

Conference  
«Spectral Theory of Differential Operators»  
dedicated to the 75th anniversary of M. G. Gasymov

December 8-10, 2014  
Institute of Mathematics and Mechanics,  
Azerbaijan National Academy of Sciences

Azərbaycan Milli Elmlər Akademiyası  
Azerbaijan National Academy of Sciences  
Национальная Академия Наук Азербайджана



Riyaziyyat və Mexanika İnstitutu  
Institute of Mathematics and Mechanics  
Институт Математики и Механики



Bakı Dövlət Universitetinin Tətbiqi riyaziyyat kafedrasının dəstəyi ilə  
With the support of the Department of Applied Mathematics, Baku State University  
При поддержке кафедры прикладной математики Бакинского государственного университета

Görkəmli riyaziyyatçı akademik Mirabbas Qasimovun  
75-illiyinə həsr olunmuş konfransın

PROQRAMI

PROGRAM

of the conference dedicated to the 75th anniversary of the outstanding  
mathematician academician Mirabbas Gasymov

ПРОГРАММА

конференции, посвящённой 75-летию выдающегося математика  
академика Мираббаса Гасымова

8-10 dekabr 2014

Diferensial operatorların  
spektral nəzəriyyəsi

Spectral Theory  
of Differential Operators

Спектральная теория  
дифференциальных операторов



(11.07.1939 — 06.09.2008)

Təşkilat və proqram komitəsi:

Sədrlər: akademik Akif Hacıyev (AMEA-nın vitse-prezidenti)  
prof. Misir Mərdanov (AMEA RMI-nin direktoru)  
Sədr müavini: prof. Araz Əliyev, prof. Soltan Əliyev

Konfransın işçi qrupu: Aynurə Cəfərova, Cavanşir Həsənov, Vüqar İsmayılov,  
Namiq Quliyev, Mehdi Məmmədov, Səbinə Sadiqova

Organizing and Program Committee:

Chairmen: academician Akif Gadжиеv (Vice-President of NAS of Azerbaijan)  
prof. Misir Mardanov (Director of IMM NAS of Azerbaijan)  
Vice-chairman: prof. Araz Aliyev, prof. Soltan Aliyev

Working Group of the Conference: Namig Guliyev, Javanshir Hasanov, Vugar  
Ismayilov, Aynura Jafarova, Mehdi Mamedov, Sabina Sadigova

Организационный и программный комитет:

Председатели: академик Акиф Гаджиев (вице-президент НАН Азербайджана)  
проф. Мисир Марданов (директор ИММ НАН Азербайджана)  
Заместитель председателя: проф. Араз Алиев, проф. Солтан Алиев

Рабочая группа конференции: Джаваншир Гасанов, Айнура Джафарова,  
Вугар Исмаилов, Намик Кулиев, Мехти Мамедов, Сабина Садыгова

December 8, 2014  
Beginning at 11.00

Assembly Hall of the Institute of Mathematics and Mechanics

**11.00-11.20.** Opening of conference:

1. Opening address - academician A.D.Gadjiev, Vice-President of ANAS
2. M.G.Gasymov – 75 - prof. M.Bayramoglu

**11.20-11.50.** *A.A.Shkalikov.* Inverse Sturm-Liouville Problems. Stability. Reconstruction by a finite set of the spectra data

**11.50-12.20.** *S.S.Mirzoev.* Generalization of one M.G.Gasymov theorem on solvability of a boundary value problem for second order operator-differential equations of elliptic type

**12.20-12.50.** *H.M.Huseynov.* An inverse scattering problem for a system of Dirac equations with discontinuity conditions

*Coffee break*

**13.00-13.30.** *K.A.Mirzoev.* New limit-point criteria for Sturm-Liouville operator

**13.30-14.00.** *A.M.Akhtyamov.* Using of B.M.Levitan and M.G.Gasymov's solvability theorem to the inverse problem with nonseparated boundary conditions (*with V.A.Sadovnichii and Y.T.Sultanaev*)

December 9, 2014  
Beginning at 11.30

Assembly Hall of the Institute of Mathematics and Mechanics

**11.30-12.00.** *B.A.Aliev.* Asymptotic behavior of eigenvalues of a boundary value problem for a second order elliptic differential-operator equation (*with N.K.Kurbanova*)

