Conference IMCS – 50

August 19-23, 2014, Chisinau, Republic of Moldova

Organizer: Institute of Mathematics and Computer Science of the Academy of Sciences of Moldova in co-operation with: Moldova State University, Tiraspol State University, University of the Academy of Sciences of Moldova, Academy of Economical Studies of Moldova and Information Society Development Institute.

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	Andrei Perjan, Si		Silvia Ceban	

Timetable

<u>Tuesday, August 19</u>

Place: Institute of Mathematics and Computer Science **Address:**

5, Academiei street, Chişinău, Republic of Moldova, MD 2028

10:00 - 18:00 REGISTRATION

Wednesday, August 20

Place: Central Scientific Library of the Academy of Sciences of Moldova,

Address:

5a, Academiei street, Chişinău, Republic of Moldova, MD 2028

- **09:00 09:30** Registration
- 09:30 10:00 Opening Session
- 10:00 11:30 Plenary Lectures
- 11:30 12-00 COFFEE BREAK
- 12:00 13:30 Plenary Lectures
- 13:30 15:00 LUNCH

WORKING IN SECTIONS

Place:

University of the Academy of Sciences of Moldova (UnAŞM) Address:

3/2, Academiei street, Chişinău, Republic of Moldova, MD 2028

15:00 - 16:30 Working in sections

16:30 – 17:00 COFFEE BREAK

17:00 - 18:30 Working in sections

DISCUSSIONS

Thursday, August 21

Place:

University of the Academy of Sciences of Moldova (UnAŞM) Address:

3/2, Academiei street, Chișinău, Republic of Moldova, MD 2028

WORKING IN SECTIONS AND MINISYMPOSIA (MS)

09:00 - 11:00 Working in sections and MS

11:00 – 11:30 COFFEE BREAK

11:30 – 13:00 Working in sections and MS

13:00 – 14:30 LUNCH

- 14:30 16:30 Working in sections and MS
- 16:30 17:00 COFFEE BREAK
- 17:00 18:30 Working in sections and MS

DISCUSSIONS

Friday, August 22

Visiting session and Social program

Saturday, August 23

DEPARTURE

Timetable and Program

Wednesday, August 20

Place:

Central Scientific Library of Academy of Sciences of Moldova Address:

5a, Academiei street, Chisinau, Republic of Moldova, MD 2028

09:00 – 09:30 Registration

09:30 – 10:00 Opening Session (chairs Svetlana Cojocaru and Mitrofan Choban)

Plenary Lectures

Chairmen: Svetlana COJOCARU, Mitrofan CHOBAN

- 10:00 10:10 Svetlana Cojocaru Institute of Mathematics and Computer Science at 50 years age
- **10:10 10:20** *Mitrofan Choban* Mathematics in Universities after 1960
- **10:20 11:00** *Milan Tuba* Metaheuristic Optimization in Image Processing
- 11:00 11:30 COFFEE BREAK
- 11:30 12:10 Petar Kenderov Generic Variational Principles in General Topological Spaces
- 12.10 12:50 Volodymyr Kyrychenko Weakly prime rings
- 12.50 13:30 Valery Romanovski Integrability of polynomial systems of ODEs
- 13:30 15:00 LUNCH

Working in sections

Place:

University of the Academy of Sciences of Moldova (UnAŞM) Address:

3/2, Academiei street, Chisinau, Republic of Moldova, MD 2028

SECTION 1: Algebra, Geometry and Topology

Wednesday, 20 August (UnAŞM, office 22)

Chairman: Volodymyr KYRYCHENKO

- **15:00 15:30** Ion Grama, Emile Le Page, Marc Peigné Limit theorems for random walks in the general linear group
- **15:30 15:50** Bogdan Ichim, Andrei Zarojanu An introduction to Hilbert depth
- 15:50 16:10 Valeriu Popa On locally compact rings of continuous endomorphisms of LCA groups
- 16:10 16:30 Olga Izbaş, Andrei RusuOn absence of finite approximation relative to model completeness in the propositional provability logic
- 16:30 17:00 COFFEE BREAK

Chairman: Fedir M. SOKHATSKY

- **17:00 17:30** Victor Chepoi, Mark Hagen Coloring hyperplanes of CAT(0) cube complexes
- 17:30 17:50 Natalia Bobeica, Liubomir Chiriac On a method of constructing medial and paramedial quasigroups
- 17:50 18:10 *Tatiana Popovich* On near-totally conjugate orthogonal quasigroups

