Monday, 24 August

Short Communications and Poster Sessions

Short Communications: Monday, 24 August, 14:00–14:45

	14:00–14:15	14:15–14:30	14:30–14:45
Sect.: **03** MA 311	LATTICES AND CODES, *Chair: Fei Xu*		
	San Ling *Group algebras and codes* (p.41)	**Katherine S. Roegner** *Computing even, unimodular lattices with complete root systems* (p.46)	**Fei Xu** *Arithmetic Springer Theorem on Quadratic Forms under Field Extensions of Odd Degree* (p.48)
Sect.: **04** MA 042	MODULI SPACES AND MATHEMATICAL PHYSICS, *Chair: Ragni Piene*		
	Sheldon H. Katz *Geometric Engineering of Quantum Field Theories* (p.55)	**Alexandre Kabanov** *Intersection theory on the moduli spaces of stable curves* (p.54)	**Tyler J. Jarvis** *Geometry of the Moduli of Higher Spin Curves* (p.54)
Sect.: **07** H 112	REPRESENTATIONS I, *Chair: Carina Boyallian*		
	Jose I. Liberati *Quasifinite Highest Weight Modules over the Lie Algebra of Matrix Differential Operators on the Circle* (p.107)	**María L. Barberis** *Quaternionic representations* (p.101)	**Paolo Casati** *α–stratified modules of real reductive groups* (p.104)
Sect.: **08** MA 041	SEVERAL COMPLEX VARIABLES, *Chair: Stefan B.A. Jakobsson*		
	Yoshihiro Abe *Universal functions in several variables* (p.112)	**Elias Wegert** *Analytic discs attached to totally real surfaces* (p.163)	**Gabriela Kohr** *Univalent mappings of several complex variables* (p.135)
Sect.: **08** MA 309	REAL ANALYSIS, *Chair: Gilbert Helmberg*		
	Jan Hejcman *A description of quasiconvex functions* (p.129)	**Attila Gilányi** *On polynomial functions, monomial functions, and the Dinghas interval derivative* (p.125)	**Joris van der Hoeven** *Proof of a conjecture of Hardy about L-functions* (p.161)
Sect.: **08** MA 043	APPROXIMATION THEORY, *Chair: Miguel A. Jimenez*		
	Alexander Yakovlevich Radyno *The degree of rational approximation of a holomorphic function* (p.149)	**Yuri Kryakin** *Polynomial Interpolation and Whitney's Constants* (p.138)	**Miguel A. Jimenez** *The Degree of Best Approximation in the Lipschitz Norm by Trigonometric Polynomials* (p.133)
Sect.: **09** H 111	SINGULARLY PERTURBED SYSTEMS, *Chair: Vladimir Sobolev*		
	Minoru Nakano *On the WKB method and Airy functions* (p.184)	**Carmen Rocsoreanu** *Canards in the Fitz-Hugh-Nagumo model* (p.188)	**Vladimir Sobolev** *Canards and black swans* (p.192)
