2018), 498-507. (IF 0.557) **Q3**
12. V.S. Guliyev, E. Ibrahimov, *Necessary and sufficient conditions for the boundedness of the Gegenbauer-Riesz potential on Morrey spaces*. **Georgian Mathematical Journal**, 25 (2018), no. 2, 235-248. (IF 0.482) **Q4**
13. A. Akbulut, R.V. Guliyev, S.Celik, M.N. Omarova, *Fractional integral associated with Schrodinger operator on vanishing generalized Morrey spaces*, **Journal of Mathematical Inequalities**, 12 (3) (2018), 789-805.

14. V.S. Guliyev, A. Kucukaslan, C. Aykol, A. Serbetci, *Riesz potential in the local Morrey-Lorentz spaces and some applications*, **Georgian Mathematical Journal**, 25 (2018), no. 4, 1-11. (IF 0.482) **Q4**
15. A. Eroglu, C.V. Azizov, V.S. Guliyev, *Fractional maximal operator and its commutators in generalized Morrey spaces on Heisenberg group*, **Proceedings of the Institute of Mathematics and Mechanics, National Academy of Sciences of Azerbaijan**, 44 (2) (2018), 1-14. (SCOPUS)

Talks given at Conferences:

1. V.S. Guliyev, *Characterization of Lipschitz functions via the commutators of singular and fractional integral operators in Orlicz spaces*, "**Modern methods, problems and applications of operator theory and harmonic analysis**" VIII, Rostov-on-Don, 22 - 27 April, 2018, pp. 19. (**plenary məruzə**)
2. V.S. Guliyev, *Generalized Morrey regularity for parabolic equations with discontinuous data*, "**Operators, Functions, and Systems of Mathematical Physics Conference**", held on May 21-24, 2018 at Khazar University, Baku, Azerbaijan (**plenary məruzə**)
3. V.S. Guliyev, *Function spaces and integral operators associated with Schrödinger operators*, International Conference on "**Mathematical Analysis, Differential Equation & Applications MADEA 8**" June 17-23, 2018 in Cholpon-Ata (Issyk-Kul), Kyrgyz Republic, pp. 62. (**plenary məruzə**)
4. V.S. Guliyev, F. Deringoz, *Maximal operator and its commutators in generalized Orlicz-Morrey spaces on spaces of homogeneous type*, International Conference on "**Mathematical Analysis, Differential Equation & Applications MADEA 8**" June 17-23, 2018 in Cholpon-Ata (Issyk-Kul), Kyrgyz Republic, pp. 63.
5. V.S. Guliyev, *Characterization of Lipschitz functions via the commutators of fractional integral operator on Carnot groups in Orlicz spaces*, The 5th International Conference "**Function Spaces. Differential Operators. Problems of Mathematical Education**", November 26 - 29, 2018 in RUDN University, Russia, pp. 1.
6. M.N. Omarova, *Marcinkiewicz integral associated with Schrodinger operator on vanishing generalized Morrey spaces*, International Conference on "**Mathematical Analysis, Differential Equation & Applications MADEA 8**" June 17-23, 2018 in Cholpon-Ata (Issyk-Kul), Kyrgyz Republic, pp. 95.
7. M.N. Omarova, X. Davud, *Commutator of Riesz transforms associated with Schrödinger operator on vanishing generalized Morrey spaces*, **Modern Problems of Innovative Technologies in Oil and Gas Production and Applied mathematics** 13-14 december, 2018, Baku Azərbaycan.

Work 2: Some integral operators of harmonic analysis in functional Banach spaces.

Executor: doct. of math. sc., ass. prof., lead. r. a. R.A. Bandaliyev, cand. phys. math. sci., ass. prof., lead. res. ass. Z.V. Safarov.

According to the working plan for 2018 , one of the integral operators of harmonic analysis, the Riesz potential was researched in Banach functional spaces. Thus, some sufficient conditions on the space and weight functions for bounded impact of the Riesz potential from every one weighted Banach functional space to another weighted Banach functional space were found. As a special case, from obtained results were found sufficient conditions on weight function for bounded impact of the Riesz potential from one weighted Musielak-Orlicz space to another weighted Musielak-Orlicz space.

Based on the results of researches , the following papers were published.

