

Nonlinearity, Nonlocality and Ultrametricity

Dragovich 80

International Conference NONLINEARITY, NONLOCALITY and ULTRAMETRICITY

Belgrade, 26–30. 05. 2025.

OPENING PROGRAM

Ceremonial Hall of the Serbian Academy of Sciences and Arts

Knez Mihailova Street 35

MONDAY, 26. 05. 2025.			
09.00 – 10.00	60'	Registration	
10.00 – 10.30	30'	Formal Opening	
10.30 – 11.15	45'	Viatcheslav MUKHANOV	<i>Modern Cosmology: Facts, Misconceptions and Myths</i>
11.15 – 12.00	45'	Salvatore CAPOZZIELLO	<i>Avoiding Singularities in Lorentzian-Euclidean Black Holes: The Role of Atemporality</i>
12.00 – 14.00	120'	Cocktail	

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MONDAY, 26. 05. 2025.

Serbian Academy of Sciences and Arts (SANU)

Knez Mihailova Street 35

Monday: SESSION – I (ACADEMY: LECTURE HALL 2 at 1st floor)			
14:35 – 15:10	35'	Branislav SAZDOVIC	<i>From Casimir invariants to equations for all spins and helicities</i>
15:10 – 15:45	35'	Voja RADOVANOVIC	<i>BV quantization of braided field theories</i>
15:45 – 16:20	35'	Igor SALOM	<i>Jordanian $sl(2)$ chain</i>
16:20 – 16:50	30'	Coffee Break	
16:50 – 17:25	35'	Marko VOJINOVIC	<i>Operational verification of the existence of a spacetime manifold</i>
17:25 – 18:00	35'	Djordje MINIC*	<i>Quantum Gravity, Gravitized Quantum Theory and all that</i>

* – online talk

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MONDAY, 26. 05. 2025.

Mathematical Institute of the Serbian Academy of Sciences and Arts (MISANU)

Knez Mihailova Street 36

Monday: SESSION – II (MATH. INST: LECTURE HALL 102 at 1st floor)			
14:35 – 15:10	35'	Mihailo CUBROVIC	<i>Ensemble averaging in LLM geometries</i>
15:10 – 15:45	35'	Predrag JOVANOVIC	<i>Possible influence of a fifth force on stellar orbits around the Galactic Center</i>
15:45 – 16:20	35'	Goran DJORDJEVIC	<i>Adelic dynamics and DBI Lagrangians</i>
16:20 – 16:50	30'	Coffee Break	
16:50 – 17:25	35'	Igor PRLINA	<i>Detecting High Frequency Nonlinear Quantum Phenomena Using Weak Measurements</i>
17:25 – 17:50	25'	Kostadin TRENCEVSKI*	<i>A model of universe as harmonic oscillator with periodic and avoided singularities of the mass and energy density</i>

* – online talk

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TUESDAY, 27. 05. 2025.

Serbian Academy of Sciences and Arts (SANU)

Knez Mihailova Street 35

Tuesday: PLENARY SESSION (ACADEMY: LECTURE HALL 2 at 1st floor)			
8:30 – 9:05	35'	Milivoj BELIC*	<i>Self-accelerating Scorer beams</i>
9:05 – 9:40	35'	Miguel A.F. SANJUAN	<i>Exploring Noisy Hamiltonian Dynamics</i>
9:40 – 10:15	35'	Radu CONSTANTINESCU	<i>Generalized second order NPDEs with similar classes of solutions</i>
10:15 – 10:45	30'	Coffee Break	
10:45 – 11:20	35'	Evgeny ZELENOV	<i>Planck length and metric geometry</i>
11:20 – 11:55	35'	Wilson ZUNIGA-GALIDO	<i>p-Adic Quantum Mechanics, Quantum Walks, and the Discreteness of Space</i>
11:55 – 12:30	35'	Vladimir OSIPOV	<i>Ultrametricity in physics of complex systems: from proteins to quantum chaos</i>
12:30 – 14:00	90'	LUNCH	

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TUESDAY, 27. 05. 2025.

