SEMI-ANNUAL REPORT OF "MATHEMATICAL ANALYSIS" DEPARTMENT OF IMM ANAS FOR THE YEAR OF 2017

SCIENTIFIC PART.

Subject: Modern problems of harmonic analysis.

The following works were considered:

Work 1: Investigating sublinear operators in generalized weighted Orlic-Morrey spaces.

Executor: Head of department, corr. member of ANAS, prof. V.S. Guliyev

The work on studying sublinear operators in generalized weighted Orlicz-Morrey spaces are being continued. On the report period, necessary and sufficient conditions of boundedness of the Hardy-Littlewood maximum operator and its commutator in generalized weighted Orlic-Morrey spaces were found.

The obtained results were accepted to print in Tokyo Journal of Mathematics, vol. 40, 2017, (impact factor 0,219) in the from of the paper "Maximal operator and its commutators on generalized weighted Orlicz-Morrey spaces".

The list of published papers:

1. V.S. Guliyev, T.S. Gadjiev, Sh. Galandarova, *Dirichlet boundary value problems for uniformly elliptic equations in modified local generalized Sobolev-Morrey spaces*. Electronic Journal of Qualitative Theory of Differential Equations, 2017, No. 67, 1-18. (impact factor 0.926) **Q1**
2. F. Deringoz, V.S. Guliyev, S.G. Hasanov, *A characterization for Adams type boundedness of the fractional maximal operator on generalized Orlicz Morrey spaces*, Integral Transforms and Special Functions, 28 (4) (2017), 284-299. (impact factor 0.873) **Q2**
3. A. Akbulut, V.S. Guliyev, M.N. Omarova, *Marcinkiewicz integrals associated with Schrödinger operators and their commutators on vanishing generalized Morrey spaces*. Boundary Value Problems, (2017) 2017:121. (impact factor 0.819) **Q2**
4. F. Deringoz, V.S. Guliyev, S.G. Hasanov, *Riesz potential and its commutators on Orlicz spaces*. Journal of Inequalities and Applications, (2017) 2017:75, 18 pp. (impact factor 0.791) **Q2**
5. V.S. Guliyev, S.G. Hasanov, Y. Sawano, Decompositions of local Morrey type spaces. Positivity, 21 (3) 2017, 1223-1252. (impact factor 0.661) **Q2**
6. A. Akbulut, V.S. Guliyev, Y. Sawano, T. Noi, *Generalized Morrey spaces–revisited*. Zeitschrift für Analysis und ihre Anwendungen, 36 (1) (2017), 17-35. (impact factor 0.643) **Q3**
7. A. Akbulut, V.S. Guliyev, Y. Sawano, T. Noi, *Generalized Hardy –Morrey spaces*. Zeitschrift für Analysis und ihre Anwendungen, 36 (2) 2017, 129-149. (impact factor 0.643) **Q3**
8. V.S. Guliyev, K. Koca, R.Ch. Mustafayev, T. Unver, *Norm estimates of operators arising from Schwarz BVP in local Morrey-type spaces*. Complex variables and elliptic equations, 62 (10) (2017), 1541-1557. (impact factor 0.616) **Q3**
9. F. Deringoz, V.S. Guliyev, S. Samko, *Vanishing generalized Orlicz-Morrey spaces and fractional maximal operator*. Publicationes Mathematicae Debrecen, 90 (1-2) (2017), 125-147. (impact factor 0.431) **Q4**
10. A. Eroglu, V.S. Guliyev, C.V. Azizov, Characterizations for the fractional integral operators in generalized Morrey spaces on Carnot groups, Mathematical Notes, 102 (5) (2017), 127-139. (impact factor 0.425)

11. A. Eroglu, V.S. Guliyev, M.N. Omarova, *Characterizations for the nonsingular integral operator and its commutators on generalized Orlicz-Morrey spaces*, Azerbaijan Journal of Mathematics, 7(2), 2017, 67-89. (impact factor 0.290) Scopus
12. F. Deringoz, V.S. Guliyev, S.G. Hasanov, *Maximal operator and its commutators on generalized weighted Orlicz-Morrey spaces*. Tokyo Journal of Mathematics, 40 (2017), 1-23. (impact factor 0.219) **Q4**
13. V.S. Guliyev, K. Koca, R.Ch. Mustafayev, T. Unver, *Norm estimates of a class of operators arising from Schwarz BVP in complementary local Morrey-type spaces on the unit disc*. Journal of Mathematical Analysis, 8 (1) (2017), 130-142. Scopus
14. V.S. Guliyev, E.J. Ibrahimov, S.Ar. Jafarova, *Gegenbauer harmonic analysis and approximation of functions on the half line*. Advances in Analysis, 2(3), 2017, 167-195.
15. 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 (impact factor 0.822) **Q3**