Sect.: **09** H 110	SPECTRAL PROBLEMS AND SMOOTH LINEARIZATION, *Chair: Vjacheslav A. Yurko*		
	Shunian Zhang *Stability of neutral delay difference systems* (p.197)	**Samovol Vladimir** *The problem of local smooth linearization of systems of ordinary differential equations* (p.189)	**Vjacheslav A. Yurko** *Inverse spectral problems for ordinary differential equations* (p.196)
Sect.: **11** H 107	GEOMETRY, GENERAL RELATIVITY, *Chair: Akira Asada*		
	Mohamed Abdel-Megied *Conformal Singularities* (p.227)	**Paula B. Cohen** *Siegel's Lemma, Padé Approximations and Jacobians* (p.230)	**Akira Asada** *Clifford bundles over mapping spaces* (p.228)
Sect.: **11** H 1029	THERMODYNAMICS, HYDRODYNAMICS, NON-LINEAR DYNAMICS II, *Chair: Burkhard J. Schmitt*		
	Alexander Zlotnik *Global weak solutions to the equations of one-dimensional motion of a viscous heat-conducting gas with nonsmooth data* (p.247)	**Yoshimitsu Iwasaki** *Axiomatic theory of the multiple anelastic relaxation in crystalline solids* (p.235)	**George Jaiani** *A Mathematical Model of Bars with Variable Rectangular Cross-section* (p.236)
Sect.: **15** H 2033	INVERSE PROBLEMS I, *Chair: Anatoly G. Yagola*		
	Gottfried Bruckner *On the regularization of an inverse vibration problem with noisy data* (p.297)	**Cesar Palencia** *A numerical method for the integration of backward parabolic problems* (p.308)	**Sergii Pereverziev** *An adaptive discretization of third kind Volterra equations with weakly singular kernels* (p.309)
Sect.: **16** H 106	CONTROL OF PROCESSES AND SYSTEMS, *Chair: Mihai M. Vladimirescu*		
	Juergen Borchardt *Large-scale Dynamic Process Simulation of Chemical Plants* (p.320)	**Elena I. Lyashenko** *Optimal control of biotechnological process* (p.328)	**Mihai M. Vladimirescu** *Rotative Actuators Robustness* (p.333)
Sect.: **18** H 2013	PEDAGOGICAL AND PSYCHOLOGICAL ASPECTS, *Chair: Hans-Joachim Arnold*		
	Sou-yung Chiu *Pedagogical Mathematics Knowledge, PMK and P(PMK)K* (p.358)	**Torsten Fritzlar** *Über Möglichkeiten der Sensibilisierung für die Komplexität von Mathematikunterricht* (p.359)	**Hans-Joachim Arnold** *Geometrische Relationen-Algebra und Piaget'sche Schematheorie* (p.357)

