

Institute of Mathematics and Informatics  
Bulgarian Academy of Sciences

**International Conference**  
**MATHEMATICS DAYS IN SOFIA**

July 7-10, 2014, Sofia, Bulgaria



**Scientific Programme**



## Programme Committee

### *Algebra, Logic, and Combinatorics*

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### *Analysis, Geometry, and Topology*

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### *Differential Equations and Mathematical Physics*

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### *Mathematical Aspects of the Computer Science*

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## Mini-symposia Organizers

### *Advanced Analytical and Numerical Techniques for Applications*

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### *Algebraic Methods in Quantum Field Theory*

Vladimir Dobrev, Bulgaria

### *Approximation Theory and Special Functions – 2nd series*

Oktay Duman, Turkey  
Esra Erkuş-Duman, Turkey

### *Geometry Days in Sofia*

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### *Transform Methods and Special Functions – 7th series*

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### *Variational Analysis*

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*The International Conference **Mathematics Days in Sofia** held in Sofia, Bulgaria, in the period July 7-th – July 10-th, 2014 is organized by the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences.*

*The purpose of this event is to present the current state of the art in all areas of mathematics and computer science and its applications.*

*One of the main goals of the Conference is to bring together Bulgarian mathematicians and computer scientists working all over the world. In this way, we will expect to enrich the relations between the mathematicians working in Bulgaria and the Bulgarian mathematical diaspora.*

*About 300 scientists from more than 40 countries participate at the Conference. They present more than 200 invited talks and communications.*

*Our idea is to organize this conference regularly and to make it a traditional scientific forum.*

*Special thanks to **American Foundation for Bulgaria** and **Nova Trade Ltd.** for the financial support.*

## Plenary Sessions

07.07.2014      Sofia Hotel Balkan, Hall "Royal"	
09:30-10:00	<b>MDS 2014 Opening Panel</b> Opening by the <u>President of the Republic of Bulgaria H.E. Rosen Plevneliev</u>
<i>Panel 1</i>	<i>Chair: Vesselin Drensky</i>
10:00-10:50	<b>Introduction to tropical mathematics</b> <u>Maxim Kontsevich</u>
10:50-11:20	Coffee break
<i>Panel 2</i>	<i>Chair: Atanas Radenski</i>
11:20-12:10	<b>Finite ring geometries and linear codes over rings</b> <u>Ivan Landjev</u>
08.07.2014      Sofia Hotel Balkan, Hall "Serdica"	
<i>Panel 3</i>	<i>Chair: Tony Pantev</i>
09:00-09:50	<b>Almost complex structures on quaternionic Kaehler manifolds</b> <u>Paul Gauduchon</u>
09:50-10:40	<b>The Lichnerowicz-Obata sphere theorems on a quaternionic contact manifold</b> <u>Stefan Ivanov</u> , Alexander Petkov, Dimiter Vassilev
10:40-11:10	Coffee break
<i>Panel 4</i>	<i>Chair: Radoslav Pavlov</i>
11:10-12:00	<b>Big data, high-performance computing, and MapReduce algorithms on grids</b> <u>Atanas Radenski</u>
12:00-12:10	Break
<i>Panel 5</i>	<i>Chair: Julian Revalski</i>
12:10-13:00	<b>A Presentation of the European Research Council</b> Special lecture of <u>Jean-Pierre Bourguignon</u> (President of the European Research Council)
13:00-14:30	Lunch break

<b>Panel 6</b>	<i>Chair: Peter Popivanov</i>
14:30-15:20	<b>Optimization problems with stochastic order constraints</b> <u>Darinka Dentcheva</u>
15:20-16:10	<b>Kac-Moody algebras, Riemann-Hilbert problems and new soliton equations</b> <u>Vladimir S. Gerdjikov</u>
16:10-16:40	Coffee break
<b>Panel 7</b>	<i>Chair: Stanimir Troyanski</i>
16:40-17:30	<b>Besov and Triebel-Lizorkin spaces associated with non-negative self-adjoint operators and applications</b> <u>Pencho Petrushev</u>
17:30-18:20	<b>Domain decomposition methods for multiphysics applications</b> <u>Ivan Yotov</u>
<b>09.07.2014      Sofia Hotel Balkan, Hall "Serdica"</b>	
<b>Panel 8</b>	<i>Chair: Vladimir Dobrev</i>
09:00-09:50	<b>Character varieties and nested Hilbert schemes</b> <u>Tony Pantev</u>
09:50-10:40	<b>Unique factorization domains, cluster algebras, and maximal green sequences</b> <u>Milen Yakimov</u>
10:40-11:10	Coffee break
<b>Panel 9</b>	<i>Chair: Georgi Popov</i>
11:10-12:00	<b>Estimates for the resolvent and spectral gaps for non self-adjoint operators</b> <u>Vesselin Petkov</u>
12:00-12:50	<b>Cohomologically Noetherian modules and rings</b> <u>Luchezar Avramov</u>