Serbian Academy of Sciences and Arts (SANU)

Knez Mihailova Street 35

Tuesday: SESSION – I (ACADEMY: LECTURE HALL 2 at 1st floor)			
14:00 – 14:35	35'	Paul SORBA	<i>Fifty years of Group Theory in Particle Physics and Beyond</i>
14:35 – 15:10	35'	Khodr SHAMSEDDINE	<i>Lebesgue-like measure and integration theory on Jordanian $sl(2)$ chain</i>
15:10 – 15:45	35'	Debashis GHOSHAL	<i>Stuart-Landau Oscillator: Variations on a theme</i>
15:45 – 16:15	30'	Coffee Break	
16:15 – 16:50	35'	Miroslava VUKCEVIC	<i>Scattering of UHECR at small pitch angle by plasma wave turbulence</i>
16:50 – 17:25	35'	Vladimir ANASHIN*	<i>The p-adic view on causality and "true randomness"</i>
17:25 – 18:00	35'	Vladimir DOBREV*	<i>Langlands Duality and Invariant Differential Operators</i>

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Knez Mihailova Street 36

Tuesday: SESSION – II (MATH. INST: LECTURE HALL 102 at 1st floor)			
14:00 – 14:35	35'	Sarthak PARIKH	<i>Holography on Bruhat-Tits Buildings</i>
14:35 – 15:10	35'	Ilaria SVAMPA	<i>Towards p-adic quantum computing via representations of the p-adic rotation group</i>
15:10 – 15:45	35'	Vincenzo PARISI	<i>Towards a theory of entanglement in p-adic quantum information</i>
15:45 – 16:15	30'	Coffee Break	
16:15 – 16:50	35'	Sergei KOZYREV	<i>Learning theory as physics</i>
16:50 – 17:25	35'	Patrick Erik BRADLEY	<i>Towards p-adic boundary value problems</i>
17:25 – 17:50	25'	Angel MORAN LEDEZMA	<i>Time-varying energy landscapes and temperature paths: Dynamic transition rates in locally ultrametric complex systems</i>

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WEDNESDAY, 28. 05. 2025.

Serbian Academy of Sciences and Arts (SANU)

Knez Mihailova Street 35

Wednesday: PLENARY SESSION (ACADEMY: LECTURE HALL 2 at 1st floor)			
8:30 – 9:05	35'	Joseph BUCHBINDER	<i>Effective action in six-dimensional supersymmetric gauge theories</i>
9:05 – 9:40	35'	Evgeny IVANOV	<i>Amazing Efficiency of the Harmonic Superspace Methods</i>
9:40 – 10:15	35'	Alexey ISAEV	<i>Feynman diagrams, operator formalism and conformal field theory</i>
10:15 – 10:45	30'	Coffee Break	
10:45 – 11:20	35'	Natasa PRZULJ	<i>New AI Methods for Simplifying Multi-Omics Data Analyses in Precision Medicine</i>
11:20 – 11:55	35'	Andrzej BOROWIEC	<i>Scalar-tensor cosmology: unifying metric, Palatini and hybrid approaches</i>
11:55 – 12:30	35'	Aleksandar MIKOVIC	<i>Wavefunction of the Universe and the effective action</i>
13:00 – 21:00		EXCURSION	

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THURSDAY, 29. 05. 2025.

Serbian Academy of Sciences and Arts (SANU)

Knez Mihailova Street 35

Thursday: PLENARY SESSION (ACADEMY: LECTURE HALL 2 at 1st floor)			
8:30 – 9:05	35'	Ignatios ANTONIADIS	<i>Landscape, Swampland and Extra Dimensions</i>
9:05 – 9:40	35'	George SAVVIDY	<i>Landscape of QCD Vacuum</i>
9:40 – 10:15	35'	Alexey KOSHELEV	<i>Resolution of singularities in infinite-derivative gravity theories</i>
10:15 – 10:45	30'	Coffee Break	
10:45 – 11:20	35'	George ZOUPANOS	<i>Unification of Conformal and Fuzzy Gravities with Internal Interactions based on the SO(10) GUT</i>
11:20 – 11:55	35'	Tristan HUBSCH	<i>Beyond Algebraic Solutions to Stringy Spacetime</i>
11:55 – 12:30	35'	Dejan STOJKOVIC	<i>Signals of the doomsday</i>
12:30 – 14:00	90'	LUNCH	

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Thursday: SESSION – I (ACADEMY: LECTURE HALL 2 at 1st floor)			
14:00 – 14:35	35'	Andrei POGREBKOV	<i>Quantization of modified KdV (Boson-Fermion correspondence)</i>
14:35 – 15:10	35'	Vladimir DRAGOVIC	<i>Isoperiodic deformations of meromorphic differentials on Riemann surfaces and applications to Mathematical Physics</i>
15:10 – 15:45	35'	Bozidar JOVANOVIC	<i>Magnetic flows on spheres</i>
15:45 – 16:15	30'	Coffee Break	
16:15 – 16:50	35'	Boris MALOMED*	<i>A review: basic fractional nonlinear-wave models and solitons</i>
16:50 – 17:25	35'	Bosiljka TADIC*	<i>The origin of multiscale synchronization in human connectome networks</i>
17:25 – 18:00	35'	Vladimir SKARKA*	<i>Generalization of Boltzmann nonlinear equation using subdynamics approach</i>
19:30 – 23:30		CONFERENCE DINNER	