- **18:10 18:30** *V.A. Shcherbacov, N.A. Moldovyan* About one cryptoalgorithm
- **18:30 18:50** Inga Larionova-Cojocaru, Parascovia Syrbu On recursive differentiability of binary quasigroups
- **18.50 19:10** *Ion Grecu* On multiplication groups of isostrophic quasigroups

Thursday, August 21 (UnASM, office 22)

Chairman: Wieslaw A. DUDEK

- **09:00 09:30** *V.I. Arnautov, G.N. Ermakova* Properties of main latices of group topologies
- **09:30 10:00** Fedir M. Sokhatsky, Ievgen Pirus About top-quasigroups
- **10:00 10:20** *Mitrofan Choban, Ekaterina Mihaylova* Families of strictly p-subspaces
- **10:20 10:40** *Rayisa Koval* Invariants of parastrophic equivalency
- **10:40 11:00** *Radu N. Dumbrăveanu* About extensions of mappings into topologically complete spaces

11:00 – 11:30 COFFEE BREAK

Chairman: Mitrofan CHOBAN

- 11:30 12:00 Ivan I. Deriyenko, Wieslaw A. Dudek On some classes of quasigroups
- 12:00 12:20 Elena Cojuhari, Barry Gardner On skew polynomial rings and some related rings
- **12:20 12:40** *Vladimir Izbash* Mappings compatible with equivalence relations
- 12:40 13:00 *Kuznetsov Eugene* Autotopies and automorphisms of distinguished loop transversal in a sharply 2-transitive permutation group
- 13:00 14:30 LUNCH

Chairman: Vladimir ARNAUTOV

14:30 – 15:00 Alexandru Lungu The minor groups of 6-symmetry, generated by tablet groups

15:00 – 15:30 Florin Damian, Vitalii Makarov, Peter Makarov Star, non compact, and compact, hyperbolic

Star non-compact and compact hyperbolic lens polytopes

- 15:30 15:50 Elizaveta Zamorzaeva. On isohedral tilings by 12-gons for hyperbolic group of genus two
- **15:50 16:10** *I.S. Gutsu* On the completion of incomplete non-orientable hyperbolic 3-manifolds
- **16:10 16:30** Laurențiu Calmuţchi On a poset of extensions with first-countable remainder
- **16:30 17:00 COFFEE BREAK**

Chairman: Alexandru LUNGU

- 17:00 17:30 *Galina B. Belyavskaya* Successively orthogonal systems of k-ary operations and their transformations
- 17:30 17:50 Alexei Kashu Closure operators in R-Mod: the main operations and their properties
- 17:50 18:10 *Dumitru Botnaru, Alina Turcanu* Relative torsion theories
- **18:10 18:30** *Dina Ceban, Parascovia Syrbu* On the holomorph of π -quasigroups of type T₁
- **18:30 18:50** Leonid Ursu About one special inversion matrix of 3-ary and 4-ary IP-loops
- **18:50 19:10** Loriana Andrei, Mitrofan Choban Functional subordination in general spaces

SECTION 2: Mathematical Analysis and Differential Equations

Wednesday, 20 August (UnASM, office 4)

- Chairmen: Serban E. VLAD, Andrei PERJAN
- 15:00 15:25 Vasile Glavan, Valeriu Guțu On compact viable sets in affine IFS with coherent hyperbolic structure
- **15:25 15:50** Serban E. Vlad The double eventual periodicity of the asynchronous flows
- 15:50 16:10 Oxana Diaconescu, Dana Schlomiuk, Nicolae Vulpe

Bifurcation diagrams and quotient topological spaces under the action of the affine group on a subclass of quadratic vector fields

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16:10 – 16:30 Ewa Stróżyna
Complete normal forms for germs of vector field with
quadratic leading part
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16:30 - 17:00 COFFEE BREAK

Chairmen: Valery GAIKO, Vasile GLAVAN

- 17:00 17:20 *Valerii Dryuma* The Monge equation and topology of solutions of the second order ODE's
- 17:20 17:40 Andrei Perjan, Galina Rusu Limits of solutions to the singularly perturbed abstract hyperbolic-parabolic systems
- 17:40 17:55 Iurie Calin, Valeriu Baltag
 The GL(2, R) -invariant center conditions for the cubic differential systems with degenerate infinity
- 17:55 18:10 Iurie Calin, Stanislav Ciubotaru

The rational bases of GL(2, R) - comitants and invariants for the bidimensional system of differential equations with nonlinearities of the fourth degree

18:10 – 18:30 Valery Gaiko

A bifurcation scenario of chaos transition for the classical Lorenz system

18:30 – 18:45 *Peter V. Dovbush* On admissible limits of holomorphic functions of several complex variables