## Section "Algebra, Logic, and Combinatorics"

ALC	07.07.2014	IMI-BAS, Hall 055
<b>Panel 1</b>	<i>Chair: Dessislava Kochloukova</i>	
14:00-14:45 (invited talk)	<b>On the Noether number</b> <u>Mátyás Domokos</u>	
14:45-15:30 (invited talk)	<b>EPW sextics and Hilbert squares of K3 surfaces</b> <u>Atanas Iliev</u> , Carlo Madonna	
15:30-16:00	Coffee break	
<b>Panel 2</b>	<i>Chair: Valentin Iliev</i>	
16:00-16:30	<b>Associative algebras and Lie algebras defined by Lyndon words</b> <u>Tatiana Gateva-Ivanova</u>	
16:30-17:00	<b>On the covering number of small symmetric groups and some sporadic simple groups</b> <u>Daniela Nikolova-Popova</u> , Luise-Charlotte Kappe, Eric Swartz	
17:00-17:30	<b>Pairs of elements of order 2 and 3 in the Ree groups <math>{}^2G_2(3^n)</math></b> <u>Konstantin Tabakov</u> , <u>Kerope Tchakerian</u>	
17:30-18:00	<b>Directed metric dimension of oriented complete bipartite graphs</b> Hendy, <u>Rinovia Simanjuntak</u>	
ALC	09.07.2014	IMI-BAS, Hall 055
<b>Panel 3</b>	<i>Chair: Ivo Michailov</i>	
14:30-15:15 (invited talk)	<b>Sieving very thin sets of primes</b> <u>Kevin Ford</u>	
15:15-16:00 (invited talk)	<b>On certain Diophantine problems with primes and almost primes</b> <u>Doychin Tolev</u>	
16:00-16:30	Coffee break	
<b>Panel 4</b>	<i>Chair: Luchezar Avramov</i>	
16:30-17:00	<b>Noether's problem for finite p-groups</b> <u>Ivo Michailov</u> , Ivan Ivanov, Nikola Ziapkov	
17:00-17:30	<b>On index-exponent relations and Brauer p-dimensions of finitely-generated field extensions</b> <u>Ivan Chipchakov</u>	

17:30-18:00	<b>Degree spectra of sequences of structures</b> <u>Alexandra Soskova</u>
18:00-18:30	<b>Comparison between the two definitions of AI</b> <u>Dimitar Dobrev</u>
<b>ALC</b>	<b>10.07.2014 IMI-BAS, Hall 055</b>
<b>Panel 5</b>	<i>Chair: Georgi Tomanov</i>
09:00-09:45 (invited talk)	<b>The world of enumeration reducibility</b> <u>Hristo Ganchev</u>
09:45-10:15	<b>Tangent codes</b> <u>Azniv Kasparian</u> , Evgeniya Velikova, Ivan Marinov
10:15-10:45	<b>Accurate eigenvalues of singular totally nonnegative matrices</b> <u>Plamen Koev</u>
10:45-11:00	Coffee break
<b>Panel 6</b>	<i>Chair: Ivan Chipchakov</i>
11:00-11:30	<b>Grinberg-Kazhdan-Drinfeld theorem</b> <u>Peter Petrov</u>
11:30-12:00	<b>Volume gradients and homology in towers of residually-free groups</b> Martin R. Bridson, <u>Dessislava H. Kochloukova</u>
12:00-12:30	<b>Classification of the locally divergent orbits on reductive homogeneous spaces and applications</b> <u>Georgi Tomanov</u>
12:30-13:00	<b>Determinant functors and K theory</b> <u>Andrew Tonks</u>
13:00-14:30	Lunch break
<b>Panel 7</b>	<i>Chair: Mátyás Domokos</i>
14:30-15:00	<b>Identities in matrix algebras with Grassmann entries</b> <u>Tsetska Rashkova</u>
15:00-15:30	<b>Group actions on Lie algebras and their identities</b> <u>Plamen Koshlukov</u>
15:30-16:00	<b>SL<sub>2</sub>-invariants of free metabelian Lie algebras</b> Vesselin Drensky, <u>Şehmus Fındık</u>

## Section "Analysis, Geometry, and Topology"

AGT	07.07.2014      IMI-BAS, Hall 278
<b>Panel 1</b>	<i>Chair: Georgi Ganchev</i>
14:00-14:45 (invited talk)	<b>Kobayashi's conjecture for K3 surfaces and for hyperkähler manifolds</b> <u>Ljudmila Kamenova</u>
14:45-15:30 (invited talk)	<b>Complex surfaces and indefinite metrics</b> Johann Davidov, <u>Gueo Grantcharov</u>
15:30-16:00	Coffee break
<b>Panel 2</b>	<i>Chair: Luchezar Stoyanov</i>
16:00-16:30	<b>On regularly weighted generated sequences</b> Ümit Totur, <u>İbrahim Çanak</u>
16:30-17:00	<b>Some Tauberian conditions for discrete power series methods of summability</b> <u>Sefa Anıl Sezer</u> , <u>İbrahim Çanak</u>
17:00-17:30	<b>Some fixed point theorems in <math>p</math>-quasi-cone metric spaces</b> Elida Hoxha, <u>Eriola Sila</u>
AGT	09.07.2014      IMI-BAS, Hall 278
<b>Panel 3</b>	<i>Chair: Stefan Ivanov</i>
14:30-15:15 (invited talk)	<b>From R. Thom to M. Gromov: A new approach to the h-principle</b> <u>François Laudenbach</u>
15:15-16:00 (invited talk)	<b>From locally conformally Kähler to bi-Hermitian structures</b> <u>Vestislav Apostolov</u>
16:00-16:30	Coffee break
<b>Panel 4</b>	<i>Chair: Kamen Ivanov</i>
16:30-17:00	<b>Gabor frames and quasiasymptotics of distributions</b> Katerina Hadzi-Velkova Saneva, <u>Sanja Kostadinova</u>
17:00-17:30	<b>Monogenic, hypermonogenic and holomorphic Cliffordian functions</b> <u>Ivan Pierre Ramadanoff</u>
17:30-18:00	<b>Hardy-type inequalities with weights</b> Alexander Fabricant, Nikolai Kutev, <u>Tsviatko Rangelov</u>
18:00-18:30	<b>On the Gromov hyperbolicity in <math>C^n</math></b> <u>Maria Trybula</u>