Talks given at Conferences:

1. V.S. Guliyev, *Characterizations for the fractional maximal operator, riesz potential and their commutators on orlicz spaces*, Modern Methods, Problems and Applications of Operator Theory and Harmonic Analysis VII, 23-28 april, Rostov-Don, 2017, p.21 **(plenar)**
2. V.S. Guliyev, *Characterizations for the Riesz potential and its commutators on Orlicz and generalized Orlicz-Morrey spaces,* International conference "Operators in Morrey-type Spaces and Applications" during 10-13 July 2017 in Ahi Evran University, Kirsehir, TURKEY, p. 24. **(plenar)**
3. V.S. Guliyev, A. Eroglu, M.N. Omarova, *Characterizations for the nonsingular integral operator and its commutators on generalized Orlicz-Morrey spaces*, International conference "Operators in Morrey-type Spaces and Applications" during 10-13 July 2017 in Ahi Evran University, Kirsehir, TURKEY, p. 125.
4. V.S. Guliyev, S. Keles, Boundedness of B-square functions, International conference "Operators in Morrey-type Spaces and Applications" during 10-13 July 2017 in Ahi Evran University, Kirsehir, TURKEY, p. 174.
5. V.S. Guliyev, *Characterizations for the classical operators of harmonic analysis on generalized Orlicz-Morrey spaces,* VI Congress of the Turkic World Mathematical Society-TWMS-2017, 2-5 oktober, Astana, Kazakhstan, 2017, p. 187. **(plenar)**
6. V.S. Guliyev, *Some aspects of B-harmonic analysis*, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan. **(plenar)**
7. R.A. Bandaliyeva, V. S. Guliyev, *On embedding theorems between variable Morrey spaces*, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 55.
8. V.S. Guliyev, M.N. Omarova, *Commutators of fractional integral associated with Schrodinger operator on generalized Morrey spaces,* International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 87.

Work 2: Many-dimensional Hardy operators in variable exponent and mixed normal weighted Lebesgue spaces and some applications.

Executor: doct. of math. sc. ass. prof., lead. r. a. R.A. Bandaliyev, r.a. A.E. Abdullayeva.

Note that the works were carried out according to the plan. necessary and sufficient condition for the boundedness of two-dimensional Hardy operator in variable exponent and mixed norm weighted Lebesgue spaces were found and it was shown that in special case this condition is a criterion.

More exactly, a sufficient condition on the weighted Lebesgue spaces was obtained in the general case, and a criterion in the special case.

One paper on the theme was published , 3 paper were accepted for publication in "Banach Journal of Mathematical Analysis", and one paper was sent to "İndian Journal of Pure and Applied Mathematics".

A.E. Abdullayeva's paper "On approximation theorems for Bernstein-Chlodovsky polynomials" was published in the journal "Transactions of Azerbaijan National Academy of Science, Series of physical-technical and mathematics science" Issue Mathematics .

<div align="center">The list of published papers:</div>

1. R. A. Bandaliyev, *Connection of two nonlinear differential equations with a two-dimensional Hardy operator in weighted Lebesgue spaces with mixed norms*, **Electronic Journal of Differential Equations**, 2016, v.2016, № 316, 1-10 (SCIE, Thomson Reuters, IF-0.954)

2. R. A. Bandaliyev, *Compactness criteria in weighted variable Lebesgue spaces,* **Miskolc Math. Notes,** 18 (2017), no. 1, 95–101 (SCIE, Thomson Reuters, IF- 0.388)

3. R. A. Bandaliyev, A. M. Mammadova, *On approximation theorems for two-dimensional Szasz operator,* **Trans. Natl. Acad. Sci. Azerb.**, **Issue Math.,** 37(1) (2017), 53-61.

4. A. E. Abdullayeva, D. Söylemez, *On approximation theorems for Bernstein-Chlodowsky polynomials,* **Trans. Natl. Acad. Sci. Azerb.**, **Issue Math.,** 37(1) (2017), 3-10.

