

GEORGIAN MATHEMATICAL UNION  
GEORGIAN NATIONAL ACADEMY OF SCIENCES  
IVANE JAVAKHISHVILI TBILISI STATE UNIVERSITY

**INTERNATIONAL WORKSHOP ON  
OPERATOR THEORY  
AND  
APPLICATIONS**

**IWOTA 2015**

**P R O G R A M**

Tbilisi, July 6 -10

2015

**Organizers:** Georgian Mathematical Union  
Georgian National Academy of Sciences  
Ivane Javakhishvili Tbilisi State University

**Sponsors:** International Mathematical Union, Committee for  
Developing Countries  
Stichting Advancement of Mathematics, Amsterdam, the  
Netherlands

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## **Thematic Sessions**

1. Structured Linear Algebra (Eidelman Yuli, Ran Andre)
2. Operator Theory Methods in Singular Integral Equations (Duduchava Roland, Epremidze Lasha, Spitkovsky Ilya)
3. Variational Methods and Applications (Kovtunenکو Victor, Oleinikov Alexander, Sadovskii Vladimir)
4. Toeplitz Operators and Related Topics (Grudsky Sergei , Vasilevski Nikolai)
5. Algebraic and Analytic Aspects of Hilbert Space Operators (Szafraniec Franciszek, Stochel Jan, Ptak Marek)
6. Perturbations of Linear Operators (Peller Vladimir)
7. Operator Theory, Real Algebraic Geometry and Moment Problems (Klep Igor, Vinnikov Victor)
8. Free Noncommutative Analysis and Its Applications (Ball Joseph, Vinnikov Victor)
9. Partial Differential Equations and Applications (Chkadua Otar)
10. Linear Operators and Spectral Problems (Hryniv Rostyslav )
11. Operator Theory, Real and Complex Analysis (Ter Horst Sanne)  
Memorial Session: Remembering Leiba Rodman (1949–2015)

**Editors:** T. Davitashvili, R. Duduchava

**Cover Design:** David Sulakvelidze

**Web page of the conference:** <http://www.gmu.ge/iwota2015/>

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## Schedule of the conference

July 5, Sunday - Registration

July 6, Monday

9<sup>00</sup> : 10<sup>10</sup>

**Opening of the IWOTA 2015**

Audience will be addressed by R.Duduchava, M. Kaashoek, Representatives of NAS, TSU etc.

**Room 1**

**Chairman: Kaashoek Marinus**

10<sup>10</sup> : 11<sup>20</sup>

**Bottcher Albrecht.** Toeplitz Determinants and Lattice Theory

11<sup>10</sup> : 11<sup>40</sup>

**Coffee break**

**Room 1**

**Chairman: Bottcher Albrecht**

11<sup>40</sup> : 12<sup>20</sup>

**Knees Dorothee.** Global Spatial Regularity Results for Elasticity Models with Cracks, Damage, Contact and Other Nonsmooth Constraints

12<sup>20</sup> : 13<sup>10</sup>

**Rabe Herman, Ran Andre.** Asymptotics of the Smallest Singular Value of a Class of Toeplitz Matrices and Related Rank One Perturbations

**Room 2**

**Chairman: Duduchava Roland**

11<sup>40</sup> : 12<sup>20</sup>

**Speck Frank-Olme.** Operator Relations in Boundary Value Problems

12<sup>20</sup> : 13<sup>10</sup>

**Lins Brian, Spitkovsky Ilya M.** On Inverse Continuity of the Numerical Range Generating Function

13<sup>10</sup> : 15<sup>00</sup>

**Lunch**

15<sup>00</sup> : 17<sup>00</sup>

**Parallel Sessions**

17<sup>00</sup> : 17<sup>30</sup>

**Coffee break**

17<sup>30</sup> : 19<sup>00</sup>

**Parallel Sessions**

## July 7, Tuesday

9<sup>00</sup> : 10<sup>00</sup>

**Registration**

**Room 1**

**Chairman: Esteban Maria**

9<sup>30</sup> : 10<sup>30</sup>

**Ball Joseph.** Multivariable Nevanlinna–Pick  
Interpolation: the Free Noncommutative Setting

10<sup>30</sup> : 11<sup>00</sup>

**Coffee break**

**Room 1**

**Chairman: Ball Joseph**

11<sup>00</sup> : 11<sup>50</sup>

**Peller Vladimir V.** Functions of Noncommuting Self-  
Adjoint Operators Under Perturbation and Triple  
Operator Integrals

