

**Institute of Mathematics and Mechanics of ANAS  
Azerbaijan State Pedagogical University**

**Riyaziyyat və Mexanikanın Müasir Problemləri  
Akademik İbrahim İbrahimovun 110 illik yubileyinə  
həsr olunmuş Beynəlxalq elmi konfransın  
PROGRAMI**

*Modern Problems of Mathematics and Mechanics  
PROGRAM  
of the International scientific conference devoted to the  
110-th anniversary of academician Ibrahim Ibrahimov*

**Baku, June 29 – July 01 2022**

**Chairman: Misir Mardanov**  
**Vice-Chairmen: Adalat Akhundov**  
**Asaf Zamanov**

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### **Working Group:**

Mehdi Mammadov - head of the working group, Gumru Sadigova, Zaman Safarov, Tahira Musayeva, Khumar Maharramova, Ibrahim Mammadov, Kamala Abbasova, Shamsiyya Muradova, Nemat Shikhverdiyev, Aynur Tahirova, Parvana Najafova, Sabina Salmanova, Gunel Isayeva, Aida Askerova, Aida Tagiyeva, Ayten Movsumova, Ramil Aliyev, Esmira Aliyeva, Mehriban Omarova

**“Riyaziyyat və Mexanikanın müasir problemləri”  
BEYNƏLXALQ ELMİ KONFRANSIN  
PROQRAMI**

<i><b>Tarix</b></i>	<i><b>Saat</b></i>	
29.06.2022	11:00-13:00	<i><b>Açılış proqramı</b></i>
	14:00-14:30	<i><b>Plenar iclas</b></i>
	14:40-18:00	<i><b>Bölmələr</b></i>
30.06.2022	10:00-12:40	<i><b>Plenar iclas</b></i>
	14:00-17:00	<i><b>Bölmələr</b></i>
01.07.2022	10:00-12:00	<i><b>Plenar iclas</b></i>
	12:10-13:00	<i><b>YEKUN İCLAS</b></i>

**“Modern problems of Mathematics and Mechanics”  
PROGRAM  
OF THE INTERNATIONAL SCIENTIFIC CONFERENCE**

<i><b>Date</b></i>	<i><b>Time</b></i>	
29.06.2022	11:00-13:00	<i><b>Opening program</b></i>
	14:00-14:30	<i><b>Plenary session</b></i>
	14:40-18:00	<i><b>Sections</b></i>
30.06.2022	10:00-12:40	<i><b>Plenary session</b></i>
	14:00-17:00	<i><b>Bölmələr</b></i>
01.07.2022	10:00-12:00	<i><b>Plenary session</b></i>
	12:10-13:00	<i><b>FINAL SESSION</b></i>

## **AÇILIŞ PROQRAMI**

**Yer: Bakı, İstiqlaliyyət küçəsi, 10**

**AMEA Rəyasət Heyətinin Böyük zalı**

**Tarix: 29.06.2022, Saat:11:00-13:00**

1.	<i>Giriş sözü-Azərbaycan Milli Elmlər Akademiyasının prezidenti vəzifəsini icra edən</i>  <i>akademik Arif Həşimov</i>
2.	<i>Akademik İbrahim İbrahimovun həyatı, elmi və pedaqoji fəaliyyəti</i> <i>AMEA-nın müxbir üzvü</i> <i>Misir Mərdanov</i>
3.	<i>Çıxışlar, xatirələr</i>

## **OPENING PROGRAM**

**Location: Baku, Istiglaliyyat Street 10**

**The Great Hall of the Presidium of ANAS**

**Date: 29.06.2022, Time: 11:00-13:00**

1.	<i>Foreword - Acting President of the Azerbaijan National Academy of Sciences</i>  <i>academician Arif Hashimov</i>
2.	<i>Life, scientific and pedagogical activity of academician Ibrahim Ibrahimov</i> <i>Corr.-member of ANAS</i> <i>Misir Mardanov</i>
3.	<i>Speeches, memories</i>

## ***PLENARY SESSION***

**HALL 1**

**29 June**

**14.00-14.30**

***Chairman: Corr.-member of ANAS, prof. Misir Mardanov***

1. **Ekrem Savaş**, On new sequence space defined by a modulus and infinite matrix

**30 June**

**HALL 1**

***Chairman: Corr.-member of ANAS, prof. Misir Mardanov***

**10:00-10:30**

1. A.V.Arguchintsev, Variational optimality conditions in control problems of hybrid distributed parameter systems and applications