<div align="center">Talks given at Conferences:</div>

1. R.A. Bandaliyev, P. Gorka, *The boundedness of Hausdorff operator in L_p spaces for $0 < p < 1$,* **Modern Meth. Problems Appl. Oper. Theory and Harmonic Analysis-VII,** Russian, 2017, p.125.

2.   R.A. Bandaliyev, A. Serbetci, S.G. Hasanov, *On Hardy inequality in variable Lebesgue spaces with mixed norm,* Inter. Conf. *"***Operators in Morrey-type Spaces and Applications***",* OMTSA-2017, Ahi Evran Univ., Turkey, 2017, p.155.

3.   K.K. Omarova, R.A. Bandaliyev, A.K. Omarova, *A description of the model of a process of the semi-Markovian walk with a delaying screen by means of a fractional order differential equation,* **Inter. Conf. on "Math. Model. in Appl. Sci.",** Saint-Petersburg-Russia, 2017, p.177.

4. R.A. Bandaliyev, P. Gorka, A. Macios, H. Rafaeiro, *Totally bounded sets in variable exponent Lebesgue spaces,* **Inter. Conf. on "Nonstandard growth phenomena", Finland, Turku, 2017, p. 36.**

5. R.A. Bandaliyeva, V. S. Guliyev, *On embedding theorems between variable Morrey spaces*, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 55.

6. A.E. Abdullayeva, *On asymptotic formula for two-dimensional Bernstein-Chlodowsky type polynomials*, Inter. Conf. on "Operators in Morrey-type Spaces and Applications", Dedicated to 60-th Birthday of Prof. Vagif S. Guliyev, Turkey, 2017, pp.60

7. Dilek Söylemez, A.E. Abdullayeva, *Approximation properties of generalized Bernstein operators*, Inter. Conf. on "Operators in Morrey-type Spaces and Applications", Dedicated to 60-th Birthday of Prof. Vagif S. Guliyev, Turkey, 2017, pp.82

8. Abdullayeva A. *Approximation theorem for two variables Bernstein-Chlodowsky polynomials on triangle*, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 12.

Work 3: Boundedness of potential generated by Gegenbauer differential operator in Morrey spaces.

Executor: cand. ph. m. s., lead. r. a. E.J. Ibrahimov

The works on boundedness of potential generated by Gegenbauer differential operator is being continued. The boundedness of generalized shift operator related to Gegenbauer differential operator was considered.

The list of published papers:

1. Guliyev V.S., Ibrahimov E.J., Jafarova S. Ar., *Gegenbauer transformations Nikolski-Besov spaces generalized by gegenbauer operator and their approximation characteristics*, Advances in Analysis, 2 (3), 2017, 167-195.

2. Ibrahimov E.J., Jafarova S. Ar., *On boundedness of the operator Riesz function and potential generated by Gegenbauer differential operator on Morrey space*, Trans. Natl. Acad. Sci. Azerb., Issue Math. 37 (4) (2017), 1-23.

3. Ibragimov E.C., The Hardy-Littlewood-Sobolev theorem for Riesz potential generated by Gegenbauer operator, Abstracts on International Conference on Operators in Morrey-type Spaces and Applications (OMTSA-2017), July 10-13, Kirsehir, Turkey, 2017, pp. 86.

4. Ibragimov E.C., Riesz potential associated with the Gegenbauer differential, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 240.

Work 4: Weak-type inequalities for maximal commutators.

Executor: cand. ph. m. s., lead. r. a. R.Ch. Mustafayev, PhD in math. r.a. F.A. Isayev, cand. ph. m. s. E.A. Hajiyeva

In the work it was pointed that Hardy-Littlewood maximum operator M is not bounded in Zigmund-Morrey space $\mathcal{M}_{L(logL),\lambda}(\mathbb{R}^n)$ for $0 < \lambda < n$, M is bounded for radially decreasing functions in Zigmund-Morrey spaces, and that iterative maximum operator M^2 boundedly acts from the Zigmund-Morrey space $\mathcal{M}_{L(logL),\lambda}(\mathbb{R}^n)$ to the weak Zigmund-Morrey space $\mathcal{WM}_{L(logL),\lambda}(\mathbb{R}^n)$. Furthermore, the class of b functions providing boundedness of C_b maximum commutator from the space $\mathcal{M}_{L(logL),\lambda}(\mathbb{R}^n)$ to the space $\mathcal{WM}_{L(logL),\lambda}(\mathbb{R}^n)$ were determined.