The list of published papers:

- 1) R. A. Bandaliyev, S. G. Hasanov. On denseness of $C_0^\infty(\Omega)$ and compactness in $L_{p(x)}(\Omega)$ for $0 < p(x) < 1$, **Moscow Mathematical Journal**, 18:1 (2018), 1–13 (TR-WoS) (IF-0.704) (Q3)
- 2) R. Bandaliyev, P. Górká. Relatively compact sets in variable-exponent Lebesgue spaces. **Banach Journal of Mathematical Analysis**, 12 (2018), no. 2, 331-346 (TR-WoS) (IF-0.625)(Q3).
- 3) R.A. Bandaliyev, V.S. Guliyev, I.G. Mamedov, Y.I. Rustamov, Optimal Control Problem for Bianchi Equation in Variable Exponent Sobolev Spaces, **Journal of Optimization Theory and Applications (JOTA)**, 179 (2) 2018, 1-18. (IF 1.234) **Q2**
- 4) R.A. Bandaliyev, V.S. Guliyev, S. G. Hasanov. Two-weighted inequalities for the Riesz potential in p -convex weighted modular Banach function spaces. **Ukrainian Mathematical Journal**, 69:11 (2018), 1673-1688 (TR-WoS) (IF-0.343) (Q4).
- 5) R.A. Bandaliyev, A. Serbetci, S.G. Hasanov. On Hardy inequality in variable Lebesgue spaces with mixed norm. **Indian Journal of Pure and Applied Mathematics**, 49:4 (2018), 602-619 (TR-WoS) (IF-0.252) (Q4).
- 6) G.A. Abasova, F.M. Namazov, **Z.V. Safarov**, *Characterization of parabolic fractional integral and its commutators in Orlicz spaces*, Caspian Journal of Applied Mathematics, Ecology and Economics, 6(2) 2018, 1-12.

Talks given at Conferences:

1. R. Bandaliyev, P. Górká. *Hausdorff operator in variable Lebesgue spaces*. **Abs. VIII Inter. Conf. "Modern Meth., Prob. Appl. Oper. Theory & Harm. Anal."** 22-27 April, 2018, Rostov-on-Don, Russia, p.107.

2. K.K. Omarova, R.A. Bandaliyev and U. J. Idrisova. *On a semi-Markovian random walk processes with delaying screen described by means of a fractional order differential equation. Abs. Inter. Conf. On Math. "An Istanbul Meeting for World Mathematicians"*, 3-6 July 2018, Istanbul, Turkey, p.181-182.
3. V.S. Guliyev, R.A. Bandaliyev. *On embedding theorem between variable Morrey spaces. Abs. IX Inter. Conf. Georgian Math. Union Dedic. 100-th Anniver. I. Javakhishvili Tbilisi State Univ.*, September 3-8, 2018, Batumi-Tbilisi, Georgia, p.69-70.

Work 3: Two-weighted inequalities for fractional order integrals in hypergroups.

Executor: cand. phys. math. sci., ass. prof., lead. res. ass. M.G. Hajibeyov

According to the plan for 2018, two-weighted inequalities were obtained for fractional order integrals in commutative hypergroups equipped with quasi-metrics and Alfors N -regular Haar measure from above.

The obtained results were reflected in the following articles.

The list of published papers:

1. **M.G. Hajibayov**, E.A. Gadjieva, *Two weighted inequalities for fractional integrals on commutative hypergroups*, Trans. Natl. Acad. Sci. Azerb. Ser. Phys.-Tech. Math. Sci. 38 (2018), no. 1, Mathematics, 69–78. (SCOPUS)

Work 4: Mean convergence of Fourier-Jacobian series.

Executor: doct. phys. math. sci., lead. r. a. E.J. Ibrahimov, cand. phys. math. sci., res. ass. Elmira Hajiyeva.

The works on mean convergence of Fourier-Jacobian series were continued. The obtained results were reflected in the following articles.

The list of published papers:

1. V.S. Guliyev, E. Ibrahimov, *Necessary and sufficient conditions for the boundedness of the Gegenbauer-Riesz potential on Morrey spaces*, **Georgian Mathematical Journal**, 25 (2018), no. 2, 235-248. (IF 0.482) Q4
2. A. Balakishiyev, E.A. Gadjieva, F. Gurbuz, A. Serbetci, *Sublinear operators with rough kernel generated by fractional integrals and their commutators on generalized local Morrey spaces*. **Complex variables and elliptic equations**, 63 (11) 2018, 1620-1641. (IF 0.832) Q2

Talks given at Conferences:

1. E. Ibrahimov, The Hardy-Littlewood-Sobolev theorem for Riesz potential generated by gegenbauer operator, International Conference on "Mathematical Analysis, Differential Equation and Applications MADEA 8" June 17-23, 2018 in Cholpon-Ata (Issyk-Kul), Kyrgyz Republic, pp. 64.