AGT	10.07.2014 IMI-BAS, Hall 278
<i>Panel 5</i>	<i>Chair: Nikolay Zhivkov</i>
09:00-09:45 (invited talk)	<b>Explicit constructions of RIP matrices and related problems</b> Jean Bourgain, Stephen J. Dilworth, Kevin Ford, Sergei Konyagin, <u>Denka Kutzarova</u>
09:45-10:30 (invited talk)	<b>Trace formulae for perturbed Landau Hamiltonians</b> <u>Georgi Raikov</u>
10:30-14:30	Lunch break
<i>Panel 6</i>	<i>Chair: Ivan Pierre Ramadanoff</i>
14:30-15:15 (invited talk)	<b>Comparison of invariant functions</b> <u>Nikolai Nikolov</u>
15:15-16:00 (invited talk)	<b>Local properties of homogeneous ANR compacta</b> <u>Vesko Valov</u>
16:00-16:30	Coffee break
<i>Panel 7</i>	<i>Chair: Vesko Valov</i>
16:30-17:00	<b>About well-posedness in vector optimization</b> <u>Mitrofan M. Choban</u>
17:00-17:30	<b>Continuity properties in different hypertologies for non-additive set multifunctions</b> <u>Alina Gavriluț</u>
17:30-18:00	<b>On closed "minimal" k-imitations of closed convex sets in <math>\mathbb{R}^n</math></b> <u>Stoyu T. Barov</u> , Jan J. Dijkstra
18:00-18:30	<b>Tabulation of prime knots by arc index</b> <u>Gyo Taek Jin</u> , Hyuntae Kim

## Section "Differential Equations and Mathematical Physics"

DEMP	09.07.2014 IMI-BAS, Hall LT4
<i>Panel 1</i>	<i>Chair: Georgi Vodev</i>
14:30-15:15 (invited talk)	<b>On cubic 1-D Schrödinger equation with rapidly decreasing potential</b> <u>Vladimir Georgiev</u> , Anna Rita Giammetta, Bozhidar Velichkov
15:15-16:30	Coffee break

<b>Panel 2</b>	<i>Chair: Vladimir Georgiev</i>
16:30-17:00	<b>Protter problem for 3-D Keldish type equations</b> <u>Tsvetan Hristov</u> , Nedyu Popivanov, Manfred Schneider
17:00-17:30	<b>Supercritical and critical cases for 2D and 3D BVP for quasilinear equations of mixed elliptic-hyperbolic type</b> <u>Nedyu Popivanov</u>
17:30-18:00	<b>Semi-Fredholm solvability of the (3+1)-D Protter problems for the wave equation</b> Nedyu Popivanov, <u>Todor Popov</u> , Allen Tesdall
<b>DEMP</b>	<b>10.07.2014 IMI-BAS, Hall 256</b>
<b>Panel 3</b>	<i>Chair: Emil Horozov</i>
09:00-09:45 (invited talk)	<b>Alien limit cycles</b> <u>Lubomir Gavrilov</u>
09:45-10:30 (invited talk)	<b>Non-integrability of the Painlevé equations as Hamiltonian systems</b> <u>Tsvetana Stoyanova</u>
10:30-11:00	Coffee break
<b>Panel 4</b>	<i>Chair: Lubomir Gavrilov</i>
11:00-11:30	<b>On a free boundary variant of a conjecture of De Giorgi</b> <u>Nikola Kamburov</u>
11:30-12:00	<b>Berezin transform of two arguments</b> Petr Blaschke, <u>Jiří Jahn</u>
12:00-12:30	<b>On symmetries and conservation laws of the Majda-Biello system</b> <u>Jirina Jahnova</u>
12:30-14:30	Lunch break
<b>Panel 5</b>	<i>Chair: Nikolai Kutev</i>
14:30-15:15 (invited talk)	<b>Resonances in scattering by two magnetic fields at large separation and a complex scaling method</b> <u>Ivana Alexandrova</u>
15:15-16:00 (invited talk)	<b>Asymptotics of the number of the transmission eigenvalues</b> <u>Georgi Vodev</u>
16:00-16:30	Coffee break

<b>Panel 6</b>	<i>Chair: Tsvetana Stoyanova</i>
16:30-17:00	<b>Bi-characteristic curves of body and surface waves and application in geophysics</b> <u>Georgi Boyadzhiev</u>
17:00-17:30	<b>Curved <math>A_\infty</math>-algebras and simplicial gauge theory</b> Nikolay M. Nikolov, <u>Svetoslav Zahariev</u>
17:30-18:00	<b>Nonlinear curl-curl problem</b> <u>Georgi Mitsov</u>

### Section "Mathematical Modelling"

MM	07.07.2014	IMI-BAS, Hall 478
<b>Panel 1</b>	<i>Chair: Eugenia Stoimenova</i>	
16:00-16:45 (invited talk)	<b>Controlled branching stochastic processes and their relatives</b> <u>George Yanev</u>	
16:45-17:15	<b>Calibration of p-values for multiple testing problems in genomics</b> <u>Dean Palejev</u> , John P. Ferguson	
17:15-17:45	<b>On the separation of optimal spherical configurations</b> Johann Brauchart, <u>Peter Dragnev</u> , Edward Saff	
17:45-18:15	<b>Necessary and sufficient conditions of optimality for a damped hyperbolic equation in one space dimension</b> <u>Kenan Yildirim</u>	
MM	09.07.2014	IMI-BAS, Hall 478
<b>Panel 2</b>	<i>Chair: Pencho Petrushev</i>	
16:30-17:00	<b>Optimal Bayesian classifier for model-based RNA-seq classification</b> Jason M. Knight, <u>Ivan Ivanov</u> , Edward R. Dougherty	
17:00-17:30	<b>Stochastic fluid models with two priority classes</b> <u>Elena Tzenova</u> , Vidyadhar Kulkarni, Ivo Adan	
17:30-18:00	<b>Multicriteria assessment scale of future cyberthreats identification</b> <u>Zlatogor Minchev</u> , Emil Kelevedzhiev	