The list of published papers:

1. V.S. Guliyev, K. Koca, R.Ch. Mustafayev, T.Ünver, Boundedness of operators arising from Schwarz BVP in modified local Morrey-type spaces, Complex Var. Elliptic Equ. 62 (10) (2017), 1541-1557. (impact factor 0.616) **Q3**

2. A. Gogatishvili, R.Ch. Mustafayev, Iterated Hardy-type inequalities involving suprema, Math. Inequal. & Appl. 20 (4) (2017), 901-927. (impact factor 0.645) **Q2**

3. A.Gogatishvili, R.Ch. Mustafayev, T.Ünver, Embeddings between weighted complementary local Morrey-type spaces and weighted local Morrey-type spaces, Eurasian Math. J. 8 (1) (2017), 34-49.

4. A. Gogatishvili, R.Ch. Mustafayev, Weighted iterated Hardy-type inequalities, Math. Inequal. & Appl. 20 (3) (2017), 683-728. (impact factor 0.645) **Q2**

5. V.S. Guliyev, K. Koca, R.Ch. Mustafayev, T.Ünver, Some operators arising from Schwarz BVP in complementary local Morrey-type spaces on the unit disc, J. Math. Anal. 8 (1) (2017), 130-142.

6. A. Gogatishvili, R.Ch. Mustafayev, M. Agcayazi, Weak-type estimates in Morrey spaces for maximal commutator and commutator of maximal function, Tokyo J. Math. 40 (2) (2017).

7. M.N. Omarova, F.A. Isayev, E.A.Gadjieva, *L_p boundedness of high order commutators of Marcinkiewicz integrals associated with Schrodinger operators*, Caspian Journal of Applied Mathematics, Ecology and Economics, V. 4, No 1, 2017, July

8. Simten Bayrakci, Seyda Keles, Fatai A. Isayev, *Boundedness of B- Square Functions,* Trans. Natl. Acad. Sci. Azerb., Issue Math. 37 (4) (2017), 5-11.

Talks given at Conferences:

1. R.Ch. Mustafayev, T.Ünver, Embeddings between weighted Copson and Cesaro function spaces, International Conference on Banach Spaces and Operator Theory with Applications (BSOTA-2017), Adam Mickiewicz University, Poznan, Poland, July 03-07, 2017.

2. R.Ch. Mustafayev, Bilinear Hardy inequalities, International Conference "Operators on Morrey-Type Spaces and Applications (OMTSA 2017), Ahi Evran University, Kirsehir, Turkey, July 10-13, 2017, pp.157.

3. R.Ch. Mustafayev, N.Bilgiçli, Generalized maximal functions in classical Lorentz spaces, International Conference "Operators on Morrey-Type Spaces and Applications (OMTSA 2017), Ahi Evran University, Kirsehir, Turkey, July 10-13, 2017, pp. 145.

4. M. Ağcayazı, R.Ch. Mustafayev, Norm and endpoint estimates for commutators of fractional maximal function, International Conference "Operators on Morrey-Type Spaces and Applications (OMTSA 2017), Ahi Evran University, Kirsehir, Turkey, July 10-13, 2017, pp. 139.

5. R.Ch. Mustafayev, T.Ünver, Embeddings between weighted complementary local Morrey-type spaces and weighted local Morrey-type spaces, International Conference "Operators on Morrey-Type Spaces and Applications (OMTSA 2017), Ahi Evran University, Kirsehir, Turkey, July 10-13, 2017, pp. 181.

6. F.A. Isayev, R.V. Guliyev, B-maximal operator on B-Orlicz spaces, International Conference "Operators on Morrey-Type Spaces and Applications (OMTSA 2017), Ahi Evran University, Kirsehir, Turkey, July 10-13, 2017, pp. 93.

7. F.A. Isayev, E. Gadjiyeva, *L_p* boundedness of Dunkl-type maximal function in the generalized Dunkl-type Morrey spaces, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 100.

Work 5: Boundedness of singular integral operator and its commutator in generalized local and weighted Morrey spaces.

Executor: PhD in math. s. r. a. M.N. Omarova, cand. ph. m. s. lead. r. a., Z.V. Safarov

The work on boundedness of singular integral operator and its commutator in generalized local and weighted Morrey space was continued. Necessary and sufficient conditions for boundedness of nonsingular integral operator and its commutator in generalized Orlicz-Morrey were found. The obtained results were published in Azerbaijan Journal of Mathematics.