**10:40-11:10**

2. V.K.Kalantarov, Stabilization of solutions to chevron pattern equations

**11:30-12:00**

3. A.Kh. Shakhverdiev, S.V. Arefyev, Optimization of waterflooding performance in a hydrocarbon reservoir under an unstable oil displacement front

**12:10-12:40**

4. Yalchin Efendiev, Multiscale models, temporal splitting, and machine learning

**01 July**

**HALL 1**

***Chairman: Corr.-member of ANAS, prof. Misir Mardanov***

**10:00-10:30**

1. V.V. Gorokhovik, First and second order optimality conditions for vector optimization problems

**10:40-11:10**

2. V. Savchuk, O. Rovenska Approximation of classes of harmonic bounded functions by incomplete Fejer means

**11:30-12:00**

3. E.N. Mahmudov, Optimization of higher-order differential inclusions

**Wednesday, June 29 th, 2022**  
**Section – Spectral theory of operators**  
**14:40 - 18:00**

**HALL 2**

**Chairmen: prof.H.I. Aslanov, prof. V.M. Kurbanov.**

1. K.A. Mirzoev, T.A. Safonova, Ordinary self-adjoint differential operators and integral representation of the sums of some series
2. H.I. Aslanov, R.F. Hatamova, On well – defined solvability of the Dirichlet problem for a second order elliptic partial operator – differential equation in Hilbert space
3. V.M.Kurbanov, Yu.G.Abbasova Convergence of the spectral expansion of a function from the class  $W_{(p,m)}^1(G)$ ,  $1 < p < 2$ , in the vector eigenfunctions of a differential operator of the third order
4. N.M. Aslanova, Kh.M. Aslanov, Mamed Bayramoglu, Asymptotics of eigenvalue distribution of one class of selfadjoint extensions
5. H.I. Aslanov, G.M. Eyvazli, Some inequalities related to distribution functions of negative eigen-values of differential operators on the semi-axis
6. R.A.Bandaliyev, K.H.Safarova, On discrete Hardy type inequality in variable weighted variable Lebesgue Spaces
7. T.R. Muradov, F.S. Seyidova, General solution of homogeneous Riemann problem in Hardy-Morrey classes
8. R.Dzhabarzadeh, A.Jabrailova, To the spectral theory of multiparameters system of operators
9. M.T. Garayev, On the Toeplitz Products Problems
10. N.G. Vahabov, Normally-unitary operators
11. N.L. Muradova, On smooth solutions of one class of fourth order operator-differential equations with multiple characteristics
12. D.H. Orujov, Transformation operators for the Schrodinger equation with an unbounded potential
13. J.A.Osmanly, A.R.Latifova On the Iost representation of the Schrödinger equation with delta-shaped potential

14. N.G. Vahabov, Normally-unitary operators
15. S.A. Aliyev, I.A. Ibadova, Limit theorems for the random walks describes by the generalization of autoregressive process of order one (AR(1))
16. E.A. Ibayev, Obtaining the fractional order differential equation for generating function of the boundary functional of the semi-Markov walk process
17. F. Rahimov, I. Ibadova, V. Khalilov, Limit theorems for the Markov random walk described by an autoregressive process AR(1) for non linear boundaries
18. V.M. Jabbarzade, Calculation algorithm of probability of A Lukaseiwicz’s intuitionistic propositional factor formula according to the truth table

***Wednesday, June 29th, 2022***  
***Section – Approximation theory***  
***14:40-18:00 HALL 16***

***Chairmen: prof. R.M. Rzaev, dos. R.A. Aliyev***

1. O.V. Motorna, I.A. Shevchuk On approximation of  $|x|$  by trigonometric polynomials
2. R.A. Aliev, L.Sh. Alizade, Approximation of the Hilbert transform in Lebesgue spaces
3. R.M. Rzaev, Approximation of functions by singular integrals
4. N.M. Suleymanov, D.E. Farajli On one estimate of the maximum modules of a power series in a circle
5. M.G. Hajibayov, R.Sh. Huseynzade,  $g$ -Hölder continuity of Riesz potential on homogeneous spaces
6. Sh.M. Nagiyev, On relations between some orthogonal polynomials
7. M.I. Ismailov, On basicity of exponential and trigonometric systems of sines and cosines in weighted grand Lebesgue spaces