**12.00-12.30.** *V.S.Guliyev.* Function spaces and integral operators associated with Schrödinger operators: an overview

**12.30-13.00.** *H.S.Mustafayev.* Growth conditions for operators with smallest spectrum

December 10, 2014  
Beginning at 10.00

Assembly Hall of the Institute of Mathematics and Mechanics

**10.00-10.30.** *Yakov Yakubov.* Recent developments in elliptic differential-operator problems in Hilbert and Banach spaces

**10.30-11.00.** *Yakov Yakubov.* Initial abstract boundary value problems for parabolic differential-operator equations in UMD Banach spaces (*with Angelo Favini*)

*Coffee break*

December 10, 2014  
Beginning at 11.30

Hall of the Department of “Equations of Mathematical Physics”

**11.30-12.00.** *E.H.Eyvazov.* On negative spectrum of two-dimensional Schrödinger operator in electromagnetic field

**12.00-12.30.** *M.Dzh.Manafov.* On the spectrum of a class of non-self-adjoint "weighted" operator with point  $\delta$ -interactions

**12.30-13.00.** *E.S.Panakhov.* Uniqueness of the solution of the inverse problem for one class of Sturm-Liouville operator (*with Tuba Gulsen*)

December 10, 2014  
Beginning at 11.30

Hall of the Department of “Non-harmonic Analysis”

**11.30-12.00.** *B.T.Bilalov.* On Kostyuchenko problem (*with T.B.Kasumov*)

**12.00-12.30.** *Ag.Kh.Khanmamedov,* Method of integration of the Volterra chain with stepwise initial condition (*with L.K.Asadova*)

**12.30-13.00.** *Kh.R.Mamedov.* Spectral expansion formula for a discontinuous Sturm-Liouville problem

December 10, 2014  
Beginning at 11.30

Hall of the Department of “Functional Analysis”

**11.30-12.00.** *A.M.Akhtyamov.* Identification of boundary conditions by eigenvalues

**12.00-12.30.** *V.M.Kurbanov,* Absolute convergence of spectral expansion in eigenfunctions of third order ordinary differential operator (*with E.B.Akhundova*)

**12.30-13.00.** *I.M.Nabiev.* Properties of the spectrum and uniqueness of reconstruction of Sturm-Liouville operator with a spectral parameter in the boundary condition (*with A.Sh.Shukurov*)

December 10, 2014  
Beginning at 11.30

Hall of the Department of “Differential Equations”

**11.30-12.00.** *R.Kh.Amirov.* Integral representations for a solutions for the diffusion differential equation (*with S.Gülyaz*)

**12.00-12.30.** *Z.S.Aliyev.* Oscillation properties of the eigenvector-functions of the one-dimensional Dirac's canonical system (*with H.Sh.Rzayeva*)

**12.30-13.00.** *E.A.Gasymov.* Application of the finite integral transformation method to solving mixed problems for hyperbolic equations with irregular boundary conditions (*with G.D.Orujov*)

December 10, 2014  
Beginning at 11.30

Hall of the Department of “Theory of Functions”

**11.30-12.00.** *A.R.Aliev.* Solvability of boundary value problem for elliptic operator-differential equations of fourth order with operator boundary conditions (*with E.S.Rzayev*)

**12.00-12.30.** *R.F.Efendiev.* Spectral analysis of the complex Hill operator on the star graph (*with Luis M. Garcia-Raffi*)

**12.30-13.00.** *Döne Karahan.* Uniqueness of the solution of the inverse problem for one class of Sturm-Liouville operator (*with Kh.R.Mamedov*)

## Poster reports

*R.M.Aliev and S.G.Gasymova*, On the error estimation of the eigenvalues of some boundary value problems

*G.I.Aslanov*, Asymptotic properties of solutions of partial operator-differential equations in Hilbert spaces

*V.I.Burenkov*, Spectral stability estimates for the eigenvalues of elliptic operators

*Z.F.A.El-Raheem*, Regularized trace formula for some singular Schrödinger type operator

*G.M.Gasimova*, On solvability conditions of a boundary value problem with an operator in the boundary condition for a second order elliptic operator-differential equation

*G.Sh.Guseinov*, On construction of a quadratic Sturm-Liouville operator pencil from spectral data

*M.I.Ismailov*, Inverse scattering problem for Dirac-type systems with a self-adjoint potential