The list of published papers:

1. V.S. Guliyev, A. Akbulut, M.N. Omarova, *Marcinkiewicz integrals associated with Schrodinger operator and its commutators on vanishing generalized Morrey spaces*, **Boundary Value Problems**, (2017) 2017:121. (Impact factor 0.819) **Q2**
2. S. Keles, M.N. Omarova, *Boundedness of vector-valued B-singular integral operators in Lebesgue spaces*, **Open Math.** 2017, 15: 987–1002 (Impact factor 0.620) **Q3**
3. A. Eroglu, V.S. Guliyev, M.N. Omarova, *Characterizations for the nonsingular integral operator and its commutators on generalized Orlicz-Morrey spaces*, Azerbaijan Journal of Mathematics, vol. 7, no. 2 (2017), 67-87. (impact factor 0.290).
4. A. Eroglu, M.N. Omarova, Sh. Muradova, *Elliptic equations with measurable coefficients in generalized weighted Morrey spaces,* Proc. Inst. Math. Mech. Natl. Acad. Sci. Azerb., vol. 43 (2), 2017, 214-220.
5. M.N. Omarova, F.A. Isayev, E.A.Gadjieva, L_p *boundedness of high order commutators of Marcinkiewicz integrals associated with Schrodinger operators*, Caspian Journal of Applied Mathematics, Ecology and Economics, V. 4, No 1, 2017, July
6. A.M. Nadjafov, L.Sh. Kadimova, Z.V. Safarov, *On the properties of functions from Lizorkin-Triebel spaces of several groups of variable*, Journal of Qafqaz University. Mathematics and Computer Science, 2016, vol.4, No 2, pp. 164-170

Talks given at Conferences:

1. V.S. Guliyev, A. Eroglu, M.N. Omarova, *Characterizations for the nonsingular integral operator and its commutators on generalized Orlicz-Morrey spaces*, International conference "Operators in Morrey-type Spaces and Applications" during 10-13 July 2017 in Ahi Evran University, Kirsehir, TURKEY is dedicated to 60th birthday of Prof. Vagif S. GULIYEV, p. 125.
2. V.S. Guliyev, M.N. Omarova, *Commutators of fractional integral associated with Schrodinger operator on generalized Morrey spaces,* International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan.
3. Guliyev V. and Omarova M. *Commutators of fractional integral associated with Schrodinger operator on generalized Morrey spaces*, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 87.
4. Eroglu Ahmet, Muradova Sh. A. and Omarova M.N. *Elliptic equations with measurable coefficients in generalized weighted Morrey spaces*, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 66.
5. Z. Safarov, L.Sh.Kadimova, F.F. Mustafayeva, *Estimations of the norm of functions from Sobolev-Morrey type space, reduced by polynomials*, International conference "Operators in

Morrey-type Spaces and Applications" during 10-13 July 2017 in Ahi Evran University, Kirsehir, TURKEY is dedicated to 60th birthday of Prof. Vagif S. GULIYEV, p. 190.
6. Hasanov J.J., Safarov Z.V. On the boundedness of maximal commutators in the B-Morrey spaces, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 90.

Work 6: Investigating Hardy-Littlewood maximal operator in variable exponent generalized Morrey-type space.
İcraçılar: cand. ph. m. s. lead. r. a. J.J. Hasanov, PhD in math., j. r. a. L. Aliyeva, r.a. A.N. Mammadova.

J.J. Hasanov's paper "Maximal and singular integral operators and their commutators on generalized weighted Morrey spaces with variable exponent" was published in the journal "Mathematical Inequalities & Applications", R. Ə Bəndəliyev, A.N. Mammadova's paper "On approximation theorems for two-dimensional Szasz operator" was published in "Transactions of Azerbaijan National Academy of Science, Series of physical-technical and mathematics science" Issue Mathematics.

<div align="center"><h3>The list of published papers:</h3></div>

1. G.A. Abasova, L.R. Aliyeva, J.J. Hasanov, E.S. Shirinova, *Necessary and sucient conditions for the boundedness of comutators of B-Riesz potentials in Lebegues spaces,* Journal of Contemporary Applied Mathematics-2016, v.6, №2, 18-32.