12<sup>00</sup> : 12<sup>50</sup>

**Curto Raul E.** Non-Extremal Sextic Moment  
Problems

**Room 2**

**Chairman: Kapanadze David**

11<sup>00</sup> : 11<sup>50</sup>

**Rabinovich Vladimir.** Limit Operators and their  
Applications to Mathematical Physics

12<sup>00</sup> : 12<sup>50</sup>

**Klep Igor.** Commuting Dilations and Linear Matrix  
Inequalities

12<sup>50</sup> : 15<sup>00</sup>

**Lunch**

15<sup>00</sup> : 17<sup>00</sup>

**Parallel Sessions**

17<sup>00</sup> : 17<sup>30</sup>

**Coffee break**

17<sup>30</sup> : 19<sup>00</sup>

**Parallel Sessions**

19<sup>00</sup> - 23<sup>00</sup> **Conference Dinner**

**July 8, Wednesday – Social Program**

**July 9, Thursday**

**Room 1**

**Chairman: Spitkovsky Ilya**

9<sup>30</sup> : 10<sup>30</sup>

**Esteban Maria.** Spectral Estimates on Manifolds

10<sup>30</sup> : 11<sup>00</sup>

**Coffee break**

- Room 1**      **Chairman: Shkalikov Andrey**  
 11<sup>00</sup> : 11<sup>50</sup>    **Kaashoek Marinus.** Skew-Selfadjoint Dirac Systems with a Rational Weyl Function: Direct and Inverse Problems, and Related Nonlinear Equations
- 12<sup>00</sup> : 12<sup>50</sup>    **Kapanadze David.** Wave Diffraction by Wedges Having Arbitrary Aperture Angle
- Room 2**      **Chairman: Vasilevski Nikolai**  
 11<sup>00</sup> : 11<sup>50</sup>    **Meskhi Alexander.** Fractional Integral Operators Between Banach Function Lattices
- 12<sup>00</sup> : 12<sup>50</sup>    **Vinnikov Victor.** Characteristic Functions, Systems, Discriminant Curves and Vessels: the Ideas of Moshe S. Livšic and Some of their Further Developments
- 12<sup>50</sup> : 15<sup>00</sup>    **Lunch**
- 15<sup>00</sup> : 17<sup>00</sup>    **Parallel Sessions**
- 17<sup>00</sup> : 17<sup>30</sup>    **Coffee break**
- 17<sup>30</sup> : 19<sup>00</sup>    **Parallel Sessions**

## July 10, Friday

- Room 1**      **Chairman: Shargorodsky Eugene**  
 9<sup>30</sup> : 10<sup>30</sup>    **Shkalikov Andrey A.** Limit Spectrum Graph for Some Non-Self-Adjoint Differential Operators with Small Physical Parameter
- 10<sup>30</sup> : 11<sup>00</sup>    **Coffee break**
- Room 1**      **Chairman: Ran Andre**  
 11<sup>00</sup> : 11<sup>50</sup>    **Shargorodsky Eugene.** On the Definition of Pseudospectra
- 12<sup>00</sup> : 12<sup>50</sup>    **Vasilevski Nikolai.** Toeplitz Operators Defined by Sesquilinear Forms
- Room 2**      **Chairman: Rabinovich Vladimir**  
 11<sup>00</sup> : 11<sup>50</sup>    **Bart Harm.** Spectral Regularity of Banach Algebras and Sums of Idempotents