Work 5: Boundedness of B-maximal operator and B-singular operator in Orlicz spaces.

Executor: cand. phys. math. sci., res. ass. Fatayi Isayev, ph. doctor in math., sen. res. ass. Lala Aliyeva

Boundedness problems of both B-maximum and B-singular operators in Orlicz spaces and B-hyperbolic potential in Lebesgue space was researched.

L.Aliyeva indicated that being from Lipschitz and BMO space, the commutativity is necessary and sufficient condition for boundedness of the commutator of the Riesz potential committed by Laplace-Bessel differential operator in Lebesgue space.

Moreover, local properties and boundedness of singular integral operator in generalized oscillation spaces and some embedding theorem in Besov, Campanato spaces were proved. The Green function for Bessel-Helmholtz equation was found.

Based on the results of researches, the following papers were published.

The list of published papers:

1. A. Eroglu, F.A. Isayev, F.M. Namazov, *Fractional integral associated to Schrödinger operator on the Heisenberg groups in vanishing generalized Morrey spaces*, Trans. Natl. Acad. Sci. Azerb. Ser. Phys.-Tech. Math. Sci. 38 (2018), no. 4, Mathematics, 54-62. (SCOPUS)
2. R.M. Rzaev, Z.Sh. Gakhramanova, L.R.Əliyeva, *On Generalized Besov and Campanato Spaces*, Ukrainian Mathematical Journal, 69 (8) (2018), 1275–1286. (IF-0,343)
3. L.R.Əliyeva, M.Ə.Şahverdiyev, A.H.Həsənova, S.Ə.Həsənova, Riyazi analiz, Dərs vəsaiti, nəşriyyatı "AzTU-nun mətbəəsi", III hissə, Bakı-2018, 144 p.
4. L.R.Aliyeva, J.J. Hasanov, X.A. Badalov "Oscillatory Integral Operators and Their Commutatorson Vanishing Generalized Morrey Spaces with Variable Exponent", Caspian Journal of Applied Mathematics, Ecology and Economics, V. 6, No 1, 2018, July, pp. 53-72.

Work 6: Korovkin-type theorems in variable degree Lebesgue spaces.

Executor: ph. doctor in math., res. ass. Aytekin Abdullayeva, res. ass. Aynur Mammadova

Korovkin-type theorems are studied in variable degree Lebesgue spaces.

Some works on the theme of Korovkin-type theorems in variable degree Lebesgue spaces were done and the obtained results were published in the form of a paper. In general, A.N.Mammadova and A.E.Abdullayeva studied the analogue of the classic Popovic theorem obtained for Sacz operator and Bernstein-Khlovdovsky polynomial and Varenovkaya type asymptotic theorems in the space L_p , ($1 < p < \infty$).

1. A.E. Abdullayeva, D.Soylezmez, *Approximation of functions by linear positive operators in variable Lebesgue spaces*, Trans. Natl. Acad. Sci. Azerb. Ser. Phys.-Tech. Math. Sci. 38 (4) (2018), Mathematics, 3–7.
2. A.N. Mammadova, A.E. Abdullayeva, *On an approximation theorem of the Kantorovich-Szasz operator in Lebesgue spaces*. Modern Problems of Innovative Technologies in Oil and Gas Production and Applied mathematics 13-14 december, 2018, Baku Azərbaycan.

II SCIENTIFIC ORGANIZATIONAL ACTIVITY

- The main priority of the department is modern problems of harmonic analysis.
- In the department the research works are carried out on 6 themes.
- The department staff consists of 8 collaborators. One of them is a professor (corr. member of ANAS), one doctor of sciences (professor of ANAS), 4 associate professor, 1 senior res. ass., 4 res. ass., 2 engineer programmer, 2 senior laboratory assistants, 3 laboratory assistants.

- Prof. V.S. Guliyev, doc. R.A. Bandaliyev, doc. E.C. İbrahimov, ph.d. F.A. İsayev, ph.d. M.N. Omarova, ph.d. L. Aliyeva, A.E. Abdullayeva, A.N. Mammadova regularly take part in the institute seminars.