Thursday, August 21 (UnASM, office 4)

Subsection: Minisimposia "Dynamical systems and their applications"

Chairmen: Ilie BURDUJAN, Mihail POPA

- 09:00 09:25 *Ilie Burdujan* A class of homogeneous quadratic differential systems without derivations
- **09:25 09:50** *Yaroslav Bihun* Averaging of a multifrequency boundary-value problem with delay
- 09:50 10:15 Igor Cherevko, Andrew Dorosh Solving boundary value problems for delay integrodifferential equations using spline functions
- 10:15 10:40 Inessa Krasnokutska The Averaging in the Multifrequency System of Differential Equations with Linearly Transformed Arguments and Integral Boundary Conditions
- 10:40 11:00 Erdogan Sen, Kamil Orucoglu Existence and uniqueness of positive solutions for a boundary value problem with a Laplacian operator

11:00 - 11:30 COFFEE BREAK

Chairmen: Henryk ŻOŁĄDEK, Valeri GROMAK

- 11:30 11:55 Valeri Gromak Solution of the Chazy system
- **11:55 12:20** *Henryk Żołądek* The Painlevé equations in Hamiltonian form

- 12:20 12:45 Brigita Ferčec, Jaume Giné, Valery G. Romanovski Integrability of some two-dimensional systems with homogeneous nonlinearities
- 12:45 13:00 David Cheban Birkhoff's center of compact dissipative dynamical system

13:00 - 14:30 LUNCH

Chairmen: Valery ROMANOVSKI, Vladimir V. AMEL'KIN

- 14:30 14:55 V. V. Amel'kin, M. N. Vasilevich Construction of a Pfaff System of Fuchs Type with the Reducible Residue Matrices
- 14:55 15:20 A. E. Roudenok Isochronous Hamiltonians with quadratic nonlinearities
- **15:20 15:45** *Mihail Popa, Victor Pricop* The upper and lower bounds for number of conditions for center of the differential system s(1,2,...,q).
- 15:45 16:05 Anton P. Sadovskii
 About one irreducible component of the center variety of cubic system with two invariant straight lines and one invariant conic
- 16:05 16:30 Anton P. Sadovskii, Tatsiana V. Shcheglova Cozma's centers with invariant straight lines and conics
- 16:30 17:00 COFFEE BREAK

Chairmen: Anton P. SADOVSKII, Dumitru COZMA

- 17:00 17:20 Alexandru Şubă, Dumitru Cozma Algebraic limit cycles in polynomial differential systems with a weak focus
- 17:20 17:35 *Cristina Bujac* Cubic systems with two distinct infinite singularities and 8 invariant lines

- 17:35 17:55 Alexandru Şubă, Olga Vacaraş Cubic differential systems with a straight line of maximal multiplicity
- 17:55 18:10 Natalia Neagu, Mihail Popa, Victor Orlov First integrals with polynomials not higher than second order of the mathematical model of the intrinsic transmission dynamics of tuberculosis
- 18:10 18:30 J.C. Artés, J. Llibre, D. Schlomiuk, N. Vulpe Global configurations of singularities for quadratic differential systems with total finite multiplicity three and at most two real singularities
- 18:30 18:45 Regilene D. S. Oliveira, Alex C. Rezende, Nicolae Vulpe
 Family of quadratic differential systems with invariant hyperbolas
- 18:45 19:00 Sergiu Port Representations of the Lie tangential transformations

SECTION 3: Mathematical Modelling and Numerical Analysis

Wednesday, 20 August (UnASM, office 7)

Chairmen: Sergiu CATARANCHIUC, Victor CEPOI

15:00 – 15:30 J. Chalopin, V. Chepoi, P. Papasoglu, T. Pecatte

Gromov hiperbolicity and cop and rober game

- 15:30 15:45 Mihai Bulat, Sergiu Cataranciuc, Iacob Ciobanu, Vladimir Izbas, Aureliu Zgureanu Derivation of boolean functions by the blocks method
- 15:45 16:00 *Dumitru Zambitchi* Optimization problems on graphs and transport networks
- **16:00 16:15** *Nicolae Grigoriu* B-stable subgraphs in undirected graphs