**12<sup>00</sup> : 12<sup>50</sup>**    **Kostenko Aleksey.** The String Density Problem and  
Nonlinear Wave Equations

**12<sup>50</sup> : 13<sup>00</sup>**    **Closing of the Conference**

**13<sup>00</sup> : 15<sup>00</sup>**    **Lunch**

**15<sup>00</sup> : 17<sup>00</sup>**    **Parallel Sessions**

**17<sup>00</sup> : 17<sup>30</sup>**    **Coffee break**

**17<sup>30</sup> : 19<sup>00</sup>**    **Parallel Sessions**



## Thematic sessions

### Thematic session 1: Structured Linear Algebra

July 7, Tuesday

Room TS1 Chairman: Ran Andre, Eidelman Yuli

14<sup>30</sup> : 15<sup>00</sup> **De Terán F., Dopico Froilan, Mackey D.S., Van Dooren P.** Polynomial Zigzag Matrices, Dual Minimal Bases, and Applications

15<sup>00</sup> : 15<sup>30</sup> **Gemignani Luca.** CMV Matrices in Polynomial Root Finding

15<sup>30</sup> : 16<sup>00</sup> **Eidelman Yuli.** Fast quasiseparable algorithms for matrix Pencils

16<sup>00</sup> : 16<sup>30</sup> **Bini D.A., Masei S., Robol Leonardo.** Efficient cyclic reduction for QBDs with rank structured blocks

16<sup>30</sup> : 17<sup>00</sup> **Kushel Olha.** On matrix D-stability and related properties

17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

17<sup>30</sup> : 18<sup>00</sup> **Hagger Raffael.** On the spectrum of certain random operators: A link to Julia sets

18<sup>00</sup> : 18<sup>30</sup> **Batzke L., Mehl Chr., Ran Andre, Rodman L.** Generic rank-k perturbations of J-Hamiltonian matrices

18<sup>30</sup> : 19<sup>00</sup> **Tyrtysnikov Eugene, Goreinov S., Zamarashkin N.** Maximal Volume and Expansions with Small Coefficients

July 9, Thursday

Room TS1 Chairman: Eidelman Yuli

15<sup>00</sup> : 15<sup>30</sup> **Bakherad Mojtaba.** Some operators inequalities via Contorovich constant

- 15<sup>30</sup> : 16<sup>00</sup> **Van Barel Marc.** Tensors of Hankel and Loewner-type
- 16<sup>00</sup> : 16<sup>30</sup> **Dopico Froilan, Uhlig Frank.** Computing Matrix Symmetrizers, leading to open Matrix Optimization Problems
- 16<sup>30</sup> : 17<sup>00</sup> **El Harti Richard.** Numerical range of adjointable operators on a Hilbert C\*-module and application
- 17<sup>00</sup> : 17<sup>30</sup> **Coffee break**
- 17<sup>30</sup> : 18<sup>00</sup> **Karmouni Mohammed.** On algebraic and analytic core
- 18<sup>00</sup> : 18<sup>30</sup> **Kye Seung-Hyeok.** Positivity of multi-linear maps to detect multi-partite entanglement
- 18<sup>30</sup> : 19<sup>00</sup> **Mokhtari Amirhossein, Vishki H.R.E..** Lie derivations o a certain class of algebras

## **Thematic session 2: Operator Theory Methods in Singular Integral Equations**

Dedicated to the 100-th birthday of Prof. Boris Khvedelidze

**July 6, Monday**

**Room TS2 Chairman: Duduchava Roland**

- 15<sup>00</sup> : 15<sup>30</sup> Professor Boris Khvedelidze: Scientist, Teacher, Personality (100 year from the birthday)
- 15<sup>30</sup> : 16<sup>00</sup> **Rabinovich Vladimir.** Boundary integral equations of diffraction problems on unbounded smooth obstacles
- 16<sup>00</sup> : 16<sup>30</sup> **Hill Tony.** On Wiener-Hopf and Mellin operators arising in the theory of Levy processes
- 16<sup>30</sup> : 17<sup>00</sup>
- 17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

## July 7, Tuesday

**Room TS2 Chairman: Spitkovsky Ilya**

15<sup>00</sup> : 15<sup>30</sup> **Karlovich Yuri.** The Haseman boundary value problem with oscillating matrix coefficient

15<sup>30</sup> : 16<sup>00</sup> **Kamalyan Armen.** The set of tuples of partial indices of triangular matrix functions