Short Communications: Monday, 24 August, 15:00–15:45

	15:00–15:15	15:15–15:30	15:30–15:45
Sect.: **03**	Diophantine Problems, *Chair: Pieter Moree*		
MA 311	**Arturas Dubickas** *Polynomials vanishing at 1 with high multiplicity and Tarry's problem* (p.35)	**Florian G. Luca** *Equations Involving the Euler ϕ Function* (p.42)	**Pieter Moree** *Distribution of primes having a prescribed primitive root over residue classes* (p.43)
Sect.: **04**	Vector Bundles II, *Chair: Herbert Kurke*		
MA 042	**Hagen Meltzer** *Exceptional vector bundles* (p.57)	**Vasile P. Brinzănescu** *Moduli spaces of stable 2-vector bundles over ruled surfaces* (p.51)	**Elham Izadi** *An embedding of a moduli space of vector bundles* (p.54)
Sect.: **07**	Representations II, *Chair: Jose I. Liberati*		
H 112	**Leandro R. Cagliero** *(K, M)-spherical submodules of the universal enveloping algebra of a real rank one semisimple Lie group $G_\circ$* (p.103)	**Carina Boyallian** *On Bernstein polynomials for compact Lie groups* (p.103)	**Tuong Ton-That** *I Invariant Theory for some Infinite-Dimensional Lie Groups* (p.110)
Sect.: **08**	Harmonic Functions, *Chair: Elias Wegert*		
MA 041	**Anna Łazińska** *On a class of mappings harmonic in the half-plane, with a normalization at infinity* (p.138)	**Promarz M. Tamrazov** *The solution of Eremenko's extremal problem on harmonic functions* (p.159)	**Eleutherius E. Symeonidis** *The Poisson integral as an appropriate mean value* (p.159)
Sect.: **08**	A New View of Classical Phenomena, *Chair: Gilbert Helmberg*		
MA 309	**Andreas M. Hinz** *Catenaria vera — the true catenary* (p.130)	**J. Marshall Ash** *Nonuniqueness for smooth uniformly bounded orthonormal systems* (p.114)	**Gilbert Helmberg** *A corner-point Gibbs phenomenon for Fourier series in two dimensions* (p.129)
Sect.: **08**	Vector Lattices, *Chair: Jacobus J. Grobler*		
MA 043	**Rodica Mihaela Danet** *The extension of some linear operators* (p.121)	**Nicolae Danet** *Subspaces in directed vector spaces* (p.121)	**Jacobus J. Grobler** *The polar decomposition of disjointness preserving operators* (p.127)
Sect.: **09**	Singularly Perturbed and Control Problems, *Chair: Nikolay N. Nefedov*		
H 111	**Klaus R. Schneider** *Exchange of stabilities in singularly perturbed systems* (p.190)	**Alexander G. Chentsov** *Nonanticipating set-valued mappings and constructions of the programmed iterations method* (p.174)	**Nikolay N. Nefedov** *Asymptotic method of differential inequalities for nonlinear singularly perturbed PDE's with internal layers* (p.185)
Sect.: **09**	Stability of Dynamical Systems, *Chair: Shaobo Gan*		
H 110	**Abdelkader Boucherif** *A free boundary problem for a reaction-diffusion equation* (p.172)	**Juan H. Arredondo** *A geometric approach to the asymptotic of systems of evolution equations* (p.171)	**Shaobo Gan** *Star Systems X^* and a Proof of the C^1 Ω Stability* (p.175)
Sect.: **11**	Symmetries and Mathematical Methods in Physics, *Chair: Vladimir V. Kisil*		
H 107	**C. Martha Banulescu** *Lie Groups in Physics* (p.229)	**Malgorzata Klimek** *Conserved Currents for Linear Equations of Motion in Discrete and Non-commutative Models* (p.237)	**Vladimir V. Kisil** *Feynman Path Integral, Umbral Claculus, and Non-Commutative Combinatorics* (p.237)
Sect.: **11**	Thermodynamics, Hydrodynamics, Non-linear Dynamics III, *Chair: Alexander Zlotnik*		
H 1029	**Burkhard J. Schmitt** *On upper bounds for the energy dissipation rate in turbulent shear flow* (p.244)	**Lev L.D. Pustylnikov** *Poincare models, rigorous justification of the second law of thermodynamics on the basis of mechanics, and the Fermi acceleration mechanism* (p.243)	**Andrey B. Morgulis** Асимптотика высокочастотных колебаний идеальной жидкости, протекающей сквозь канал конечной длины (p.241)
Sect.: **15**	Inverse Problems II, *Chair: Sergii Pereverziev*		
H 2033	**Sergiy Georgievich Solodkyy** *Optimization of projection methods for solving linear ill-posed problems* (p.314)	**Anatoly G. Yagola** *Ill-posed problems and a priori information* (p.318)	**Weichung Wang** *Using Preconditioned Conjugate Gradients in Final Iterations of Interior Point Methods* (p.317)
Sect.: **18**	Miscellaneous I, *Chair: Masao Mori*		
H 2013	**Salem A. Sahab** *Mathematics basic skills for grades 1 to 3* (p.363)	**Josef Nietzsch** *The Study of Mathematics by High School Students at the University* (p.363)	**Masao Mori** *Beginners Confusion and Terminology in Mathematics* (p.362)