16:15 – 16:30 Sergiu Cataranciuc Euler characteristic of abstract cubes complex

16:30 - 17:00 COFFEE BREAK

Chairman: Gheorghe MISHKOI

- 17:00 17:30 Diana Bejenari, Attahiru S. Alfa, Gheorghe Mishkoy, Lilia Mitev Auxiliary busy periods for M₂|G₂|1 system with PH distribution and strategy "reset-to-zero"
- 17:30 17:45 *Gheorghe Mishkoy, Diana Bejenari, Lilia Mitev* Performance characteristics for semi-Markov polling models with exhaustive service
- 17:45 18:00 *Alexander D. Kolesnik* Probability distribution for the sum of two independent telegraph processes
- 18:00 18:15 Alina Costea The application of modern information technologies in the port activity
- 18:15 18:30 *Ionela Rodica Țicu* Queuing models in the port activity

Thursday, August 21 (UnAŞM, office 7)

Chairman: Dmitrii LOZOVANU

- 09:00 9:30 Dmitrii Lozovanu, Stefan Pickl Determining Nash Equilibria for Stochastic Positional Games with Average Payoffs
- 09:30 9:45 *Naval Elvira* Stochastic Modeling of Economic Growth
- **09:45 10:00** *Alla Albu, Vladimir Zubov* The new method for calculation of the diffraction integrals

10:00 – 10:15 *Alexandra Tkacenko* Iterative approach for solving fuzzy multi-criteria transportation problem of "bottleneck" type

10:15 – 10:30 Alexandru Lazari

Optimization of Markov processes with final sequence of states and unitary transition time

10.30 – 10:45 Maria Capcelea

A Method for solving stochastic discrete control problems on networks with varying time of states' transitions of the system

- 10:45 11:00 Andrei Iu. Bejan Bayesian experimental design for network loss tomography
- 11:00 11:30 COFFEE BREAK
- Chairmen: Boris RYBAKIN, Grigore SECRIERU
- 11:30 12:00 S.G. Moiseenco, G.S. Bisnovatyi-Kogan, N.V. Ardeljan Numerical simulation MHD problems in Astrophysics
- 12:00 12:15 Boris Rybakin, Peter Bogatencov, Grigore Secrieru, Elena Gutuleac Application of HPC technologies for mathematical modeling of seismic impact on underground structures
- 12:15 12:30 Victor Şeremet, Ion Creţu, Dumitru Şeremet Explicit thermal stresses within a thermoelastic halfstrip and their graphical presentation using Maple – 15 soft
- 12:30 13:00 Maxim Guryanov, Alexander Prokofyev Using INS to correct SAR data on the fly
- 13:00 14:30 LUNCH

Chairman: Victor ŞEREMET

- 14:30 15:00 Vasile Marina, Viorica Marina Methodology of matrix representation of higher order elasticity constants. Fourth order tensor
- 15:00 15:15 Viorica Marina, Vasile Marina Methodology of matrix representation of higher order elasticity constants. Six order tensor

15:15 – 15:35 *Yuri Menshikov* Inverse problem of adequate mathematical description synthesis

- 15:35 16:00 *Ghennadii Gubceac, Florentin Paladi* Probabilistic Approach to Stochastic and Agent-Based Computational Models
- **16:00 16:30** *Matthias Dehmer, Dmitrii Lozovanu, Stefan Pickl*

AIRSEC: Integration and prototypeimplementation supporting airport security - modelling, simulation and optimization of datafusion processes in multilayered networks

16:30 - 17:00 COFFEE BREAK

Chairman: Boris HÂNCU

- 17:00 17:15 Valeriu Ungureanu, Dumitru Deveatîi Optimal and Stackelberg controls of linear discrete processes influenced by echoes
- **17:15 17:30** Albert Voronin, Yuriy Ziatdinov A Hierarchical Approach to Multicriteria Problems
- 17:30 17:45 Anatolie Baractari, Anatol Godonoaga, Ana Tuceac

Decisional analysis of supply planning in monopolistic economic systems

- 17:45 18:00 *Radu Buzatu* Covering undirected graphs by convex sets
- **18:00 18:15** *Mihai Cocirla* Dynamic games in informational extended strategies

18:15 – 18:30 *Boris Hâncu* Parallel algorithm to solve two person game with perfect information

SECTION 4: Computer Science

Wednesday, 20 August (UnASM, office 18)

