Report of the department of "Function Theory" on scientific and scientific-organizational activities for the year 2021

In the reporting year, on the topic "Approximation of functions of several variables by ridge functions, neural networks, linear and nonlinear superpositions, embedding theorems for functional spaces" 4 works connecting 6 researchers were conducted. 7 articles were published abroad. 6 of these articles were published in journals indexed in the databases Clarivate Analytics "Web of Science" and "Scopus". In addition, 1 article was submitted for publication.

The staff of "Function Theory" department consists of 6 researchers:

1. Vugar Ismailov dr. math. sci., chief of the department

2. Alik Najafov dr. ph.-m. s., prof., chief r.a.

3. Rashid Aliev dr. math. sci. chief r.a.

4. Ibrahim Maharov cand. ph.-m. s., senior r.a.

5. Aygun Omarova phd in math., r.a.

6. Aida Asgarova, junior r.a.

On scientific-organizational activity

Head of department Vugar Ismailov made a presentation on "On the Diliberto-Straus algorithm for the uniform approximation by a sum of two algebras" at the institute seminar.

In the reporting period, the chief researcher of the department, dr. math. sci. Rashid Aliev made a presentation on "Smoothness problem in representation by sums of ridge functions" at the institute seminar.

Head of department Vugar Ismailov was a reviewer of the journals: Neural Networks, Neurocomputing, Informatics in Medicine Unlocked, Turkish Journal of Mathematics.

On April 14, 2021, at a joint meeting of the departments "Functional analysis", "Theory of functions" and "Non-harmonic analysis", a junior researcher of the department Aida Khurshud kizi Asgarov, made a report on the topic "Approximation by a sum of subalgebras of the space of continuous functions".

On June 29, 2021, the junior research assistant of the department Aida Asgarova successfully defended her Ph.D. dissertation "Approximation by a sum of subalgebras of the space of continuous functions".

Head of the department   **dr.math.sc. Vugar Ismailov**

Publications:

Papers published in journals indexed by Clarivate Analytics:

Surnames, academic degrees and positions of collaborators	Names of scientific works	Printed or submitted for publication	Name of publisher, journal №, year	Page	Co-authors
1	2	3	4	5	6
Papers, published in journals indexed in the databases Clarivate Analytics "Web of Science" and "Scopus"					
1. Vugar Ismailov	1. A Chebyshev-Type Theorem Characterizing Best Approximation of a Continuous Function by Elements of the Sum of Two Algebras	Paper	Mat. Zametki, 109:1 (2021), 19–26; Math. Notes, 109:1 (2021), 15–20 (Clarivate Analytics SCIE) http://www.mathnet.ru/php/archive.phtml?wshow=paper&jrnid=mzm&paperid=12736&option_lang=rus	8	A. Kh. Askarova

	2. On the representation by bivariate ridge functions	Paper	Украинский математический журнал, 73:5 (2021), 579-588 (Clarivate Analytics SCIE) http://umj.imath.kiev.ua/index.php/umj/article/view/263	10	Aliev R.A., Asgarova A.A.
2. Alik Najafov	3. On some differential properties of small small Sobolev–Morrey spaces	Paper	Eurasian Math. J., 12:1 (2021), 57–67 (Clarivate Analytics SCIE) http://www.mathnet.ru/php/archive.phtml?wshow=paper&jrnid=emj&paperid=392&option_lang=rus	11	
	4. On some differential properties functions from Lizorkin-Triebel-Morrey spaces with dominant mixed derivatives	Paper	Advances and Applications in Mathematical Sciences, vol. 20, Issue 9, 2021, pp.1909-1921 (Clarivate Analytics ESCI)	13	A.M. Gasimova
3. Rashid Aliev	5. Boundedness of discrete Hilbert transform on discrete Morrey spaces	Paper	*Ufa Mathematical Journal*, 13:1 (2021), 99-109 (Clarivate Analytics	11	Ahmadova A.N.

			ESCI) https://matem.anrb.ru/sites/default/files/files/vup49/Ahmadova.pdf		
4. Ibrahim Maharov	6. On the error of approximation by RBF neural networks with two hidden nodes	Paper	*Proceedings of IMM, NAS of Azerbaijan*, 47:2, (2021) (Clarivate Analytics ESCI) http://proc.imm.az/inpress/pimm0200.pdf	6	A.M-B. Babayev
		Papers, published in other journals			
Alik Najafov	7. On some differential properties of grand fractional Sobolev-Morrey spaces	Paper	Uzbek Mathematical Journal, vol.65, Issue 2, 2021, pp.128-139	12	R.F. Babayev
		Published abstracts			
Rashid Aliev	1. On properties of the complex Riesz transform	Abstract	*Complex analysis, Mathematical physics and Nonlinear equatioms, Book of abstracts of the International conference, Bannoe Lake, Russia, March 15 - 19, p.12.* https://matem.anrb.ru/conf/sbo	1	Nebiyeva Kh.I.

| | 2. Discrete Ahlfors-Beurling transform and its properties | Abstract | *rnik21.pdf*

Фундаментальные и прикладные проблемы математики и информатики, Материалы XIV Международной конференции, приуроченной к 90-летию Дагестанского государственного университета, Махачкала, Россия, 16-19 сентября, 2021, стр. 23-25. | 3 | Ahmadova A.N. |

Head of the department   **Dr.Math.Sci. Vugar Ismailov**