8. S.Y. Gölbol, U. Değer, Approximation by deferred Cesro-Matrix product means
9. N.P. Özkartepe, Markov-Nikol’skii type inequalities in regions with cusps
10. L.A. Aliyeva, A.A. Babayev, On some properties of a singular operator on terms of generalized oscillation
11. M.I. Ismailov, S.I. Jafarova, On uncountable b–Bessel systems in non-separable Hilbert spaces
12. A.F. Huseynli, A.N. Ahmadova, Boundedness of the discrete Ahlfors-Beurling transform on discrete Morrey spaces
13. M.I. Ismailov, I.F. Aliyarova Frames from weighted exponentials system in grand Lebesgue spaces
14. M.G. Mahmudova, On distribution of zeros of first kind modified Bessel function and its derivative
15. Sh.A. Muradova, Boundedness of anisotropic singular operator in anisotropic generalized Morrey spaces

***Wednesday, June 29th, 2022***

***Section – Differential equations***

***14:40-18:00 HALL 7***

***Chairmen: prof. V.K. Kalantarov, prof. B.A. Aliyev***

1. A.Ya.Akhundov, A.Sh. Habibova, On an inverse problem for a parabolic equation in a domain with moving boundaries
2. Z.S. Aliyev, R.A. Huseynova, Global bifurcation from infinity in some fourth order nonlinear eigenvalue problems with indefinite weight
3. M.M. Sabzaliev, V.V. Tahirzadeh Asymptotics of the solution to a boundary value problem for a singularly perturbed quasilinear differential equation of second order
4. B.A. Aliyev, On solvability of one boundary value problem for a second order elliptic differential operator equation containing a



complex parameter

5. Sh.G. Bagirov, M.J. Aliyev, On the absence of global solutions of inhomogeneous evolution semilinear inequalities with a biharmonic operator in the main part
6. A.F. Guliyev, The Wiener criterion for the heat equation in terms of the potential
7. A.B. Aliev, G.Kh. Shafieva, Initial – boundary value problem for systems of wave equations with nonlinear boundary dissipation and with a nonstandard interior nonlinear source
8. M.Dzh. Manafov, A. Karakush. The regularized trace formula for the “Weighted” Sturm-Liouville equation point  $\delta$ -interaction
9. E.M. Mamedov, Behavior of solution of nonlinear third order equation with nonlinear boundary conditions
10. I.G. Mamedov, A.J. Abdullayeva, About one integral representation of functions in Sobolev’s anisotropic space
11. E.A. Gasymov, A mixed problem for hyperbolic equations with irregular boundary conditions
12. A.F. Guliyev, A.J. Abdullayeva, A sufficient condition for the regularity of boundary points for solutions of second-order parabolic equations with respect to the Dirichlet problem
13. Y.M. Farhadova, Existence of solution of nonlinear bridge problem with time-varying delay
14. K.A. Alimardanova, A.N. Safarova, The scattering problem for the hyperbolic system of six first order equations on a semi-axis with three given incident waves
15. A. Guliyev, A. Abdullayeva, A. Mammadova, The bilateral estimates of parabolic potentials with polar value in special domains
16. D.A. Juraev, A.T. Ramazanova, Ill-posed problems for systems of first-order elliptic type equations
17. N.R. Amanova, Quality properties of solutions of nonuniformly degenerated second order elliptic equations
18. I.M. Sabzalieva, F.T. Melikmammedova, Asymptotics of the solution to a boundary value problem for a singularly perturbed differential equation of arbitrary order
19. S.T. Huseynov, On a priori estimation of Holder norm of solutions of a degenerate elliptic equation by  $p(x)$  – Laplacian

20. V.Yu. Mastaliev, On solvability of a mixed problem for one form of non-classical equations
21. R.M. Zeynalov, Reducing a boundary value problem for a linear, loaded first-order linear loaded differential equation with constant coefficients to the Cauchy problem
22. L.N. Jafarova, Asymptotics of eigenvalues and eigenfunctions of a discontinuous boundary value problem with a spectral parameter in the transmission condition
23. Z.Q. Huseynov, M.M. Mamedov, Completeness of elementary solutions of the initial – boundary value problem for parabolic equations
24. Kh.R. Gojayeva, Theorems about convergence for one boundary value problem second-order differential operator
25. S.U. Deger, Asymptotic Stability of a Generalized Linear Difference System with Multiple Delays