16<sup>00</sup> : 16<sup>30</sup> **Karlovych Oleksiy.** The index of weighted singular integral operators with shifts and slowly oscillating data

16<sup>30</sup> : 17<sup>00</sup> **Ephremidze Lasha.** Rank-Deficient Spectral Factorization and Wavelets Completion Problem

17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

## July 9, Thursday

**Room TS2 Chairman: Rabinovich Vladimir**

15<sup>00</sup> : 15<sup>30</sup> **Ovchinnikov Vladimir.** On spectrum of Banach couples

15<sup>30</sup> : 16<sup>00</sup> **Castro Luis.** Diffraction by a half-plane with different face impedances on an obstacle perpendicular to the boundary

16<sup>00</sup> : 16<sup>30</sup> **Didenko Victor.** On the kernels of generalized Toeplitz plus Hankel operators

16<sup>30</sup> : 17<sup>00</sup> **Gürkanli A.Turan.** Bilinear multipliers of some functional spaces

17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

## July 10, Friday

**Room TS2 Chairman: Ephremidze Lasha**

15<sup>00</sup> : 15<sup>30</sup> **Kovalyov Ivan.** Darboux transformation of generalized Jacobi matrices.

- 15<sup>30</sup> : 16<sup>00</sup> **Sharma Preeti.** Statistical approximation properties of modified Durrmeyer  $q$ -Baskakov type operators with two parameter  $\alpha$  and  $\beta$
- 16<sup>00</sup> : 16<sup>30</sup> **Duduchava Roland, Tsaava Medea.** Mixed boundary value problems for the Laplace-Beltrami equation
- 16<sup>30</sup> : 17<sup>00</sup>
- 17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

### Thematic session 3: Variational Methods and Applications

July 7, Tuesday

Room TS3 Chairman: Oleinikov Alexander

- 14<sup>30</sup> : 15<sup>00</sup> **Kovtunenکو Victor.** Topology optimization for Helmholtz problems in 2d.
- 15<sup>00</sup> : 15<sup>30</sup> **Melnikov Boris, Makarkin S.B., Melnikova E.A., Trenina M.A.** On a metric for pseudo-optimal location of cities in pseudo-geometrical traveling salesman problem.
- 15<sup>30</sup> : 16<sup>00</sup> **Oleinikov Alexander.** Variational formulation of wing panel forming.
- 16<sup>00</sup> : 16<sup>30</sup> **Oleinikov Andriy.** Motion equations of deformable bodies of Hencky's isotropic hyperelastic material.
- 16<sup>30</sup> : 17<sup>00</sup> **Rudoy Evgeny.** First- and second-order sensitivity analysis for a body with a thin rigid inclusion.
- 17<sup>00</sup> : 17<sup>30</sup> **Coffee break**
- 17<sup>30</sup> : 18<sup>00</sup> **Shcherbakov Victor.** Griffith formula and J-integral for elastic bodies with Timoshenko inclusions.
- 18<sup>00</sup> : 18<sup>30</sup> **Sadovskii Vladimir.** New mathematical models of structurally inhomogeneous media, having different resistance to tension and compression.

18<sup>30</sup> : 19<sup>00</sup> **Sadovskaya Oxana**. Parallel computational algorithms in problems of the dynamics of structurally inhomogeneous media.

#### **Thematic session 4: Toeplitz Operators and Related Topics**

**July 7, Tuesday**

**Room TS4 Chairman: Grudsky Sergei**

15<sup>00</sup> : 15<sup>30</sup> **Rochberg Richard**. A distance function in reproducing kernel Hilbert spaces

5<sup>30</sup> : 16<sup>00</sup> **Carlsson Marcus**. On General Domain Truncated Correlation and Convolution Operators with Finite Rank

16<sup>00</sup> : 16<sup>30</sup> **Chung Young-Bok**. Generalization of Toeplitz operators on Bergman and Hardy spaces on bounded domains

16<sup>30</sup> : 17<sup>00</sup> **Quiroga-Barranco Raul**. Commuting Toeplitz operators and their geometry