*N.B.Kerimov and Emir Ali Maris*, On the basis properties and convergence of expansions in terms of eigenfunctions for a spectral problem with a spectral parameter in the boundary condition

*T.R.Muradov*, Topological properties of the space of coefficients generated by the non-degenerate system in metric spaces

*A.A.Nabiev*, Direct and inverse scattering problems for the one dimensional Schrödinger equation with the energy dependent potential and discontinuity conditions

*E.A.Nazirova, N.F.Valeev, and Y.T.Sultanaev*, The asymptotic of solutions of singular differential equations with large spectral parameter

*E.G.Orudzhev and S.A.Aliyev*, Construction of a kernel of the transformation operator for a fourth order differential bundle with multiple characteristics

*A.D.Orujov*, On the spectrum of the pencil of second order differential operators with periodic coefficients on the semi-axis

*V.V.Vlasov and N.A.Rautian*, Correct solvability of integro-differential equations arising in the theory of viscoelasticity

## *Participants of Conference:*

Azamat Akhtyamov (Ufa, Russia)  
Elnara Akhundova (Baku, Azerbaijan)  
Araz Aliev (Baku, Azerbaijan)  
Bahram Aliev (Baku, Azerbaijan)  
Rafiq Aliev (Baku, Azerbaijan)  
Sahil Aliyev (Nakhchivan, Azerbaijan)  
Ziyatkhan Aliyev (Baku, Azerbaijan)  
Rauf Amirov (Sivas, Turkey)  
Laman Asadova (Baku, Azerbaijan)  
Gamidulla Aslanov (Baku, Azerbaijan)  
Mammad Bayramoglu (Baku, Azerbaijan)  
Bilal Bilalov (Baku, Azerbaijan)  
Victor Burenkov (Cardiff, UK)  
Rakib Efendiev (Baku, Azerbaijan)  
Zaki El-Raheem (Alexandria, Egypt)  
Elshad Eyvazov (Baku, Azerbaijan)  
Angelo Favini (Bologna, Italy)  
Luis Garcia-Raffi (Valencia, Spain)  
Gunel Gasimova (Baku, Azerbaijan)  
Elmaga Gasymov (Baku, Azerbaijan)  
Sara Gasymova (Baku, Azerbaijan)  
Vagif Guliyev (Baku, Azerbaijan)  
Tuba Gulsen (Elazig, Turkey)  
Gusein Guseinov (Ankara, Turkey)  
S. Gülyaz (Sivas, Turkey)  
Hidayat Huseynov (Baku, Azerbaijan)  
Mansur İsmailov (Gebze, Turkey)  
Döne Karahan (Sanliurfa, Turkey)  
Telman Kasumov (Baku, Azerbaijan)  
Nazim Kerimov (Mersin, Turkey)  
Agil Khanmamedov (Baku, Azerbaijan)  
Vali Kurbanov (Baku, Azerbaijan)  
Nargul Kurbanova (Baku, Azerbaijan)  
Khanlar Mamedov (Mersin, Turkey)  
Manaf Manafov (Adiyaman, Turkey)  
Emir Ali Maris (Mersin, Turkey)  
Karakhan Mirzoev (Moscow, Russia)  
Sabir Mirzoev (Baku, Azerbaijan)  
Togrul Muradov (Baku, Azerbaijan)  
Heybetgulu Mustafayev (Van, Turkey)  
Anar Nabiev (Sivas, Turkey)  
Ibrahim Nabiev (Baku, Azerbaijan)  
Elvira Nazirova (Ufa, Russia)  
Elshar Orudzhev (Baku, Azerbaijan)  
Ashraf Orujov (Sivas, Turkey)  
Gamzaga Orujov (Baku, Azerbaijan)  
Etibar Panakhov (Elazig, Turkey)  
Nadezhda Rautian (Moscow, Russia)  
Elvin Rzayev (Baku, Azerbaijan)  
Humay Rzayeva (Ganja, Azerbaijan)  
Victor Sadovnichii (Moscow, Russia)  
Andrei Shkalikov (Moscow, Russia)  
Aydin Shukurov (Baku, Azerbaijan)  
Yaudat Sultanaev (Ufa, Russia)  
Nurmukhamet Valeev (Ufa, Russia)  
Victor Vlasov (Moscow, Russia)  
Yakov Yakubov (Tel-Aviv, Israel)