18:00-18:30	<b>Contribution to an extremal problem of Markov: largest forward and backward partial sums of polynomial coefficients</b> <u>Heinz-Joachim Rack</u>
<b>MM</b>	<b>10.07.2014 IMI-BAS, Hall 478</b>
<b>Panel 3</b>	<i>Chair: Stefka Dimova</i>
11:00-11:30	<b>Crack formation in a flexible honeycomb membrane under tensile force: a molecular dynamics simulation study</b> <u>Hristina Popova</u> , Andrey Milchev
11:30-12:00	<b>Exceedance-type tests</b> <u>Eugenia Stoimenova</u>
12:00-12:30	<b>Sevastyanov branching processes with non-homogeneous Poisson immigration</b> <u>Kosto Mitov</u> , Nickolay Yanev
12:30-13:00	<b>Inequalities for ultraspherical polynomials. Proof of a conjecture of I. Raşa</b> <u>Geno Nikolov</u>
13:00-14:30	Lunch break
<b>Panel 4</b>	<i>Chair: Geno Nikolov</i>
14:30-15:15 (invited talk)	<b>On the Pontryagin maximum principle</b> <u>Mikhail Krastanov</u> , Nadezhda Ribarska, Tsvetomir Tsachev
15:15-16:00 (invited talk)	<b>On differential inclusions with nonconvex right-hand side</b> Mikhail Krastanov, <u>Nadezhda Ribarska</u>
16:00-16:30	<b>Generalized Padé approximants for plane condenser and distribution of points</b> <u>Nikolay Ikonov</u>
16:30-17:00	<b>Functions defined on general branching processes and applications in epidemiological modeling</b> Maroussia Slavtchova-Bojkova

## Section "Mathematical Aspects of the Computer Science"

MACS	07.07.2014	IMI-BAS, Hall LT2
<b>Panel 1</b>	<i>Chair: Ivan Landjev</i>	
14:00-14:45 (invited talk)	<b>Construction and classification of optical orthogonal codes and related to them combinatorial structures</b> <u>Tsonka Baicheva</u> , Svetlana Topalova	
14:45-15:30 (invited talk)	<b>The threshold implementation method and applications</b> <u>Svetla Nikova</u>	
15:30-16:00	Coffee break	
<b>Panel 2</b>	<i>Chair: Avram Eskenazi</i>	
16:00-16:45 (invited talk)	<b>Persuasion technology design: computer-supported behaviour change</b> <u>Julita Vassileva</u>	
16:45-17:15	<b>A case study in weakly monotonic time</b> <u>Dimitar P. Guelev</u> , Chaochen Zhou, Shuling Wang, Naijun Zhan	
17:15-17:45	<b>Approaches to the parallelization of data mining algorithms with the aim of improving the accuracy</b> <u>Violeta N. Ivanova</u>	
MACS	10.07.2014	IMI-BAS, Hall LT2
<b>Panel 3</b>	<i>Chair: Ludmila Dimitrova</i>	
14:30-15:15 (invited talk)	<b>Towards formal modelling of the neurobiological aspects of trust and trustworthiness</b> <u>Sviatoslav Braynov</u>	
15:15-15:45	<b>The decontamination sweepwidth of planar shapes</b> Borislav Karaivanov, <u>Minko Markov</u> , Jack Snoeyink, Tzvetalin Vassilev	
15:45-16:30	Coffee break	
<b>Panel 4</b>	<i>Chair: Peter Stanchev</i>	
16:30-17:00	<b>Secure aggregation of distributed information in multi-agent systems</b> David Fernández-Duque, <u>Valentin Goranko</u>	
17:00-17:30	<b>Construction methods for self-dual codes</b> Iliya Bouyukliev, <u>Stefka Bouyuklieva</u>	
17:30-18:00	<b>Prioritization of confidence in the associative classifier PGN – strong and weak points</b> Iliya Mitov, Benoit Depaire, <u>Krassimira Ivanova</u>	