Short Communications: Monday, 24 August, 16:15–17:00

	16:15–16:30	16:30–16:45	16:45–17:00
Sect.: **01**	Constructive Mathematics and Models of Arithmetic, *Chair: Hiloshi Ohno*		
MA 042	**Douglas S. Bridges** *Ideals in constructive ring and Banach algebra theory (p.6)*	**Luminita Simona Dediu** *A constructive extension theorem for ultraweakly continuous linear functionals (p.6)*	**Hiloshi Ohno** *A certain proposition unprovable in number-theoretic formal system (p.9)*
Sect.: **02**	Algebras II, *Chair: M. Susan Montgomery*		
MA 311	**Mihai I. Cipu** *Multiplicities and pure resolutions for Gorenstein codimension four algebras (p.15)*	**Michael Nüsken** *Unique Tensor Factorization of Algebras (p.26)*	**Andrej A. Zolotykh** *Standard bases for ideals of free algebras over commutative rings (p.32)*
Sect.: **04**	Singularities II, *Chair: Herbert Kurke*		
MA 309	**Michał Kwieciński** *An algebraic map with nonconstructible topology*		
Sect.: **05**	Integrable Geodesic Flows and Perturbation Problems, *Chair: Vladimir S. Matveev*		
MA 041	**Masayuki Igarashi** *On Hermitian-Liouville structures on compact Hermitian surfaces (p.71)*	**Li Ma** *Stable critical point Theory in perturbation problems (p.75)*	**Vladimir S. Matveev** *Geodesic equivalence and integrability (p.76)*
Sect.: **05**	Local Differential Geometry, *Chair: Jose Miguel Veloso*		
MA 043	**Nikolaus K. Stephanidis** *Über einige Invarianten in der Theorie der Strahlensysteme (p.81)*	**Katerina Polyakova** *Parallel displacements along manifold of osculating planes of a surface (p.78)*	**Jose Miguel Veloso** *Almost pseudo-Hermitian manifolds (p.83)*
Sect.: **06**	Manifolds and Dynamics, *Chair: Tadayoshi Mizutani*		
H 112	**Levan A. Alania** *De Rham cohomology with local coefficients (p.85)*	**Alexander Fel'shtyn** *Reidemeister torsion and dynamical zeta functions in Nielsen theory (p.88)*	**Efthimios Kappos** *Manifolds: Differential Topology: Controllability of Vector Fields (p.90)*
Sect.: **10**	Elliptic Equations IV (Non-linear Problems), *Chair: Hwai-Chiuan Wang*		
H 111	**Carsten Ebmeyer** *The p-Laplacian under mixed boundary value conditions in multidimensional polyhedral domains (p.203)*	**Stanislav I. Pohozaev** *Positive solutions of nonlinear Neumann problems. Application of the global fibering method (p.217)*	**Hwai-Chiuan Wang** *Semilinear Elliptic Problems in Interior and Exterior Flask Domains (p.224)*
Sect.: **10**	Applied Problems I, *Chair: Olga S. Rozanova*		
H 110	**Zhiming Chen** *Adaptive Finite Element Methods for Dynamical GL Vortices in Superconductivity (p.200)*	**Olga S. Rozanova** *2-D model of atmosphere dynamics: energy balance and some properties of solutions (p.219)*	**Gregory A. Chechkin** *On Behavior of Perforated Bodies with Rapidly Oscillating Surfaces*
Sect.: **12**	Liapunov Exponents, *Chair: Michael K.R. Scheutzow*		
H 107	**Volker Wihstutz** *Stability Maps for Systems with Noise Induced Stability (p.272)*	**Peter Imkeller** *An explicit description of the Lyapunov exponents of the noisy damped harmonic oscillator (p.254)*	**Michel L.E. Rieutord** *A boundary value problem of mixed type in a spherical shell (p.268)*
Sect.: **12**	Empirical Processes and Nonparametric Inference, *Chair: Michael Nussbaum*		
H 1029	**Samir Ben Hariz** *Uniform CLT for empirical process indexed by classes of functions (p.248)*	**Michael Jaehnisch** *Asymptotic equivalence for a density model with independent but non identically distributed random variables (p.255)*	**Vladimir I. Koltchinskii** *Empirical geometry of multivariate data: a deconvolution approach (p.257)*
Sect.: **13**	Classical Combinatorial Structures, *Chair: Stefan Felsner*		
H 106	**Mario-Osvin Pavcevic** *On two series of symmetric designs (p.283)*	**Christian Krattenthaler** *New results in the enumeration of rhombus tilings (p.280)*	**Martin Kochol** *Superposition — a method for constructing graphs without nowhere-zero k-flows (p.280)*
Sect.: **17**	0/1 Problems, *Chair: Jannet A. Tambieva*		
H 2033	**Friedrich Eisenbrand** *On the Chvátal rank of polytopes in the 0/1 cube (p.339)*	**Anzor D. Kasaev** *Assigment Problem in Consideration of Discounting (p.344)*	**Jannet A. Tambieva** *Research of 4-Cliques Problem (p.351)*
Sect.: **18**	Miscellaneous II, *Chair: Mary E. Morley*		
H 2013	**Ludwig Paditz** *Comparision of the statistic calculators TI-83, EL-9600, and CFX-9850G PLUS (p.363)*	**Mary E. Morley** *Three Response Types for Broadening the Conception of Mathematical Problem Solving in Computer-Graded Tests (p.362)*	**Zhongling Xu** *The Popularization of Mathematical Methods in China (p.364)*