17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

17<sup>30</sup> : 18<sup>00</sup> **Sánchez-Nungaray Armando**. Toeplitz Operators with Quasi-Homogeneous Quasi-Radial Symbols on some Weakly Pseudoconvex Domains

18<sup>00</sup> : 18<sup>30</sup> **Grigoryan T., Lipacheva E., Tepoyan Vardan**. On the extension of the Toeplitz algebra

**July 9, Thursday**

**Room TS4 Chairman: Vasilevski Nikolai**

15<sup>00</sup> : 15<sup>30</sup> **Carlsson Marcus**. Operator-Lipschitz estimates for the singular value functional calculus

15<sup>30</sup> : 16<sup>00</sup> **Grudsky Sergei**. Soliton Theory of the KdV Equation and Hankel Operators with Oscillating Symbols

- 16<sup>00</sup> : 16<sup>30</sup> **Karlovich Yuri.** Index formula for convolution type operators with data functions in  $Alg(SO,PS)$
- 16<sup>30</sup> : 17<sup>00</sup> **Pushnitski Alexander.** Asymptotic behaviour of eigenvalues of Hankel operators.
- 17<sup>00</sup> : 17<sup>30</sup> **Coffee break**
- 17<sup>30</sup> : 18<sup>00</sup> **Sarkar Jaydeb.** Quotient Modules of  $H^2(\mathbb{D}^n)$
- 18<sup>00</sup> : 18<sup>30</sup> **Shargorodsky Eugene.** On the continuity of the spectral factorization mapping: quantitative results

### Thematic session 5: Algebraic and Analytic Aspects of Hilbert Space Operators

July 6, Monday

Room TS5 Chairman: Szafraniec Franciszek H.

- 15<sup>00</sup> : 15<sup>30</sup> **Curto Raul, Yoon Jasang.** Multivariable Aluthge Transforms
- 15<sup>30</sup> : 16<sup>00</sup> **Helton J.W., Klep Igor, McCullough S., Schweighofer M.** Dilating tuples of symmetric matrices to commuting tuples of selfadjoint operators
- 16<sup>00</sup> : 16<sup>30</sup> **Budzynski Piotr, Jablonski Zenon, Jung I. B., Stochel Jan.** Unbounded subnormal weighted composition operators in  $L^2$ -spaces
- 16<sup>30</sup> : 17<sup>00</sup> **Goenewald G., Kaashoek Marinus, Ter Horst Sanne.** The Bezout-corona problem revisited: Wiener space setting
- 17<sup>00</sup> : 17<sup>30</sup> **Coffee break**
- Room TS5 Chairman: Stanislaw Goldstein
- 17<sup>30</sup> : 18<sup>00</sup> **Gogic Ilja.** When are the lengths of elementary operators uniformly bounded?

18<sup>00</sup> : 18<sup>30</sup> **Budzynski Piotr, Jablonski Zenon, Jung I. B. and Stochel Jan.** Subnormality of composition operators: exotic examples. I

18<sup>30</sup> : 19<sup>00</sup> **Budzynski Piotr, Jablonski Zenon, Jung I. B. and Stochel Jan.** Subnormality of composition operators: exotic examples. II

### July 7, Tuesday

**Room TS5 Chairman: Stochel Jan**

15<sup>00</sup> : 15<sup>30</sup> **Szafraniec Franciszek H.** The Sobolev moment problem

15<sup>30</sup> : 16<sup>00</sup> **Helemskii Aleksander.** Phenomena of projectivity and freeness in classical and quantum functional analysis

16<sup>00</sup> : 16<sup>30</sup> **Pascu Mihai.** Spaces of smooth vectors - alternate characterizations

16<sup>30</sup> : 17<sup>00</sup> **Domnich A., Suchocheva Ludmila.** On the Inverse Problem for Strong Hyperbolic Pencils

17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

**Room TS5 Chairman: Helemskii Aleksander**

17<sup>30</sup> : 18<sup>00</sup> **Djordjevic S. , Kantun Gabriel,** Spectral sets and generalized inverses

18<sup>00</sup> : 18<sup>30</sup> **Dymek Piotr, Stochel Jan, Jablonski Zenon.** Selected properties of weighted shift operators on directed trees