***Wednesday, June 29th, 2022***

***Section –Functional analysis and the theory of functions***

***14:40-18:00***

***HALL 1***

***Chairmen: prof. F.G. Abdullayev, prof. V.V. Savchuk***

1. F.G. Abdullayev, V.V. Savchuk, Best approximation-preserving operators over Hardy space
2. F.G. Abdullayev, Bernstein-Markov-Nikolskii-type inequalities in  $\bar{w}$ -weighted Bergman space
3. E.H. Khalilov, Formula for calculating the normal derivative of the double layer potential
4. J.I. Mamedkhanov, S.Z. Jafarov, On approximation in weighted generalized grand Smirnov classes
5. D.M. Israfilov, Simultaneous maximal approximation by Faber partial sums
6. E.M. Mustafayev, Sh.A. Muradova, On a dispersion problem with a singular potential of measure type
7. V. Mammadova, Z. Panahaova, Compactness of weighted endomorphism of functional algebras of  $A$ -valued functions on local compacted sets

8. I.Sh. Jabbarova, N.E. Allahyarova On Homogeneous Fredholm Integral Equations in Bohr space
9. S.S. Ibrahimova, On limit integral equations of Fredholm type in the space of bounded functions
10. S.R. Sadigova, A.S. Abdullayeva, On Riemann problem in weighted Smirnov classes
11. A.E. Abdullayeva, A.N. Mammadova, On compactness of sets in the weighted Besov spaces
12. D.R. Aliyeva, On discrete Hardy type inequality in variable weighted variable Lebesgue spaces
13. M.S. Dzhabrailova, S.Z. Khaligova, On a single space with a dominating mixed derivative
14. R. Mustafayev, M. Yılmaz, New Equivalence Theorems for Monotone Quasilinear Operators
15. R. Mustafayev, M. Yılmaz, N. Bilgicli, A note on some restricted inequalities for the iterated Hardy-type operator involving suprema
16. N.R. Rustamova, Riesz – Thorin type theorems in  $S_{p,\theta,\varphi,\beta}^l B(G)$
17. S. Memmedli, On the generalized Hardy inequality and the best constant
18. K.H. Safarova, On discrete Hardy type inequality in variable weighted variable Lebesgue spaces
19. A.A. Tagiyeva, On Martsinkevich space
20. S.O. Chaichenko, A.L. Shidlich, Jackson type inequalities in the Besicovitch-Musielak-Orlicz spaces
21. T. Tunc, B. Fedakar, On the Cholodowsky type Szasz-Mirakjan-Bernstein operators
22. J.V. Azizov, The boundedness of fractional integral operators in generalized weighted Morrey spaces on Heisenberg groups
23. C.D. Gun, On an analogue of Bernstein-Walsh type estimations for the derivative of algebraic polynomials
24. Z.A. Kasumov, N.R. Ahmedzadeh, On some properties of the Riesz potential in the grand Lebesgue and grand Sobolev spaces
25. H. Bayındır Cemal, U. Deger, Approximation by the product means in the generalized Lebesgue spaces

***Wednesday, June 29th, 2022***

***Section –Optimal Control Problems***

***14:40-18:00 HALL 10***

***Chairmen: Corr.-member of ANAS, prof. Misir Mardanov, prof. Y.A. Sharifov***

1. M.J. Mardanov, Sh.E. Alieva, Necessary conditions for the extremum in non-smooth problems of variational calculus
2. M.J. Mardanov, S.T. Malik, Strong Kelley condition in the theory of singular optimal controls
3. M.J. Mardanov, I.G. Mamedov, I.A. Abdullayeva Integral representation of functions in Sobolev’s anisotropic space with a dominant mixed derivative
4. Y.A. Sharifov, Fixed – point iteration method for solution first order differential equations with nonlocal boundary conditions
5. S.S. Akhiev, F.Sh. Akhmedov, Optimization of nonlocal hyperbolic control problem
6. V.A. Hashimov, Feedback control of motion speeds of lumped sources during plate heating
7. G.V. Novruzova, Necessary conditions for retarded and free right ended variational problems
8. Z.C. Zabidov, Kh.M. Gadirova, B.C. Maharramov, Assessment of informativity data of the water flow in observation points by Schulz method

