

XIV. International Workshop
LIE THEORY AND ITS APPLICATIONS IN PHYSICS
20 - 26 June 2021, Sofia, Bulgaria
Programme including all delivered Talks
All times are Sofia Summer Time = UTC+3 = GMT+3

Monday, June 21, 09:30 Sofia Summer Time (SST)

- 9:30 - 10:00 : Jean-Emile Bourgine : Algebraic engineering and integrable hierarchies
10:00 - 10:25 : Shin Sasaki : Integration of DFT algebroids and pre-rackoid in doubled geometry
10:25 - 10:45 : Haruka Mori : Doubled aspects of algebroids and gauge symmetry in double field theory
10:45 - 11:05 : Rubén José Muñoz Alcázar : A filtration associated to an abelian inner ideal and the speciality of the subquotient of a Lie algebra
11:05 - 11:30 : *Coffee break*
11:30 - 12:00 : Alessio Marrani : Theory of invariants in Maxwell-Einstein gravity
12:00 - 12:25 : Hulya Arguz : Donaldson–Thomas invariants of quivers with potentials from the flow tree formula
12:25 - 12:50 : Guillem Cazassus : Donaldson theory as a Hamiltonian field theory

Monday, June 21, 14:00 SST

- 14:00 - 14:45 : Toshiyuki Kobayashi : Limit algebras and tempered representations
14:45 - 15:30 : Volodymyr Mazorchuk : Bigrassmannian permutations and Verma modules
15:30 - 16:15 : Palle Jorgensen : Unitary representations of Lie groups with reflection symmetry

Monday, June 21, 16:45 SST

- 16:45 - 17:15 : Herve Partouche : Wavefunction of the universe: Diffeomorphism invariance and field redefinitions
17:15 - 17:40 : Eugenia Boffo : Graded Poisson algebra and effective string actions
17:40 - 18:05 : Toru Masuda : A new S-matrix formula and extension of the state space in open string field theory
18:05 - 18:25 : Folkert Kuipers : Space-time stochasticity and second order geometry
18:25 - 18:50 : *Coffee break*
18:50 - 19:20 : Lilia Anguelova : Primordial black holes from rapid turns in two-field models
19:20 - 19:45 : Andre A. Lima : Ramond states of the D1-D5 CFT away from the free orbifold point
19:45 - 20:10 : Falk Hassler : Poisson-Lie T-duality, integrability and quantum corrections

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Tuesday, June 22, 09:30 SST

- 9:30 - 10:00 : S.R. Eric Yang : Topologically ordered interacting disordered graphene zigzag nanoribbon
10:00 - 10:25 : John Mashford : An eightfold way for QCD through 4-D conformal geometry
10:25 - 10:45 : Axel Tiger Norkvist : Minimal embeddings in noncommutative geometry
10:45 - 11:05 : Mateo Paulisic : Gauging the higher-spin-like symmetries by the Moyal product
11:05 - 11:30 : Coffee break
11:30 - 12:00 : Karyn R.J. Le Hur : Spin-1/2 models in curved space, light response and quantum transport in topological states
12:00 - 12:25 : Stoimen Stoimenov : Regime of meta-conformal invariance in spherical model
12:25 - 12:50 : Fabrizio Nieri : Intersecting defects and supergroup gauge theory

Tuesday, June 22, 14:00 SST

- 14:00 - 14:45 : Yang-Hui He : Machine-learning mathematical structures
14:45 - 15:30 : Tomasz Brzezinski : Beyond rings and algebras
15:30 - 16:15 : Vladimir Bavula : Simplicity criteria for rings of differential operators.

Tuesday, June 22, 16:45 SST

- 16:45 - 17:15 : Almut Beige : Local quantum field theories and the Casimir effect
17:15 - 17:40 : Jiří Hrivnák : Quantum particle on lattices in Weyl alcoves
17:40 - 18:05 : Ferruccio Feruglio : Automorphic forms and fermion masses
18:05 - 18:25 : S.N. Hazel Mak : Explorations of 10D & 11D superfield supergravity via Lie algebraic methods
18:25 - 18:50 : Coffee break
18:50 - 19:20 : Veselin Filev : Backreacted D0/D4 background
19:20 - 19:45 : Gizem Sengor : Principal and complementary series representations at the late-time boundary of de Sitter
19:45 - 20:10 : Robin Lautenbacher : Representations of involutory subalgebras of affine Kac-Moody algebras

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Wednesday, June 23, 09:30 SST

9:30 - 10:00 : Naoki Sasakura : Emergence of Lie group symmetries in oscillatory integrations in matrix and tensor models
10:00 - 10:25 : Shuichi Yokoyama : Charge conservation, entropy current, and gravitation
10:25 - 10:45 : Yuta Nasuda : Several exactly solvable quantum mechanical systems and the SWKB quantization condition
10:45 - 11:05 : Ood Shabtai : Pairs of spectral projections of spin operators
11:05 - 11:30 : Coffee break
11:30 - 11:55 : Todor Popov : H-atom and AdS5 symmetry
11:55 - 12:25 : Mariana Kirchbach : Color confinement on the compactified Minkowski spacetime
12:25 - 12:50 : Malin Sjordahl : The chirality-flow formalism for standard model calculations

Wednesday, June 23, 14:00 SST

14:00 - 14:45 : Ivan Todorov : Quantum algebra of the standard model
14:45 - 15:30 : George Zoupanos : $N = 1$ trinification from dimensional reduction of $N = 1$, 10D E_8 over $SU(3)/U(1) \times U(1) \times Z_3$
15:30 - 16:15 : Andrei Smilga : Spin(7) instantons in eight dimensions