- The seminar "Actual problems of harmonic analysis" led by prof.V.S.Guliyev is held every Friday of the week.Prof.V.S. Guliyev, prof. of ANAS R.A.Bandaliyev, ass prof. M.N.Omarova, A.E.Abdullayeva, A.N.Mammadova have given presentations in these seminars.Furthermore, additional scientific seminar held once a week also continues its activity.

- In 2018, necessary and sufficient conditions for boundedness of integral spaces of newly considered functional spaces, new results connected with their application to theory of differential equations and other problems were obtained.These results were published in 17 journals from "Thomson Reuters" list and 15 papers were accepted for publication in journals from "Thomson Reuters" list.

- In 2018, member of the the citations in MathSciNet mathematical Review is 250 , in Google Scholar is 350. In general, citations in MathSciNet mathematical reviews is 900, in Google Scholar is 2400. Prof.V.S.Guliyev's papers were used scientific studies of various scientists.

(A.Torchinsky, H.Triebel, E.Nakai, S.Samko, V.Kokilashvili, Kwok-Pun Ho, M.A.Ragusa, Y.Sawano, W.Sickel, T.Shimomura, T.Ohno, D.Palagachev, S.Byun and etc.)

- In 2018, two issues of "Transaction of ANAS" (phys.tech.math.ser) (38(1), 2018, june) and (38(4), 2018, december) were published. In 2018, "AMEA-nın xəbərləri" was adopted to SCOPUS base. He is a member of the editorial board of "Azerbaijan journal of Mathematics", "Proceedings of Institute of Mathematics and Mechanics of NAS of Azerbaijan", "Applied and Computational Mathematics" and foreign journals "Eurasian Mathematical Journals", "Communications de la Faculté des Sciences de l'Université d'Ankara.Séries A1.Mathematics and Statistics", "Journal of Nonlinear Sciences and Applications (J.Nonlinear Sci.Appl.)", "International Journal of Mathematical Physics" and continues his activity as one of the editor-in-chiefs on "Caspian journal of Applied Mathematics, Ecology and Economics". He was a reviewer of the papers from "Journal of Mathematical Analysis and Application, Mathematische Nachrichten, Journal of Fourier Analysis and Application, Journal of Mathematical Inequalities, Integral transform and Special Functions, Journal of Function Spaces, Communications in Mathematical Analysis, Complex Variables and Elliptic Equations, Journal of Inequalities and Applications, Collectanea Mathematica" and other impact factor journals.

V.S.Guliyev has given lectures as an invited lecturer in international conferences of a number of countries.

Prof. V.S. Guliyev has participated in the international Conference "Modern Methods, Problems and Applications of Operator Theory and Harmonic Analysis VIII" held on 23-28 April, 2018 in Southern Federal University in Rostov Na-Donu city of Russia with his report "Characterization of Lipschitz functions via the commutators of singular and fractional integral operators in Orlicz spaces".

On May 21-24, 2018 he has participated with a plenary lecture "Generalized Morrey regularity for parabolic equations with discontinuous data" at the International Conference "Operators, Functions, and Systems of Mathematical Physics" held at Gafgaz University.

On 17-23 June, 2018, in the international conference "Mathematical Analysis, Differential equation and Application – MADEA 8" V.S.Guliyev has participated as a plenary lecturer with his talk "Function spaces and integral operators associated with Schrödinger operators".

On 26-28 November, 2018, in the international conference "Function spaces. Differential operators. Problems of mathematical education" devoted to 95 years of the corr.member of RAS, prof.L.D.Kudryavtsev he will participate with the plenary lecture "Characterization of Lipschitz function via the commutators of fractional integral operator on Carnot groups in Orlicz spaces".

The project "Function spaces and applications to partial differential equations" submitted to "The first Azerbaijan-Russian joint international grant competition" was the winner of 2018 competition.

In 2018 he was a reviewer of the Science Development Foundation under the President of the Republic of Azerbaijan.

In 2018 he has continued his activity as a member of the The High Attestation Commission under the President of the Republic of Azerbaijan.

Prof. Vagif Sabir oglu Guliyev became the winner in the nomination of The Most Productive Author in Natural Sciences in Azerbaijan by the Clarivate Analytics Agency (Web of Science Awards 2018).