**Mini-symposium**  
**"Advanced Analytical and Numerical Techniques for Applications"**

<b>AANTA</b>	<b>07.07.2014</b>	<b>IMI-BAS, Hall 478</b>
<b>Panel 1</b>	<i>Chair: Ivan Yotov</i>	
14:00-14:45 (invited talk)	<b>Iterative solution of algebraic systems arising in viscoelastic models from Geophysics</b> Ali Dorostkar, <u>Maya Neytcheva</u>	
14:45-15:30 (invited talk)	<b>Central schemes for mean field games</b> <u>Bojan Popov</u> , Vladimir Tomov	
<b>AANTA</b>	<b>09.07.2014</b>	<b>IMI-BAS, Hall 478</b>
<b>Panel 2</b>	<i>Chair: Raytcho Lazarov</i>	
14:30-15:15 (invited talk)	<b>New boundary element methods for multiple scattering problems</b> <u>Fatih Ecevit</u>	
15:15-16:00 (invited talk)	<b>Elliptic problems with jump coefficients: approximation and preconditioning</b> Johannes Kraus, Raytcho Lazarov, Maria Lymbery, Svetozar Margenov, <u>Ludmil Zikatanov</u>	
<b>AANTA</b>	<b>10.07.2014</b>	<b>IMI-BAS, Hall 478</b>
<b>Panel 3</b>	<i>Chair: Ludmil Zikatanov</i>	
09:00-09:30	<b>Preconditioning of finite element methods for flows in heterogeneous media</b> <u>Raytcho Lazarov</u>	
09:30-10:00	<b>Finite time blow up of the solutions to Klein-Gordon and Boussinesq type equations with arbitrary positive initial energy</b> <u>Nikolai Kutev</u> , Natalia Kolkovska, Milena Dimova	
10:00-10:30	<b>Numerical study of traveling wave solutions to 2D Boussinesq equation</b> <u>Krassimir Angelov</u> , Natalia Kolkovska	

**Mini-symposium  
"Algebraic Methods in Quantum Field Theory"**

AMQFT	07.07.2014      IMI-BAS, Hall 503
<i>Panel A1</i>	<i>Chair: Fumihiko Sugino</i>
14:00-14:30	<b>Supersymmetry and neutral bions: hints about deconfinement?</b> <u>Erich Poppitz</u>
14:30-15:00	<b>Birdtrack construction of SU(N) projection operators</b> <u>Stefan Keppeler</u>
15:00-15:30	<b>Geometric Supersymmetry on Cahen-Wallach spaces</b> <u>Frank Klinker</u>
15:30-16:00	Coffee break
<i>Panel A2</i>	<i>Chair: Erich Poppitz</i>
16:00-16:30	<b>A generalization of Calabi-Yau fourfolds arising from M-theory compactifications</b> <u>Elena Mirela Babalic</u> , Calin Iuliu Lazaroiu
16:30-17:00	<b>Enumeration of vacua in string theory via algebraic combinatorics</b> <u>Tamar Friedman</u>
17:00-17:30	<b>Factorisation algebras and the Koszul duality</b> <u>Takuo Matsuoka</u>
AMQFT	09.07.2014      IMI-BAS, Hall 503
<i>Panel A3</i>	<i>Chair: Valentina Petkova</i>
14:30-15:15 (invited talk)	<b>Renormalization theory as a common playground for physicists and mathematicians</b> <u>Ivan Todorov</u>
15:15-16:00 (invited talk)	<b>A new venue of spontaneous supersymmetry breaking in supergravity</b> Eduardo Guendelman, <u>Emil Nissimov</u> , Svetlana Pacheva, Mahary Vasihoun
16:00-16:30	Coffee break
<i>Panel A4</i>	<i>Chair: Emil Nissimov</i>
16:30-17:00	<b>Grothendieck's dessins d'enfants in quantum contextuality</b> <u>Michel Planat</u>

17:00-17:30	<b>Geometric quantization of Poisson manifolds</b> <u>Eli Hawkins</u>
17:30-18:00	<b>KP hierarchy for a cyclic quiver</b> <u>Oleg Chalykh</u>
<b>AMQFT</b>	<b>10.07.2014 IMI-BAS, Hall 503</b>
<b>Panel A5</b>	<i>Chair: Stefan Keppeler</i>
09:00-09:30	<b>Spontaneous supersymmetry breaking and instanton sum in 2D type IIA superstring theory</b> <u>Fumihiko Sugino</u>
09:30-10:00	<b>Role of Lie algebra for confinement in non-Abelian gauge field scheme</b> <u>Kimichika Fukushima</u> , Hikaru Sato
10:00-10:30	<b>A compactness theorem for the Seiberg-Witten equations with multiple spinors</b> <u>Andriy Haydys</u>
10:30-11:00	Coffee break
<b>Panel A6</b>	<i>Chair: Frank Klinker</i>
11:00-11:30	<b>Vertex algebras and renormalization</b> <u>Nikolay M. Nikolov</u>
11:30-12:00	<b>Maurer-Cartan elements and cyclic operads</b> <u>Ben Ward</u>
12:00-12:30	<b>Conserved charges in metric-affine gravity: the paradox of non-metricity</b> <u>Gideon I. Livshits</u>
12:30-13:00	<b>Berezin-Toeplitz quantization: some open questions</b> <u>Tatyana Barron</u>
13:00-14:30	Lunch break
<b>Panel A7</b>	<i>Chair: Nikolay M. Nikolov</i>
14:30-15:00	<b>Higher-order singletons and partially massless fields</b> <u>Xavier Bekaert</u>
15:00-15:30	<b>Topological quantum spin models from conformal field theory</b> <u>Anne E. B. Nielsen</u> , Hong-Hao Tu, Ignacio Cirac, German Sierra
15:30-16:00	<b>Quantization of principal U(1)-connections on globally hyperbolic spacetimes</b> <u>Marco Benini</u>
16:00-16:30	Coffee break



<b>Panel A8</b>	<i>Chair: Ben Ward</i>
16:30-17:00	<b>Weyl transformations for quantum and semiclassical Cosmological billiards</b> <u>Orchidea Maria Lecian</u>
17:00-17:30	<b>Functional renormalization group approach for composite-particle excitations</b> <u>Yuya Tanizaki</u>
17:30-18:00	<b>Quantization, holography and the universal coefficient theorem</b> <u>Andrei T. Patrascu</u>