18<sup>30</sup> : 19<sup>00</sup> **Mlocek W., Ptak Marek.** On the hyperreflexivity of subspaces of Toeplitz operators on regions in the complex plane

## July 9, Thursday

**Room TS5** Chairman: Ptak Marek

15<sup>00</sup> : 15<sup>30</sup> Argerami Martin, Isomorphisms of Operator Systems

15<sup>30</sup> : 16<sup>00</sup> Goldstein Stanislaw, Paszkievicz A. Measurability and weights on von Neumann algebras

16<sup>00</sup> : 16<sup>30</sup> Joita Maria, Zarakas Ioannis. A construction of pro-C\* - algebras from pro-C\* -correspondences

16<sup>30</sup> : 17<sup>00</sup> Kachkovskiy Ilya, Safarov Y. On the distance to normal elements in C\*-algebras of real rank zero

17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

**Room TS5** Chairman: Curto Raul

17<sup>30</sup> : 18<sup>00</sup> Belishev Miklail. A functional model of a symmetric semi-bounded operator in inverse problems on manifolds

18<sup>00</sup> : 18<sup>30</sup> Budzynski Piotr, Dymek Piotr, Planeta Artur. Composition operators in L<sup>2</sup> spaces via inductive limits

18<sup>30</sup> : 19<sup>00</sup> Pietrzycki Pawel. Relationship between the equality  $A^*nA^n=(A^*A)^n$  and composition operators in L<sup>2</sup> spaces

## Thematic session 6: Perturbations of Linear Operators

### July 6, Monday

**Room TS6** Chairman: Pushnitski Alexander

15<sup>00</sup> : 15<sup>30</sup> Bandtlow Oscar. Lower bounds for regularised determinants

15<sup>30</sup> : 16<sup>00</sup> Burenkov Victor. Conformal spectral stability estimates for the Dirichlet Laplacian

16<sup>00</sup> : 16<sup>30</sup> Golla Ramesh. Absolutely minimum attaining closed operators



- 16<sup>30</sup> : 17<sup>00</sup> **Konechnaya Natalia.** About asymptotic behavior of solutions for a class of differential equations
- 17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

## July 7, Tuesday

**Room TS6 Chairman: Peller Vladimir**

- 15<sup>00</sup> : 15<sup>30</sup> **Leiterer Jürgen.** On the Jordan structure of holomorphic matrices
- 15<sup>30</sup> : 16<sup>00</sup> **Pushnitski Alexander.** Perturbations of discontinuous functions of self-adjoint operators
- 16<sup>00</sup> : 16<sup>30</sup> **Safonova Tatiana, Mirzoev K.A.** About deficiency index of the vector Sturm-Liouville operator
- 16<sup>30</sup> : 17<sup>00</sup> **Tomskova Anna.** On the Arazy conjecture concerning Schur multipliers on Schatten ideals
- 17<sup>00</sup> : 17<sup>30</sup> **Usachev Alexandr.** Singular traces and perturbation formulae

## Thematic session 7 : Operator Theory, Real Algebraic Geometry, And Moment Problems

### July 6, Monday

**Room TS7 Chairman: Klep Igor, Vinnikov Victor**

- 15<sup>00</sup> : 15<sup>30</sup> **Kuhlmann Salma.** The moment problem in infinitely many variables
- 15<sup>30</sup> : 16<sup>00</sup> **Hanselka Christoph.** Definite Quadratic Forms and Hyperbolic Polynomials
- 16<sup>00</sup> : 16<sup>30</sup> **Zalar Aljaz.** Matrix Fejer-Riesz theorem with gaps
- 16<sup>30</sup> : 17<sup>00</sup> **Goel Charu.** Some applications of sum of squares representations of even symmetric forms
- 17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

- 17<sup>30</sup> : 18<sup>00</sup> **Lomidze Ilia, Chachava Natela.** Classification of Hermitian Operators Characteristic Polynomials with Their Polynomial Invariants
- 18<sup>00</sup> : 18<sup>30</sup> **Golla Ramesh, Pamula Santhosh Kumar.** Multiplication form of Normal operator on a Quaternionic Hilbert space
- 18<sup>30</sup> : 19<sup>00</sup> **Shukur Ali A.** Estimate for Powers of Norm Operator, generated by rotation