Doctor of sciences dissertations of two students of prof.V.Guliyev were affirmed by the The High Attestation Commission and they have received DSc in mathematics. In general, prof.V.Guliyev was a supervisor of 4 doctor of sciences and trained 20 candidate of sciences and doctor of philosophy in mathematics.

In 2018 he has worked as a professor in "Mathematical Analysis" chair of BSU and give lectures on "Introduction to harmonic analysis, Selected problems of mathematical analysis and so on" to bachelor's and master degree's students.

He has repeatedly given lectures on different problems of harmonic analysis in the seminar "Actual problems of harmonic analysis".

Prof V.S.Guliyev now works as a deputy director of IMM on scientific affairs and a head of "Mathematical Analysis" department by substitution.

With Vagif Guliyev's editor-in-chief, 2 numbers of **vol. 38, no 1, 2018** and **vol 38, no 4, 2018** "Transactions of Azerbaijan National Academy of Science, Issue Mathematics, Series of physical-technical and mathematics science" were published.

The number of citations to Vagif Guliyev's papers in MathSciNet reviews is 838(620); in Google Scholar is 2408(2146).

The number of citations to Rovshan Bandaliyev's works in MathSciNet reviews is 32(22); in Google Scholar is 173(130).

Prof.V.Guliyev has written reviews to the papers from the foreign journals.

1. Journal of Mathematical Analysis and Application (IF - 1,014)
2. Journal of Fourier Analysis and Applications,
3. Mathematische Nachrichten (IF - 0,910),
4. Journal of Mathematical Inequalities (IF - 0,632),
5. Mathematical Inequalities and Applications (IF - 0,664),
6. Integral transform and Special Functions (IF - 0,814),

7. *Annales Academiae Scientiarum Fennicae Mathematica* (IF - 0,676),
8. *Journal of Function Spaces* (IF - 0,656),
9. *Complex Variables and Elliptic Equations* (IF - 0,650),
10. *Journal of Inequalities and Applications* (IF - 0,912),
11. *Collectanea Mathematica* (IF - 0,593),
12. *Journal of Fourier Analysis and Application* (IF - 0,912),
13. *Ukrain Mathematical Journals* (IF - 0,189),
14. *FİLOMAT* (IF - 0,638),
15. *Turkish Journal of Mathematics* (IF - 0,311),
16. *Bollettino dell'Unione Matematica Italiana*,
17. *Transactions of A.Razmadzade Mathematical Institute*

Dos.math.sci Rovshan Bandaliyev has written reviews to the papers from the foreign journals.

1. *Journal of Computational and Applied Mathematics*,
2. *Trans.Natl.Acad.Sci.Azerb.Ser.Phys.-Tech.Math.Sci*,
3. *Afrika Matematika*,
4. *Journal of Mathematics Research*,
5. *Turkish Journal of Mathematics* (IF - 0,311).

In the reporting period, Sen.res.ass, doct.math.sci prof. of AMEA R.A.Bandaliyev has given talks in the seminars of "Mathematical Analysis". On 12-28 April 2018 he has participated with the topic "Hausdorff operator in variable Lebesgue spaces" in the international "Modern methods, Problems and Applications of Operator theory and Harmonic Analysis" Conference which was held in Rostov city. During this Conference had discussion with prof.S.G.Samko, prof.M.L.Qoldman, prof.V.D.Stepanov (Russia), prof.E.Liflyand (Israel) and V.İ.Burenkov (Russia), Y.Savano (Japan), H.Rafeiro (Columbia) and others. Some discussion were carried out obtainity analogue of the classic Riesz-Kolmogorov compactness theorem in variable exponent Morrey space. In the another conference was held on 03-06 July 2018 "An İstanbul Meeting for World Mathematicians" he has given a talk on "On a semi-Markovian random walk processes with delaying screen described by means of a fractional order differential equation". During this conference he has some discussion with prof. F.Altomare, prof.A.Aral, doc.S.Millela, doc.Esen and etc.

The report made on the conference was accepted as article for publication in the authoritative journal of Germany "Mathematical Methods Applied Sciences".