AMQFT	07.07.2014	IMI-BAS, Hall 578
<b>Panel B1</b>	<i>Chair: Fedor Malikov</i>	
14:00-14:30	<b>Pseudo-finite dimensional representations of <math>sl(2, k)</math></b> <u>Ivo Herzog</u>	
14:30-15:00	<b>Principal subspaces for affine Lie algebra of type <math>B_2^{(1)}</math></b> <u>Marijana Butorac</u>	
15:00-15:30	<b>Higher-dimensional Heegaard Floer homology</b> <u>Vincent Colin</u>	
15:30-16:00	Coffee break	
<b>Panel B2</b>	<i>Chair: Ivo Herzog</i>	
16:00-16:30	<b>The de Rham cohomology of quantum projective space</b> <u>Réamonn Ó Buachalla</u>	
16:30-17:00	<b>Discrete derived categories</b> <u>Nathan Broomhead</u>	
17:00-17:30	<b>Systems of differential operators and generalized Verma modules</b> <u>Toshihisa Kubo</u>	
17:30-18:00	<b>Invariant differential operators for non-compact Lie algebras parabolically related to conformal Lie algebras</b> <u>Vladimir Dobrev</u>	

AMQFT	09.07.2014	IMI-BAS, Hall 578
<b>Panel B3</b>	<i>Chair: Marijana Butorac</i>	
14:30-15:00	<b>A Hopf algebra with the dimensions of the Bell numbers</b> Daniel Jiménez, <u>María Ronco</u>	
15:00-15:30	<b>Classification of quantum groups and Lie bialgebra structures on <math>\mathfrak{sl}(n; F)</math></b> Alexander Stolin, <u>Iulia Pop</u>	
15:30-16:00	<b>Some bialgebras related to quantum field theory from an simplicial viewpoint.</b> <u>Imma Gálvez-Carrillo</u>	
16:00-16:30	Coffee break	
<b>Panel B4</b>	<i>Chair: María Ronco</i>	
16:30-17:00	<b>Physical applications of noncommutative localization</b> <u>Patrick Moylan</u>	
17:00-17:30	<b>Villamayor-Zelinsky sequence for braided finite tensor categories</b> <u>Bojana Femic</u>	
17:30-18:00	<b>Quadratic algebras, Yang-Baxter equation, and Artin-Schelter regularity</b> <u>Tatiana Gateva-Ivanova</u>	
18:00-18:30	<b>On the Yang-Baxter Equation</b> <u>Florin F. Nichita</u>	
AMQFT	10.07.2014	IMI-BAS, Hall 578
<b>Panel B5</b>	<i>Chair: Ivan Todorov</i>	
09:00-09:45 (invited talk)	<b>Rigidity of quantum tori and the Andruskiewitsch-Dumas conjecture</b> <u>Milen Yakimov</u>	
09:45-10:30 (invited talk)	<b>Towards a complete classification of multipartite entanglement</b> <u>Gilad Gour</u> , Nolan R. Wallach	
10:30-11:00	Coffee break	
<b>Panel B6</b>	<i>Chair: Svetlana Pacheva</i>	
11:00-11:30	<b>Positive representations and quantum higher Teichmüller theory</b> <u>Ivan Ip</u>	
11:30-12:00	<b>Quantizations of cluster algebras</b> <u>Philipp Lampe</u>	

12:00-12:30	<b>Topology of moduli spaces of free group representations in reductive groups</b> <u>Ana Casimiro</u> , Carlos Florentino, Sean Lawton, André Oliveira
12:30-13:00	<b>Toric quiver moduli</b> <u>Dániel Joó</u>
13:00-14:30	Lunch break
<b>Panel B7</b>	<i>Chair: Ivan Ip</i>
14:30-15:00	<b>Quantum plactic monoid</b> <u>Todor Popov</u>
15:00-15:30	<b>Boson-fermion correspondence in the language of symmetric functions</b> <u>Natasha Rozhkovskaya</u>
15:30-16:00	<b>Fine Gradings on Heisenberg algebras and related structures</b> <u>Cristina Draper Fontanals</u>
16:00-16:30	Coffee break
<b>Panel B8</b>	<i>Chair: Todor Popov</i>
16:30-17:00	<b>Two-dimensional scattering and unitarity methods</b> <u>Valentina Forini</u> , Lorenzo Bianchi, Ben Hoare
17:00-17:30	<b>Characterizations of Ricci flat metrics and Lagrangian submanifolds in terms of the variational problem</b> <u>Tetsuya Taniguchi</u>
17:30-18:00	<b>Fundamental group of a monstrous (?) discriminant complement</b> <u>Tathagata Basak</u>
18:00-18:30	<b>Algebras of chiral differential operators on singular algebraic varieties</b> <u>Fedor Malikov</u>