### July 7, Tuesday

**Room TS7 Chairman: Klep Igor, Vinnikov Victor**

- 15<sup>00</sup> : 15<sup>30</sup> **Klep Igor.** Matrix Convex Sets, Spectrahedrops and a Positivstellensatz
- 15<sup>30</sup> : 16<sup>00</sup> **Curto Raul.** The Division Algorithm in Truncated Moment Problems
- 16<sup>00</sup> : 16<sup>30</sup> **Shamovich Eli.** Real Fibered Morphisms
- 16<sup>30</sup> : 17<sup>00</sup> **Vinnikov Victor.** Matrix-valued Hermitian Positivstellensatz, lurking contractions, and contractive determinantal representations of stable polynomials
- 17<sup>00</sup> : 17<sup>30</sup> **Coffee break**
- 17<sup>30</sup> : 18<sup>00</sup> **Dritschel Michael.** Boundary representations and the Agler algebra over the tri-disk

### Thematic session 8: Free Noncommutative Analysis and Its Applications

#### July 9, Thursday

**Room TS8 Chairman: Ball Joseph, Vinnikov Victor**

- 15<sup>00</sup> : 15<sup>30</sup> **Kaliuzhnyi-Verbovetskyi Dmitry.** Contractive determinantal representations of stable polynomials on a matrix polyball

- 15<sup>30</sup> : 16<sup>00</sup> **Klep Igor.** Proper Maps between Free Convex Domains
- 16<sup>00</sup> : 16<sup>30</sup> **Ter Horst Sanne.** Stability of multidimensional systems and Stein inequalities: the free noncommutative case
- 16<sup>30</sup> : 17<sup>00</sup> **Ball Joseph.** Function-theoretic Operator Theory: a Quantized Setting
- 17<sup>00</sup> : 17<sup>30</sup> **Coffee break**
- 17<sup>30</sup> : 18<sup>00</sup> **Vinnikov Victor.** Noncommutative completely positive kernels

### Thematic session 9: Partial differential equations and applications

July 7, Tuesday

**Room TS9 Chairman: Shargorodsky Eugene**

15<sup>00</sup> : 15<sup>30</sup> **Chkadua George.** Uniqueness of solutions of the hypoelliptic differential equations

15<sup>30</sup> : 16<sup>00</sup> **Buchukuri Tengiz, Duduchava Roland, Tephnadze George.** Laplace-Beltrami equation on hypersurfaces and  $\Gamma$ -convergence.

16<sup>00</sup> : 16<sup>30</sup> **Chkadua Otar, Natroshvili David.** Localized Boundary-Domain Integral Equations Approach for Problems of the Theory of Electro-Magneto-Elasticity for Inhomogeneous Solids.

16<sup>30</sup> : 17<sup>00</sup> **Pesetskaya Ekaterina.** The effective conductivity properties in temperature dependent double periodic 2D composite materials.

17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

**Room TS9 Chairman: Speck Frank-Olme**

17<sup>30</sup> : 18<sup>00</sup> **Palvelev Roman.** Scattering of vortices in Abelian Higgs models on Riemann surfaces.

18<sup>00</sup> : 18<sup>30</sup> **Lanza De Cristoforis Massimo, Musolino Paolo.** A functional analytic approach to homogenization problems

## July 9, Thursday

**Room TS9** Chairman: Chkadua Otar

15<sup>00</sup> : 15<sup>30</sup>

**Aslanov Camidulla, Abdullayeva Novrasta.**

Investigation of resolvent of operator-differential equations on semi-axis.

15<sup>30</sup> : 16<sup>00</sup>

**Gadjiev Tahir, Kerimova M.N., Aliev Kh. H.** The behaviour of solutions of degenerate elliptic-parabolic equations.

16<sup>00</sup> : 16<sup>30</sup>

**Skalliukh Alexander .** Hysteresis operators as a constitutive relations in modeling of irreversible processes of polarization of the ferroelectric materials.