Short Communications: Monday, 24 August, 17:15–18:00

	17:15–17:30	17:30–17:45	17:45–18:00
Sect.: **01** MA 042	Recursion Theory and Model Theory, *Chair: Helmut Pfeiffer*		
	David Hartz *Hierarchy Based on Inductive Definitions* (p.7)	**Cyrus F. Nourani** *Functorial Computability And Generic Definable Models* (p.8)	
Sect.: **02** MA 311	Hopf Algebras, *Chair: Alexander A. Mikhalev*		
	Sorin Dascalescu *Pointed Hopf algebras by Ore extensions and classification results* (p.16)	**M. Susan Montgomery** *Prime Ideals in Hopf Galois Extensions* (p.24)	**Peter Schauenburg** *Hopf algebras with a weak projection* (p.27)
Sect.: **05** MA 041	Homogeneous Spaces, *Chair: Friedbert Prüfer*		
	Takashi Koda *Weakly symmetric property of Riemannian 3-symmetric spaces* (p.72)	**Jan Slovák** *Parabolic Geometries* (p.80)	**Friedbert Prüfer** *Local homogeneity and differential operators* (p.79)
Sect.: **05** MA 043	Special Submanifolds/Exterior Differentiation, *Chair: Peter Rögen*		
	Iaroslav A. Kopylov *Normal solvability of the operator of exterior derivation on some surfaces in* $\mathbb{R}^N$ (p.73)	**Yoshio Matsuyama** *On totally real submanifolds in* $CP^n(c)$ (p.76)	**Peter Rögen** *Embedding and knotting of flat surfaces in* 3*-space* (p.79)
Sect.: **06** H 112	4-Manifolds, *Chair: Alexander D. Mednykh*		
	J. Scott Carter *The Diagrammatics of Hopf Categories and Invariants of 4-Dimensional Manifolds* (p.86)	**Nikolai Gusevskii** *Complex hyperbolic surfaces and discrete groups in complex hyperbolic geometry* (p.88)	**Alexander Prishlyak** *Morse function conjugation on 4-manifolds* (p.95)
Sect.: **10** H 111	Hyperbolic Equations III (Conservation Laws & Asymptotic Behavior), *Chair: Armen Shirikyan*		
	Christian Klingenberg *Conservation laws with source terms* (p.209)	**Andrzej Rogowski** *Existence of space periodic solutions for semi-linear hyperbolic systems* (p.218)	**Armen Shirikyan** *Asymptotic behaviour of solutions to second-order hyperbolic equations* (p.221)
Sect.: **10** H 110	Reaction-Diffusion Equations, *Chair: Klaus Zacharias*		
	Gideon A. Ngwa *The Effects of Boundary Conditions on Reaction Diffusion Equations* (p.216)	**Arnd Scheel** *Essential instability of pulses amd bifurcations to modulated travelling waves* (p.220)	**Klaus Zacharias** *On a reaction–diffusion system modelling chemotaxis* (p.225)
Sect.: **12** H 107	Large Deviations, *Chair: Dmitry Ioffe*		
	Esa Nummelin *Large deviations of random vector fields with applications to economics* (p.264)	**Rolando Rebolledo** *Stopping Times and Large-Deviation Principles* (p.267)	**Tzuu-Shuh Chiang** *Large deviation of small diffusions in discontinuous media* (p.250)
Sect.: **12** H 1029	Statistics for Stochastic Differential Equations, *Chair: Mikhailo Yadrenko*		
	Marianne Huebner *Nonparametric estimation for stochastic partial differential equations*	**Ruth Pfeiffer** *Statistical Problems for Stochastic Processes with Hysteresis* (p.266)	**Alexander Frolovich Taraskin** *On problems of statistics for SDE* (p.270)
Sect.: **13** H 106	Matrices, Posets, and Lattices, *Chair: Jens Gustedt*		
	Konrad Engel *An upper bound for the size of a largest antichain in the poset of partitions of an integer* (p.276)	**Antoni Smoluk** *Fix-point property of finite partially ordered sets* (p.284)	**Christian Bey** *An intersection theorem for the function lattice* (p.274)
Sect.: **17** H 2033	Algorithms and Complexity Issues, *Chair: Naum Zuselevich Shor*		
	Vitaly A. Perepelitsa *Fractal Graphs and their Properties* (p.347)	**Elena V. Popova** *Estimates of Complexity of the Vector Ordering Problem* (p.348)	**Naum Zuselevich Shor** *Methods of improving dual bounds with the use of functionally superfluous constraints in polynomial and boolean problems* (p.350)
Sect.: **19** H 2013	Non-European Mathematics, *Chair: Shirong Guo*		
	Shirong Guo *Yang Hui's Influence on the Mathematical Tradition of the Ming Dynasty in China* (p.367)	**Osamu Takenouchi** *Summation of a sequence of natural numbers* (p.369)	**Abdelkhalek Cheddadi** *Un problème d'arithmétique et sa résolution par le mathématicien marocain al-Hassar (XIIè s.)* (p.365)