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Thursday: SESSION – II (MATH. INST: LECTURE HALL 102 at 1st floor)			
14:00 – 14:35	35'	Natasa MISIC	<i>Scale-free computing inspired by the genetic code</i>
14:35 – 15:10	35'	Elena FIMMEL	<i>Quantum-like modelling of the genetic code</i>
15:10 – 15:45	35'	Salvatore CAPOZZIELLO	<i>The Chern-Simons current in systems of DNA-RNA transcriptions</i>
15:45 – 16:15	30'	Coffee Break	
16:15 – 16:50	35'	Emilio ELIZALDE	<i>Zeta functions in Physics: a comprehensive review</i>
16:50 – 17:25	35'	Jelena STANKOVIC	<i>Cosmological solutions of a nonlocal de Sitter \sqrt{dS} gravity</i>
17:25 – 17:50	25'	Ivan DIMITRIJEVIC	<i>Nonlocal de Sitter \sqrt{dS} gravity model and its local description</i>
19:30 – 23:30		CONFERENCE DINNER	

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FRIDAY, 30. 05. 2025.

Serbian Academy of Sciences and Arts (SANU)

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Friday: PLENARY SESSION (ACADEMY: LECTURE HALL 2 at 1st floor)			
8:30 – 9:05	35'	Irina AREFEVA*	<i>On relations between the real Kähler and the complex Hilbert Spaces quantum mechanics</i>
9:05 – 9:40	35'	Igor VOLOVICH*	<i>Real Quantum Mechanics in a Kähler Space</i>
9:40 – 10:15	35'	Dmitry KAZAKOV*	<i>Quantum corrections to cosmological potentials and the origin of the cosmological constant</i>
10:15 – 10:45	30'	Coffee Break	
10:45 – 11:20	35'	Nediljko BUDISA	<i>Rewriting life's alphabet: Genetic code expansion and the rise of Xenobiology</i>
11:20 – 11:55	35'	Marko DJORDJEVIC	<i>Nonlinear Dynamics of Toxin-Antitoxin Systems in Regulating Gene Transfer and Persistence</i>
11:55 – 12:30	35'	Amare ABEBE	<i>Some cosmological viability constraints of modified gravity</i>
12:30 – 14:00	90'	LUNCH	

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Friday: SESSION – I (ACADEMY: LECTURE HALL 2 at 1st floor)			
14:00 – 14:35	35'	Sergei ODINTSOV*	<i>Cosmic evolution and black holes in modified gravity</i>
14:35 – 15:10	35'	Emmanuel SARIDAKIS*	
15:10 – 15:45	35'	Alexander ZAKHAROV*	<i>Cosmology: 100 years after A. A. Friedmann</i>
15:45 – 16:15	30'	Coffee Break	
16:15 – 16:50	35'	Sergey VERNOV*	<i>New slow-roll approximations for inflationary models with the Gauss-Bonnet term and nonminimal coupling</i>
16:50 – 17:25	35'	Ekaterina POZDEEVA*	<i>Primordial Black Holes in Induced Gravity</i>
17:25 – 17:35	10'	CLOSING (Lecture Hall of SESSION II)	

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14:00 – 14:35	35'	Andrei KHRENNIKOV*	<i>Ultrametrics, dendrograms, quantum potential and medical diagnostics of neurological diseases</i>
14:35 – 15:10	35'	Farukh MUKHAMEDOV*	<i>p-Adic countable state SOS model</i>
15:10 – 15:45	35'	Mukadas MISSAROV*	<i>Fixed points of the renormalization group transformation in a generalized fermionic hierarchical model</i>
15:45 – 16:15	30'	Coffee Break	
16:15 – 16:50	35'	Trond DIGERNES*	<i>Non-Archimedean Test Function Spaces: A Discussion</i>
16:50 – 17:25	35'	David WEISBART*	<i>Brownian Motion in the p-Adic Integers is a Limit of Discrete Time Random Walks</i>
17:25 – 17:35	10'	CLOSING	

* – online talk