**Thursday, June 30th, 2022**

**Section – Mechanics of solid body**

**14:00-17:00 HALL 2**

**Chairmen: prof. A.D. Zamanov, prof. L. Talybly**

1. A.D.Zamanov, E.R.Agasiev, Lamb waves in a three-layer slab of compressible material
2. L.Talybly, Some exact solutions to problems of nonlinear viscoelasticity
3. Y.M. Sevdimaliyev, Determination of the structural-load and solids capacity under creep taking into account external physical fields and impacts
4. N.B. Rasoulova, T.M. Mahmudzade, The propagation of non-stationary waves in a half space with a built-in cylinder
5. T.M. Shamiyev, Stability of a rectangular plate compressed in one direction in the case of inhomogeneous subcritical state with regard to heteromodularity
6. A.B. Gasanov, S.Yu. Guliyeva, Longitudinal vibrations of a fractal structure rod
7. A.S. Akhiev, V.Q. Yusifov, F.A. Masimov, The problem of fracture mechanics for a composite strip in the case of a longitudinal shear crack
8. N.M. Nagiyeva, Elastico – plastic torsional deformation of a hardening beam
9. M.A. Mamedova, A.G. Muradova, Long-term torsional strength of a damaged hollow shaft
10. E.T. Bagirov, S.D. Akbarov, On the dispersion of axisymmetric waves in the pre-strained highly elastic plate loaded by compressible inviscid fluid
11. V. Fataliyev, Innovative model of planetary reducer
12. R.K. Mehtiyev, Longitudinal shift relaxed rectified through crack
13. H.A. Mammadova, Corrosive failure of a hollow cone under the action of torque
14. E.A. Isayeva, About a new approach at classical mechanics
15. A.M. Jafarova, On the time of corrosion failure of a plate with a deep double-sided external undercut under pure bending.

***Thursday, June 30th, 2022***

***Section –Mechanics of fluid and gas***

***14:00-17:00 HALL 7***

***Chairmen: Corr.-member of ANAS, prof. G.M. Panahov, doc.E.M. Abbasov***

1. G.M. Panahov, B.N. Sultanov, Fractal modeling of consolidation under filtration in water saturated soils
2. G.M. Panahov, Z.S. Sadigova, Flow of heterophase mixtures in gas pipes and methods to control gas-dynamic parameters
3. M.G. Abdullayev, S.I. Mansurova, Generalized equation of stationary oil inflow to a well under steady modes
4. E.M. Abbasov, S.I. Nasibova, Study of the flow of heterogeneous fluids with variable component content and external environment
5. E.M. Abbasov, N.A. Agayeva, Motion of the gas-liquid mixture in the system of the reservoir-pipeline when connecting to the main line of the new source
6. E.M. Abbasov, P.T. Museibli, I.J. Mamedov, Diffusion transport of in-situ generated gas in fluid-saturated porous media
7. I.Kh. Mirzazadeh, Intelligent information system of monitoring, diagnosis and prognosis of diseases in urgent therapy using carbon monoxide poisoning as an example
8. M.S. Aslanov, F.R. Nagiyev, Description of inhomogeneous food media by rheological models

***Thursday, June 30th, 2022***

***Section –Method of Teaching and History of Mathematics***

***14:00-17:00***

***HALL 5***

***Chairmen: prof. R.M.Aslanov, dos. A.A. Babaev***

1. N.V. Brovka, On the characteristic features of mathematics in the context of the history of its development
2. A.A. Babaev, V.F. Mejlumbekova Tables in the mathematical and logical works of N. Tusi
3. R.M. Aslanov, V.V. Sushkov, Emergence and history of complex analysis
4. I.V. Ignatushina, The use of digital tools in teaching the history of mathematics to students of a pedagogical university
5. A. Aliyev, L. Sheykhzamanova, About the commentaries of Nasireddin Tusi to the work of Archimedes”About the ball and the Cylinder”.
6. A. Papyshv, Abay Kazakh, Analysis of the study of some topics in the course of algebra
7. S.B. Karimova, M.S. Dzhabrailov On free and independent works of students in the teaching of mathematical
8. Alpys Papyshv, Analysis of the study of some topics in the course of algebra

**ZAL 1**

**KONFRANSIN BAĞLANIŞI**

***Tarix: 01.07.2022, Saat: 12:10-13:00***

**HALL 1**

**CLOSING OF THE CONFERENCE**

***Date: 01.07.2022, at 12:10 -13:00***

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***Çapa imzalanmış 16.06.2022***

***Kağız formatı 60x84<sup>1/16</sup>, çap vərəqi 1***

***Sifariş 237, sayı 150***

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