Wednesday, June 23, 16:45 SST

16:45 - 17:15 : Branko Dragovich : Nonlocal gravity and its cosmology
17:15 - 17:40 : Denitsa Staicova : Testing late time cosmic acceleration with uncorrelated baryon acoustic oscillations dataset
17:40 - 18:05 : Lucrezia Ravera : On the hidden symmetries of D=11 supergravity
18:05 - 18:25 : Anton Pribytok : AdS_n integrable deformations, algebras and free fermion consistency
18:25 - 18:50 : Coffee break
18:50 - 19:20 : David Lowe : Holography in asymptotically flat spacetimes
19:20 - 19:45 : Olena Vaneeva : Generalization of the algebraic method for solving group classification problems
19:45 - 20:10 : Cristian Anghel : Lie algebroids and weight systems

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Thursday, June 24, 09:30 SST

9:30 - 10:00 : Chih-Hao Fu : BCJ duality as a physical realisation of the quantum algebra
10:00 - 10:25 : Yihong Wang : Examples of applications of quantum algebra in scattering amplitudes

10:25 - 10:45 : Asmus Bisbo : PBW-type bases for simple $osp(1|2n)$ -modules

10:45 - 11:05 : Hadewijch De Clercq : Serre presentation for quantum symmetric pair coideals of Kac-Moody type

11:05 - 11:30 : Coffee break

11:30 - 12:00 : Āestmír Burdík : Traceformula for the RTT algebra of $sp(4)$ type

12:00 - 12:25 : Roland Kirschner : Representations of orthogonal and symplectic Yangians

12:25 - 12:50 : Igor Salom : Bethe states and Knizhnik-Zamolodchikov equations of the trigonometric Gaudin model with triangular boundary

Thursday, June 24, 14:00 SST

14:00 - 14:45 : Susanne Reffert : The large charge expansion

14:45 - 15:30 : Sanjaye Ramgoolam : Four dimensional conformal field theory using representation theory and two dimensional topological field theory

15:30 - 16:15 : Malte Henkel : Non-equilibrium dynamics of the quantum spherical model: exact solution

Thursday, June 24, 16:45 SST

16:45 - 17:15 : Tamar Friedmann : Euler's reflection formula, infinite product formulas, and the correspondence principle of quantum mechanics

17:15 - 17:40 : Anne Pilkington : Reflection representations of Coxeter groups over non-commutative rings

17:40 - 18:05 : Iliā Smilga : Representations with vectors fixed by a Levi subgroup

18:05 - 18:25 : Alexis Langlois-Rémillard : Finite dimensional representations of the 3D dihedral Dunkl-Dirac symmetry algebra

18:25 - 18:50 : Coffee break

18:50 - 19:20 : Patrick Moylan : Velocity reciprocity in flat and curved space-time

19:20 - 19:45 : Richard Garavuso : Curvature constraints in heterotic Landau-Ginzburg models

19:45 - 20:10 : Alexander Ganchev : About bidirectionality in learning, control, inference, physics, etc.

20:10 - 20:30 : Slaven Kožić : Parafermionic bases of standard modules for affine Lie algebras

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Friday, June 25, 09:30 SST

9:30 - 10:00 : Sinya Aoki : Bulk reconstruction from a scalar CFT at the boundary by the smearing with the flow equation

10:00 - 10:25 : Koichi Arashi : Coherent state representations of the holomorphic automorphism group of a bounded homogeneous domain

10:25 - 10:45 : Tsukasa Ishibashi : Wilson lines and their Laurent positivity

10:45 - 11:05 : Guillermo Vera de Salas : Nilpotent superderivations in prime superalgebras

11:05 - 11:30 : Coffee break

11:30 - 12:00 : Miguel Angel Gómez Lozano : \mathfrak{sl}_2 -triple and von Neumann regular elements in associative rings

12:00 - 12:25 : Esther García : Ad-nilpotent elements in semiprime algebras with involution

12:25 - 12:50 : José María Sánchez : On the structure of graded Lie algebras of order 3

Friday, June 25, 14:00 SST

14:00 - 14:45 : Patrizia Vitale : Jacobi sigma models

14:45 - 15:30 : Paolo Aschieri : Levi-Civita connection and noncommutative gravity

15:30 - 16:15 : Nikolay Bobev : The unreasonable effectiveness of higher-derivative supergravity in AdS_4 holography

Friday, June 25, 16:45 SST

16:45 - 17:15 : Tatyana Barron : Entanglement of mixed states in Kahler quantization

17:15 - 17:40 : Marijana Butorac : Principal subspaces of standard modules of untwisted affine Lie algebras

17:40 - 18:05 : Adela Latorre : Construction of hypersymplectic Lie algebras

18:05 - 18:25 : Kwalombota Ilwale : Twisted connections on projective modules

18:25 - 18:50 : Coffee break

18:50 - 19:20 : Elena Poletaeva : Representations of principal W-algebra for the superalgebra $Q(n)$ and the super Yangian $YQ(1)$

19:20 - 19:45 : Artur Sergyeyev : New (3+1)-dimensional integrable system with an algebraic nonisospectral Lax pair

19:45 - 20:10 : Florian Loebbert : Yangian symmetry for the masses

20:10 - 20:30 : Tekin Karadag : Lie structure on Hopf algebra cohomology