2. A.N. Mammadova, *Some properties of two-dimensional Szasz operator*, Caspian J. of Appl. Math., Ecol. and Econ., Baku,2016, v.4, № 2, p. 65-73

3. R.A. Bandaliyev, A.N. Mammadova, *On approximation theorems for two-dimensional Szasz operator*, Transactions of NAS of Azerbaijan, Issue Mathematics, Baku, 2017, v. 37, №1, pp.53-62

<div align="center"><h3>Talks given at Conferences:</h3></div>

1. A.N. Mammadova, On approximation theorem for two-dimensional Szasz type operator in Lebesgue spaces / Inter. Conf. on "Oper. in Morrey-type spaces and Appl.", Dedicated to 60-th Birthday of Prof. Vagif S. Guliyev, Turkey, 2017, pp.55

2. Azizova Z.O., Hasanov J.J., The boundedness weighted Hardy operator in the Orlicz-Morrey spaces, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 53.

3. HasanovJ.J., Safarov Z.V. On the boundedness of maximal commutators in the B-Morrey spaces, International conference "Modern problems of Mathematics and Mechanics" devoted to the 80-th anniversary of academician Akif Gadjiev, December 6-8, 2017, Baku, Azerbaijan, pp. 90.

II SCIENTIFIC ORGANIZATIONAL ACTIVITY

- The main direction of the department is modern problems of harmonic analysis. According to plan, research works are carried out on 6 themes.

- The department consist of 17 collaborators, including 1 prof., 1 doctor of sciences, 4 ass. prof., 2 senior res. ass., 4 res. ass., 2 engineer programmer, 1 senior laboratory assistant and 2 laboratory assisstants.

- On February 22, 2017 at the institute seminar prof. V.S. Guliyev gave a talk on "Fractional maximal operator, Riesz potential, necessary and sufficient conditions for then commutators to be bounded in Orlicz space". On 10.05.2017 ass. prof. Rza Chingiz oglu Mustafayev gave a talk on "Hardy-type inequalities and dual spaces of Morrey-type spaces". Prof. V.S. Guliyev, ass. prof. R.A. Bandaliyev, ass. prof. J.J. Hasanov, ass. prof. R. Ch. Mustafayev, ass. prof. E.J. Ibrahimov, PhD F.A. Isayev, PhD M.N. Omarova, PhD L. Aliyeva, A.E. Abdullayeva, A.N. Mammadova regularly participate at the institute seminars.

- The seminar within the department is carried out every Friday of the week by V.S. Guliyev.

For his contribution to the development of mathematical science in Azerbaijan, and on the occasion of his 60-th birthday, prof. V.S. Guliyev was awarded with honoary decree of ANAS.

- Prof. V.S. Guliyev was a winner in the main nomination in the field of physical, mathematical and technical sciences of the prize "The scientist of 2016" held for the first time in Azerbaijan.

- On April 23-28, 2017, prof. Vaqif Quliyev launched a plenary "**Characterizations for the fractional maximal operator, Riesz potential and their commutators on Orlicz spaces**" at the VII International Conference "**Modern Methods, Problems and Applications of Operator Theory and Harmonic Analysis VII**" held in faktli Federal University in Rostov Don, Rossia.

This year, Ahi Evran University of Turkey held the International Conference "Operators in Morrey-type spaces and their applications-OMTSA-2017" dedicated to 60-th birthday of prof. V.Guliyev. At the Conference held on 10-13 July, prof. V.Guliyev presented a talk on "**Characterizations for the Riesz potential and its commutators on Orlicz and generalized Orlicz-Morrey spaces**".

- At the International Conference **"VI Congress of Turkich World Mathematical Siciety"** (Astana, Kazakhstan) prof. V. Guliyev has participated as a plenary lecturer and at the plenary meeting of the conference gave a talk on **"Characterizations for classic operators of harmonic analysis in generalized Olicz-Morrey spces"**.

- Doctor of math. sci. R.A. Bandaliyev was promoted to the rame of a professor by the decision of the Presidium of ANAS dated from July 5, 2017.

- On Aplil, 2017 prof. Of AMEA R. Bandaliyev participated at the International Conference "Modern Methods, Problems and Applications of Operator Theory and Harmonic Analysis-VII" held at South Federal University, Rostov na Donn, Russian Federation, and on July at the International Conference "Operators in Morrey-type Spaces and Applications" OMTSA-2017 dedicated to the 60-th birthday of prof. V.S. Guliyev and held at Ahi-Evran University, Turkey and at the International Conference "Mathematical Modelling in Applied Sciences" held in Sankt-Petersburg city of the Russian Federation (Sankt-Petersburg Polytechnical University).