Chairmen: Horia-Nicolai TEODORESCU, Milan TUBA

- 15:00 15:30 Ramona Luca, Horia-Nicolai Teodorescu, Silviu-Ioan Bejinariu A Fuzzy Ontology for Walking
- **15:30 16:00** *Adrian Iftene, Lenuta Alboaie* Diversification in an image retrieval system
- 16:00 16:30 Ion Bolun Disproportionality of multi-optional PR voting systems
- 16:30 17:00 COFFEE BREAK
- Chairmen: Adrian IFTENE, Constantin CIUBOTARU
- 17:00 17:30 S. Cojocaru, E. Boian, C. Ciubotaru, A. Colesnicov, V. Demidova, L. Malahov
 Regeneration of printed cultural heritage: challenges and technologies
- **17:30 17:45** *Valentina Demidova* Partic<u>ular Aspects of the Cyr</u>illization Problem
- 17:45 18:00 Neculai Curteanu, Alex Moruz, Cecilia Bolea, Andrei Scutelnicu Recognition and Prediction for Implicit Contrastive Focus in Romanian
- **18:00 18:15** Veronica Gîsca A syntactic-semantic analysis system
- 18:15 18:30 Zinaida Apanovich, Alexander Marchuk Approaches to the ontology alignement and identity resolution problems

Thursday, August 21 (UnAŞM, office 18)

Chairmen: Sergey ULYANOV, Natalia PANKRATOVA

- **09:00 09:30** *N.D. Pankratova* System Strategy of Survivability and Safety of Complex Engineering Objects Operation
- 09:30 10:00 Sergey Ulyanov, Veacheslav Albu, Irina Barchatova Intelligent Robust Control System based on Quantum KB-Self-organization: Quantum Soft Computing and Kansei / Affective Engineering Technologies
- **10:00 10:15** *P. Bogatencov, N. Iliuha, G. Secrieru, B. Hancu, V. Patiuc, E. Calmis* Complex applications porting to HPC infrastructure
- 10:15 10:30 Peter Bogatencov, Nicolai Iliuha, Nichita Degteariov, Pavel Vaseanovici Implementation of Scientific Cloud Testing Infrastructure in Moldova
- 10:30 10:45 Vladimir I. Kostas, Michael B. Stenger, Charles F. Knapp, Robert Shapiro, Siqi Wang, Joyce M. Evans

Stroke volume equation validation: impedance cardiography vs. ultra-sonography in humans exposed to earth, moon, mars and zero gravity conditions

10:45 – 11:00 Daniela Gîfu The emotional orientation estimation

11:00 – 11:30 COFFEE BREAK

Chairmen: Svetlana COJOCARU, Lyudmila BURTSEVA

- 11:30 11:50 Artiom Alhazov, Lyudmila Burtseva, Svetlana Cojocaru, Alexandru Colesnicov, Ludmila Malahov An Approach to Implementation of Hybrid Computational Paradigm
- 11:50 12:10 A.N. Berezin, A.A. Moldovyan, D.N. Moldovyan On Using Mersenne Primes in the Public-key Encryption
- 12:10 12:30 N.A. Moldovyan, A.A. Moldovyan, V.A. Shcherbacov Provably Sender-Deniable Encryption Scheme

12:30 – 12:45 Vladimir Rogojin

On combinatorial properties of elementary intramolecular operations

12:45 – 13:00 *Ioachim Drugus* Adjunction algebras and their use in modeling semantics of natural languages

13:00 - 14:30 LUNCH

Chairmen: Galina MAGARIU, Inga TITCHIEV

- 14:30 14:50 Inga Titchiev, Mircea Petic, Grigorii Horos Opportunities for Object Detection using Haar Feature-based Cascade Classifier algorithm
- 14:50 15:10 Constantin Gaindric, Galina Magariu, Tatiana Verlan Preliminary analysis of the reporting support implementation and testing for IAS IMCS
- 15:10 15:30 Sergiu Chilat Fuzzy logic in automatic analysis of Google Analytics data
- 15:30 15:50 Andrei Rusu On ontology of research, development and innovation in Republic of Moldova
- 15:50 16:10 *Iulian Secrieru* SonaRes methodology enhancement using knowledge discovery technique
- **16:10 16:30** *Irina Gheorghitsa (Frinea)* Methods of exploratory data analysis of the ultrasound investigations

16:30 - 17:00 COFFEE BREAK

- Chairmen: Ilie COSTAS, Gheorghe CĂPĂŢÂNĂ
- **17:00 17:20** Ilie Costas

Managing for knowledge through the quality management of information systems

- 17:20 17:40 Ion Amarfii, Anatolie Fala, Sergiu Gafton Just in time platform for weather forecast and agrimarketing information and insurance for Moldavian farmers
- 17:40 18:00 Maria Beldiga, Tudor Bragaru, Gheorghe Căpăţână Automation Development in e-Learning of Personalized Tasks of "Problem Solving" Type
- **18:00 18:20** *Lucia Bitcovschi* The research of order tables as algebraic structures

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