**Mini-symposium**  
**"Approximation Theory and Special Functions - 2nd series"**

ATSF	09.07.2014	IMI-BAS, Hall LT2
<i>Panel 1</i>	<i>Chair: Oktay Duman</i>	
14:30-15:00	<b>Summability process on the Baskakov-type approximation theory</b> <u>İsmail Aslan</u> , Oktay Duman	
15:00-15:30	<b>Summability methods in the weighted approximation to derivatives of functions</b> <u>Nisa Küçük</u> , Oktay Duman	
15:30-16:00	<b>Some results on convergence properties of singular integrals</b> <u>Gümrah Uysal</u> , Ertan İbikli	
16:00-16:30	Coffee break	
<i>Panel 2</i>	<i>Chair: Esra Erkuş-Duman</i>	
16:30-17:00	<b>On modified Kantorovich-type operators in polynomial weighted spaces</b> <u>Müzeyyen Özhavzalı</u> , Ali Olgun	
17:00-17:30	<b>Recent developments on convergence methods on time scales</b> <u>Ceylan Turan</u> , Oktay Duman	
17:30-18:00	<b>Weighted approximation by the q-Szasz-Schurer-Beta type operators</b> <u>İsmet Yüksel</u> , Ülkü Dinlemez	
18:00-18:30	<b>Voronovskaja type approximation theorem for q-Stancu-Szász-Beta type operators</b> <u>Ülkü Dinlemez</u> , İsmet Yüksel	
ATSF	10.07.2014	IMI-BAS, Hall LT2
<i>Panel 3</i>	<i>Chair: Heinz-Joachim Rack</i>	
11:00-11:30	<b>Optimal quadratic Lagrange interpolation: extremal node systems with least Lebesgue constant via symbolic computation</b> <u>Heinz-Joachim Rack</u> , Robert Vajda	
11:30-12:00	<b>A generalization of the extended Jacobi polynomials in two variables</b> <u>Rabia Aktaş</u> , Esra Erkuş-Duman	
12:00-12:30	<b>Some recursion formulas for Horn hypergeometric functions</b> <u>Recep Şahin</u> , Susan Rıdha Shakor Agha	
12:30-13:00	<b>On the Poisson-Charlier polynomials</b> <u>Nejla Özmen</u> , Esra Erkuş-Duman	

**Mini-symposium  
"Geometry Days in Sofia"**

GDS	07.07.2014	IMI-BAS, Hall LT4
<i>Panel 1</i>	<i>Chair: Johann Davidov</i>	
16:00-16:40	<b>Stacky compactifications of minimal resolutions of singularities of type <math>A_k</math> and gauge theory</b> <u>Ugo Bruzzo</u>	
16:40-17:20	<b>Approximate Hitchin-Kobayashi correspondence for Higgs G-bundles</b> <u>Beatriz Graña Otero</u>	
GDS	10.07.2014	IMI-BAS, Hall LT4
<i>Panel 2</i>	<i>Chair: Gueo Grantcharov</i>	
11:00-11:40	<b>Orientability in real Gromov-Witten theory</b> <u>Penka Georgieva</u>	
11:40-12:20	<b>Comparison results in CR geometry under positive "Ricci" bound</b> <u>Dimitar Vassilev</u>	
12:20-13:00	<b>Existence of holomorphic functions on nilpotent Lie groups</b> Oleg Mushkarov, <u>Christian Yankov</u>	
13:00-16:30	Lunch break	
<i>Panel 3</i>	<i>Chair: Vestislav Apostolov</i>	
16:30-17:10	<b>Higher codimension CR structures, Levi-Kähler reduction and toric geometry</b> <u>David M. J. Calderbank</u>	
17:10-17:50	<b>Labelled convex quadrilaterals and toric Kähler-Levi structures on the CR structure of <math>S^3 \times S^3</math></b> <u>Éveline Legendre</u>	
17:50-18:30	<b>The J-flow and stability</b> <u>Mehdi Lejmi</u> , Gábor Székelyhidi	

**Mini-symposium  
"Transform Methods and Special Functions"**

TMSF	07.07.2014      IMI-BAS, Hall 403
<i>Panel 1</i>	<i>Chair: Blagovest Sendov</i>
14:00-14:15	<b>Opening of TMSF' 14</b>
14:15-14:45	<b>On the scientific contributions of Prof. Dimovski, on occasion of his 80th anniversary</b> <u>Virginia Kiryakova</u>
14:45-15:30 (invited talk)	<b>Nonclassical convolutions and their uses</b> <u>Ivan Dimovski</u>
15:30-16:00	Coffee break
<i>Panel 2</i>	<i>Chair: Virginia Kiryakova</i>
16:00-16:45 (invited talk)	<b>Stronger Rolle's theorem for complex polynomials</b> <u>Blagovest Sendov</u> , Hristo Sendov
16:45-17:15	<b>Representation of holomorphic functions by Schlömilch's series</b> <u>Peter Rusev</u>
17:15-17:45	<b>On the convolutors in the <math>D_{Lp}</math>-type spaces associated with a singular second order differential operator</b> <u>Mourad Jelassi</u>
TMSF	08.07.2014      IMI-BAS
18:30-19:00	<b>TMSF Discussion table</b> <i>Chair: Georgi Dimkov (Hall 256)</i>
19:00-20:30	<b>Party for 80<sup>th</sup> anniversary of Prof. Ivan Dimovski</b> (IMI Buffet – for TMSF participants and invited guests)
TMSF	09.07.2014      IMI-BAS, Hall 403
<i>Panel 3</i>	<i>Chair: Sava Grozdev</i>
14:30-15:15 (invited talk)	<b>Nonstandard quadratures of Gauss-Lobatto type and applications in the fractional calculus</b> <u>Gradimir Milovanović</u>
15:15-16:00 (invited talk)	<b>On associativity of the convolution of ultradistributions</b> <u>Andrzej Kamiński</u>