In additional, he has given a talk "On embedding theorems between variable Morrey spaces" at "IX International Conference of the Georgian Mathematical Union" which was held on september 03-08, 2018 in Batumi and dedicated to 100th anniversary of Tbilisi State University

which named İ.Javakhishvili. During this conference he has scientific discussion with prof. R.Duduchava(Georgia), prof.V.Kokilashvili(Georgia), prof. A.Shkalikov(Russia), prof.A.Soldatov(Russia), prof.M.Belishev(Russia), prof.A.Chelebi(Turkey), prof.R. Webb(Germany) and others. During reporting period he was elected the chairman of the Council of professors of ANAS. One candidate for a degree has defended Phd dissertation on mathematics under his supervision.

Now he is working on dissertation with his two masters of ANAS.

During the reporting period, department's scientific researchers, A.N.Mammadova, A.Abdullayeva give reports on "Mathematical Analysis" department seminars. The article " A Moments of Generalized Two Variable Szasz Operators" by A.N.Mammadova was published in American authoritative "Journal of Scientific Research and Reports ". The article "On Varanovskaya Type Theorem for Generalized Bernstein-Chlodowsky Polynomials" by A.E.Abdullayeva was published in " Asian Research Journal of Mathematics" .

A.N.Mammadova and A.E.Abdullayeva's thesis "On an approximation theorem of the Kantorovich-Szasz operator in Lebesgue spaces" was presented to the Conference" Modern Problems of Innovative Technologies in Oil and Gas Production and Applied mathematic " which will be held on December 13-14, 2018 .

Lead.res.ass Elman İbrahimov has been awarded doctor of sciences diploma of High Attestation Commission by the President of the Republic of Azerbaijan.

Lead.res.ass Mubariz Hajiyev has been awarded doctor of sciences diploma of High Attestation Commission by the President of the Republic of Azerbaijan.

The sen.res.ass Mehriban Omarova has been awarded the diploma of ass.prof. of High Attestation Commission by the President of the Republic of Azerbaijan.

In 2018, A.N.Mammadova defended his doctor of philosophy dissertation on mathematics .

L.Aliyeva is a executor of the project " fuzzy logic based methods for analyzing of university indicators and processing of information analytic-system".

In 2018, 38 scientific works including 27 papers (21 of them on Thomson Reuters journals' list) were published, 15 paper were accepted for publication, 10 of them are impact factor journals.

Head of the department
"Mathematical Analysis"

Corr. member of NASA,
prof.V.S. GULIYEV

№	The name of the job	Type of work	Publishing, journal and so.	Volume of work	Co-authors
1	2	3	4	5	6
Prof. V.S. Guliyev					
1.	Commutators and generalized local Morrey spaces	Article	J. Math. Anal. Appl. 457 (2) (2018), 1388–1402. (IF - 1.138)	15 p.	M.N. Omarova, M.A. Ragusa, A. Scapellato,
2.	Maximal and singular integral operators and their commutators on generalized weighted Morrey spaces with variable exponent	Article	Math. Inequal. Appl. 21 (1) (2018), 41–61. (IF - 0.649)	21 p.	J.J. Hasanov, X.A. Badalov
3.	Global regularity in Orlicz-Morrey spaces of solutions to nondivergence elliptic equations with VMO coefficients	Article	Electron. J. Differential Equations, Vol. 2018 (2018), No. 110, pp. 1-24. (IF- 0.944)	24 p.	A.A. Ahmadli M.N. Omarova L.G. Softova
4.	Some characterizations of Lipschitz spaces via commutators on generalized Orlicz-Morrey spaces	Article	Mediterranean Journal of Mathematics (2018) 15:180, 1-19. (IF-1.000)	19 p.	F. Deringoz
5.	Riesz transforms associated with Schrödinger operator on vanishing generalized Morrey spaces	Article	Applied and Computational Mathematics, 17 (1) (2018), 56-71. (IF-2.365)	16 p.	R.V. Guliyev, M.N. Omarova
6.	Morrey type estimates for commutator of fractional integral associated with Schrödinger operators on the Heisenberg group	Article	Advances in Difference Equations, 2018, 2018:260, 1-20. (IF-1.066)	20 p.	A. Akbulut, F.M. Namazov
7.	Commutator of fractional integral with Lipschitz functions associated with Schrödinger operator on local generalized Morrey spaces	Article	Boundary Value Problems, (2018) 2018:121. (IF-1.156)	19 p.	A. Akbulut
8.	Commutators of fractional maximal operator on generalized Orlicz-Morrey	Article	Positivity, 22 (1) (2018), 141-158. (IF-0.920)	18 p.	F. Deringoz, S.G. Hasanov

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