- ass. prof. Rza Mustafayev and ass. prof. Javanshir Hasanov have participated at the International Conference "Operators in Morrey-type Spaces and Applications" dedicated to the 60-th birthday of prof. V.S. Guliyev and held at Ahi-Evran University, Turkey.

- The project announced by ANAS "Modern problems of harmonic analysis and applications" 2 years project, 2015-2017 was completed from much, 2017.

- Prof. V.S. Quliyev is a member of the Presidium of thigher Attestation Commissin under President of the Republic of Azerbaijan.

- Prof. V.S. Quliyev is a member of editorial board of international journals "Eurasian Mathematical Journals", "Communications de la Faculté des Sciences de l'Université d'Ankara. Séries A1. Mathematics and Statistics" and republican journal "Proceedings of Institute of Mathematics and Mechanics of NAS of Azerbaijan". He is one of the editor-in chief of "Caspian journal of applied mathematics, ecology and economics". He is the editor-in chief of "Transactions of Azerbaijan National Academy of Science, Issue Mathematics, Series of physical-technical and mathematics science".

- Corr the scientific results of corr. member of NASA, prof. V.S.Guliyev were reflected in were than 170 papers published in impact factor and other authorative international journals. The number of references in **MathSciNet Mathematical reviews** in **620 (487)**, in **Google Scholar 2146(1701)**;

The scientific result of doc. R.A. Bandaliyev were reflected in the papers published in more than 15 impact factor and other authorative international journals. The member of references to his papaers in 32 **(22)**, in **Google Scholar 130 (91)**;

The scientific result of doc. R.A. Bandaliyev were reflected in the papers published in more than 20 impact factor and other authorative international journals. The member of references to his papaers in **151 (122)**, in **Google Scholar 415 (350)**;

- Prof. V.S. Quliyev is a professor for substitution at "Mathematical analysis" chair of Mechanics-and mathematics faculty of BSU and gives lectures on introduction to harmonic analysis selected problems of mathematical analysis

- **vol 37, no 1, 2017** and **vol 37, no 4, 2017** of "Transactions of Azerbaijan National Academy of Science, Issue Mathematics, Series of physical-technical and mathematics science" editor-in chief by prof. V.S. Guliyev was published.

The reviews written to the papers sent by foreign and republican journals.

Corr. member of NASA, prof. V.S. Guliyev:

1. Journal of Mathematical Analysis and Applications (Impact Factor –1,014),
2. Journal of Fourier Analisys and Applications,
3. Mathematische Nachrichten (Impact Factor –0,910),
4. Journal of Mathematical Inequalities (Impact Factor –0,632),
5. Mathematical Inequalities and Applications (Impact Factor –0,664),
6. Integral Transforms And Special Functions (Impact Factor – 0.814),
7. Annales Academiae Scientiarum Fennicae Mathematica (Impact Factor – 0.676),
8. Journal of Function Spaces (Impact Factor – 0.656);
9. Complex Variables and Elliptic Equations (Impact Factor – 0.650);
10. Journal of İnequalities and Applications (Impact Factor –0,630),
11. Collectanea Mathematica (Impact Factor –0,593),
12. Journal of Fourier Analisys and Applications (Impact Factor –0,912),
13. Ukrain Matematical Journals (Impact Factor –0,189),
14. FİLOMAT (Impact Factor –0,638),
15. Turkish Journal of Mathematics (Impact Factor –0,311),
16. Bollettino dell'Unione Matematica Italiana
17. Transactions of A.Razmadze Mathematical Institute

Doc R.A. Bandaliyev:

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 (Impact Factor –0,311).

Doc R. Mustafayev:

1. Journal of Mathematical Inequalities (Impact Factor –0,632),
2. Mathematical Inequalities and Applications (Impact Factor –0,664),
3. Czechoslovak Mathematical Journal (Impact Factor –0,334).

- This year, on setember 29 of the department ass. prof. Elman Ibrahimov depended doctor of science in mathematics, Aytekin Abdullayeva the philosophy doctor dissertation.

- Doct. math. sci. Rovshan Bandaliyev, ass. prof. Elman Ibrahimov and ass. prof. Rza Mustafayev are the member of subject seminar under the dissertation board of IMM.

- In 2017, the department Collaborators 53 scientific papers were published including 23 of thim in impact factor journals, 15 papers were accepted for publication including 10 in impact factor journals.

Head of the department
"Mathematical Analysis"

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