16<sup>30</sup> : 17<sup>00</sup>

**Guliev H., Gadjiev T.S., Aliev S.A.** Blow-up solutions some classes of the nonlinear parabolic equations.

17<sup>00</sup> : 17<sup>30</sup>

**Coffee break**

## Thematic session 10: Linear Operators and Spectral Problems

### July 6, Monday

**Room TS10** Chairman: Hryniv Rostyslav

15<sup>00</sup> : 15<sup>30</sup>

**Plichko Anatolij.** Rate of decay of the Bernstein numbers

15<sup>30</sup> : 16<sup>00</sup>

**Bin Abu Baker Abdullah.** Generalized 3-circular projections on function spaces

16<sup>00</sup> : 16<sup>30</sup>

**Drivaliaris Dimosthenis and Yannakakis Nikos.** The angle of an operator and range-kernel complementarity

16<sup>30</sup> : 17<sup>00</sup>

**Psarrakos Panayiotis J.** Birkhoff-James approximate orthogonality sets

17<sup>00</sup> : 17<sup>30</sup>

**Coffee break**

## July 7, Tuesday

**Room TS10**    **Chairman: Psarrakos Panayiotis J.**

15<sup>00</sup> : 15<sup>30</sup>    **Jikia Vagner.** Some divergence integrals and Dirac delta function

15<sup>30</sup> : 16<sup>00</sup>    **Hryniv Rostyslav.** Inverse scattering for singular energy-dependent Schrödinger equations

16<sup>00</sup> : 16<sup>30</sup>    **Mamedov Khanlar R.** On the inverse problem for discontinuous Sturm-Liouville operator

16<sup>30</sup> : 17<sup>00</sup>    **Dudik Olha.** Normal oscillations of a pendulum with two capillary viscous fluids

17<sup>00</sup> : 17<sup>30</sup>    **Coffee break**

## Thematic session 11: Operator Theory, Real and Complex Analysis

### July 6, Monday

**Room TS11**    **Chairman: Belyi Sergey**

15<sup>00</sup> : 15<sup>30</sup>    **Persson L.-E. and Tephnadze George.** On the restricted maximal operator of Féjer means with respect to Vilenkin-Fourier series

15<sup>30</sup> : 16<sup>00</sup>    **Unal Cihan and Aydin I.** On Some Properties of a Weighted Space

16<sup>00</sup> : 16<sup>30</sup>    **Tararykova Tamara.** On boundedness of the Hardy operator in Morrey-type spaces

16<sup>30</sup> : 17<sup>00</sup>    **Jain Dilip.** Statistical approximation properties of Stancu type  $q$ -Baskakov-Kantorovich Operators

17<sup>00</sup> : 17<sup>30</sup>    **Coffee break**

17<sup>30</sup> : 18<sup>00</sup>    **Bhattacharjee Monojit and Sarkar Jaydeb.** Operator positivity and analytic models of commuting tuples of

operators  
17<sup>30</sup> : 18<sup>00</sup> **Kosiński Lukasz.** Three-point Nevanlinna-Pick problem in the polydisc

## July 7, Tuesday

Room TS11 **Chairman: Ter Horst Sanne**

15<sup>00</sup> : 15<sup>30</sup> **Belyi Sergey.** Generalized Donoghue classes and conservative L-systems

15<sup>30</sup> : 16<sup>00</sup> **Valusescu Ilie.** On the maximal function of a contraction operator

16<sup>00</sup> : 16<sup>30</sup> **Estévez Daniel.** Separation of singularities, generation of algebras and complete K-spectral sets

16<sup>30</sup> : 17<sup>00</sup> **Kamalov Firuz.** The structure of crossed product C\*-algebras with finite groups

17<sup>00</sup> : 17<sup>30</sup> **Coffee break**

## Poster session

## July 6, Monday

Room PS3

17<sup>00</sup> : 18<sup>00</sup> **Gubes Murat, Acar Mediha, Keskin Yildiray, Oturanc Galip.** Reduced Differential Transform Method for Partial Differential Equations

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