Poster Session: Monday, 24 August, 14:00–15:45

Sect.: **01**	Logic		
MA 144	**Fariborz Azarpanah** *Sum and intersection of summand ideals in $C(X)$* (p.5)	**Grzegorz Bancerek** *Mizar — a work environment for a mathematician: an experiment with continuous lattices* (p.6)	**Peter Michael Schuster** *A Sequence Model for Constructive Nonstandard Analysis* (p.10)
Sect.: **06**	Topology		
MA 144	**Laura M. Anderson** *Matroid bundles and characteristic classes* (p.85)	**Lorena Armas-Sanabria** *3-Pure Braids and Surgery* (p.85)	**Vitali Chatyrko** *On infinite-dimensional Cantor manifolds* (p.86)
	Mario Eudave-Munoz *Incompressible surfaces in the exterior of tunnel number one knots* (p.88)	**Norikazu Hashiguchi** *The surgery formula for the discrete Godbillon-Vey invariant* (p.89)	**Thang T.Q. Le** *On Quantum and Finite Type Invariants of Homology 3-Spheres* (p.91)
	Jouni Luukkainen *The fundamentals of Lipschitz and quasiconformal manifolds* (p.92)	**Leonard Mdzinarishvili** *Partially continuous Alexander-Spanier cohomology theory* (p.93)	**Alexey Rasskazov** *The structure of the canonical fundamental set for the 2-bridge link* (p.95)
	Sascha A. Rogmann *Growth functions of tessellations* (p.96)	**Richard J. Steiner** *Pasting in multiple categories* (p.98)	**Paul R. Turner** *The homology of spaces representing exact cohomology theories* (p.99)

Poster Session: Monday, 24 August, 16:15–18:00

Sect.: **07**	Lie Groups and Lie Algebras		
MA 144	**Helge Glöckner** *Scale functions on p-adic Lie groups* (p.105)	**Nikolai Gromov** *Nonsemisimple Cayley-Klein groups and its quantization* (p.105)	**Duncan J. Melville** *A survey of quantum deformation results* (p.108)
	Victor M. Petrogradsky *On subalgebras of free Lie algebras* (p.108)	**Jorge Soto-Andrade** *Gel'fand Models, Weil Representations, and Twisted Spherical Functions* (p.110)	
Sect.: **11**	Mathematical Physics		
MA 144	**Jack Asavanant** *Free-surface flows past a rectilinear object with stagnation points* (p.228)	**Valery Dryuma** *Integration of Einstein equation for higher-dimensional space* (p.232)	**Nadja Kutz** *Discrete Nonlinear Toda Evolution* (p.239)
	David Natroshvili *Direct and inverse problems of fluid-structure interaction* (p.241)	**Jean Ndimubandi** *The q-Dirac oscillator: the context of radial potentials* (p.242)	**Joachim Rehberg** *A hybrid semiconductor device model including nanostructures* (p.243)
	Ryuichi Sawae *An action of Virasoro algebra on the formal loop group solutions of 2d reduced Einstein equations* (p.244)	**Joseph C. Várilly** *Quantum fields over noncommutative tori* (p.246)	