16:00-16:30	Coffee break
<b>Panel 4</b>	<i>Chair: Emilia Bazhlekova</i>
16:30-17:00	<b>Extending the Stieltjes transform</b> <u>Dennis Nemzer</u>
17:00-17:30	<b>On various existence conditions for the convolution of Beurling ultradistributions</b> <u>Svetlana Mincheva-Kamińska</u>
17:30-18:00	<b>On the asymptotic behavior of generalized functions</b> <u>Arpad Takači</u>
18:00-18:30	<b>Some operational solutions of higher order fuzzy differential equations</b> <u>Djurđjica Takači</u> , Aleksandar Takači
<b>TMSF</b>	<b>10.07.2014 IMI-BAS, Hall 403</b>
<b>Panel 5</b>	<i>Chair: Svetlana Mincheva-Kamińska</i>
09:00-09:30	<b>Existence of solutions to boundary value problem for impulsive fractional equations</b> Gabriele Bonanno, Rosana Rodríguez-López, <u>Stepan Tersian</u>
09:30-10:00	<b>Commutant of Sturm-Liouville operator in an invariant subspace</b> <u>Nikolai Bozhinov</u> , Ivan Dimovski
10:00-10:30	<b>Evolution equations for the Stefan problem</b> <u>Martin Lukarevski</u>
10:30-11:00	Coffee break
<b>Panel 6</b>	<i>Chair: Stepan Tersian</i>
11:00-11:30	<b>On various polynomials of Mittag-Leffler type</b> Miomir Stanković, Sladjana Marinković, <u>Predrag Rajković</u>
11:30-12:00	<b>Somos-4 property of Hankel determinants derived from number sequences in an elliptic integral form</b> Predrag Rajković, Paul Barry, <u>Nataša Savić</u>
12:00-12:30	<b>Mean value theorems for analytic functions</b> <u>Lubomir Markov</u>
12:30-13:00	<b>A note on a subclass of close-to-convex functions</b> <u>Donka Pashkouleva</u>
13:00-14:30	Lunch break

<b>Panel 7</b>	<i>Chair: Valentin Hristov</i>
14:30-15:00	<b>From the hyper-Bessel operators of Dimovski to the generalized fractional calculus</b> <u>Virginia Kiryakova</u>
15:00-15:30	<b>A family of hyper-Bessel functions and convergent series in them</b> <u>Jordanka Paneva-Konovska</u>
15:30-16:00	<b>Application of the operational calculus approach of Dimovski for solving the backward heat problem</b> <u>Emilia Bazhlekova</u>
16:00-16:30	Coffee break
<b>Panel 8</b>	<i>Chair: Jordanka Paneva-Konovska</i>
16:30-17:00	<b>Simulation of viscoelastic flows with fractional derivative models: an approach via the operational calculus of Dimovski</b> Emilia Bazhlekova, <u>Ivan Bazhlekov</u>
17:00-17:30	<b>An operational calculus approach for periodic and anti-periodic solutions in the environment of a computer algebra system</b> <u>Margarita Spiridonova</u>
17:30-18:00	<b>Explicit solutions of BVPs for multidimensional heat equation</b> Ivan Dimovski, <u>Yulian Tsankov</u>
18:00-18:30	<b>Fractional order linear autonomous system with distributed delay</b> Hristo Kiskinov, Magdalena Veselinova, <u>Andrey Zahariiev</u>
18:30-18:45	<b>Closing of TMSF '14 Mini-symposium</b>



**Mini-symposium  
"Variational Analysis"**

VA	07.07.2014	IMI-BAS, Hall 256
<i>Panel 1</i>	<i>Chair: Nadezhda Ribarska</i>	
13:30-14:00	<b>A relaxation result for state constrained inclusions in infinite dimension</b> Helene Frankowska, Elsa Marchini, <u>Marco Mazzola</u>	
14:00-14:30	<b>Foundations of asymptotic control theory for a system of linear oscillators</b> Aleksey Fedorov, <u>Alexander Ovseevich</u>	
14:30-15:00	<b>Perturbation theory of observable linear systems and asymptotic control theory</b> <u>Aleksey Fedorov</u> , Alexander Ovseevich	
15:00-15:30	<b>Loci of complex polynomials</b> <u>Hristo Sendov</u> , Blagovest Sendov	
15:30-16:00	Coffee break	
<i>Panel 2</i>	<i>Chair: Nadezhda Ribarska</i>	
16:00-16:30	<b>On the solution set of evolution inclusions</b> <u>Tzanko Donchev</u>	
16:30-17:00	<b>A solvability theorem for relaxed one-sided Lipschitz algebraic inclusions and some consequences</b> <u>Janosch Rieger</u>	
17:00-17:30	<b>Monotonicity of set-valued maps and existence of solutions of differential inclusions</b> <u>Elza Farkhi</u>	
17:30-18:00	<b>Generic solvability of some optimisation problems involving integral functionals</b> <u>Milen Ivanov</u> , Nadia Zlateva	
VA	09.07.2014	IMI-BAS, Hall 256
<i>Panel 3</i>	<i>Chair: Alexander Ioffe</i>	
14:00-14:30	<b>Newton diagrams and sums of squares</b> <u>Yoshiyuki Sekiguchi</u>	
14:30-15:00	<b>Metric regularity in nonlinear semidefinite programming</b> <u>Peter Fusek</u>	

15:00-15:30	<b>Metric regularity and convergence of iterative schemes</b> <u>Radek Cibulka</u>
15:30-16:00	<b>An inverse mapping theorem for H-differentiable set-valued maps</b> Michaël Gaydu, <u>Michel H. Geoffroy</u> , Célia Jean Alexis
16:00-16:30	Coffee break
<b>Panel 4</b>	<i>Chair: Alexander Ioffe</i>
16:30-17:00	<b>A Newton iteration for differentiable set-valued maps</b> <u>Michaël Gaydu</u> , Michel H. Geoffroy
17:00-17:30	<b>Metric subregularity at an order <math>q</math> and the solving of inclusions</b> Michaël Gaydu, Michel H. Geoffroy, <u>Célia Jean-Alexis</u>
17:30-18:00	<b>On metric regularity of Voronoi cells</b> <u>Maxim Todorov</u>



