XXXIV International Colloquium on Group Theoretical Methods in Physics

PROGRAMME

18-22 July 2022

Strasbourg University, France

Contents

Sponsors

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  "To secure IUPAP sponsorship, the organisers have provided assurance that the 34th ICGTMP will be conducted in accordance with IUPAP principles as stated in the IUPAP resolution.
  - No bona fide scientist will be excluded from participation on the grounds of national origin, nationality, or political considerations unrelated to science."
  - This conference takes place in an institution that does not tolerate any form of gender-based, sexual or homophobic violence. If you are a witness or a victim of violence, three trained resource people are available to listen to you during the conference (F. Thalmann, K. Sieja and M. Rausch de Traubenberg). If you would like more information, resources are available online at https://violences-sexistes.unistra.fr/.
- Mairie de Strasbourg.
- Mathématiques, interactions et applications (IRMIA++), Université de Strasbourg.
- Multidisciplinary Digital Publishing Institute : Open Access journal Symmetry.
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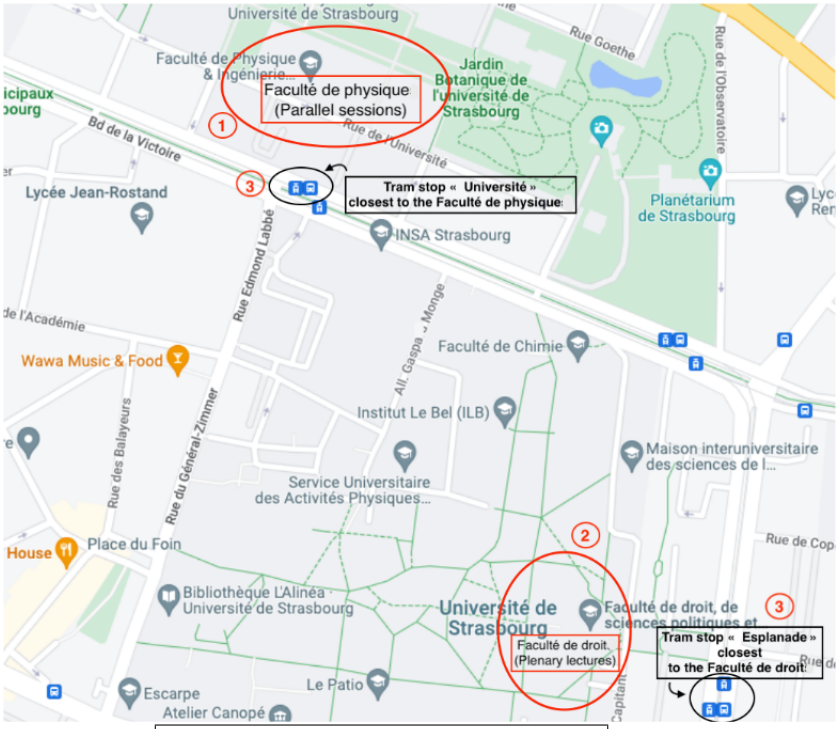
Venue

All scientific activities will take place on the central campus of the University. The central campus of Strasbourg University is not too large and all locations are reachable within walking distance.

- The plenary lectures will take place in Faculté de droit (law school), 1 Place d'Athènes amphi Carré de Malberg
- The parallel sessions will take place in Faculté de physique, 3-5 rue de l'Université amphitheatres Fresnel & Carnot, Rooms 104, 150, 346
- The group theory lectures will take place in Faculté de physique, 3-5 rue de l'Université amphitheatre Weiss
- The first special ceremony will take place in Faculté de physique, 3-5 rue de l'Université amphitheatre Fresnel
- The second special ceremony will take place in Faculté de physique, 3-5 rue de l'Université amphitheatre Fresnel
- The Award ceremony will take place at the Mairie de Strasbourg, rue Brûlée



1 Faculté de physique

2 Faculté de droit

3 Tram stop

In red the city centre

In blue the central campus

Registration And Conference Office

Faculté de droit, 1 Place d'Athènes, first floor in front of amphi Carré de Malberg
Opening hours:

- Monday 7:30-12:00
- Tuesday 7:30-9:00

If you cannot register during the registration period you can contact us at

1. group34@iphc.cnrs.fr
2. marion.oswald@unistra.fr

Coffee Break

Coffee/tea and pastry (in the morning only) are served daily from Monday 18 till Friday 22 during the breaks in the morning and afternoon sessions

1. Morning session: Room 408 (Faculté de droit, fourth floor)
2. Afternoon session: Room 248 (Faculté de physique, second floor)

Computers and WIFI

Wifi

Because all the plenary and parallel sessions will be transmitted on line, in order to accommodate the bandwidth no wifi access will be opened for the participants.

Eduroam

If you have an Eduroam account, please do not access to internet during the plenary lectures and the parallel sessions. We thank you in advance (bandwidth problem for the on-line sessions).

Group Photo

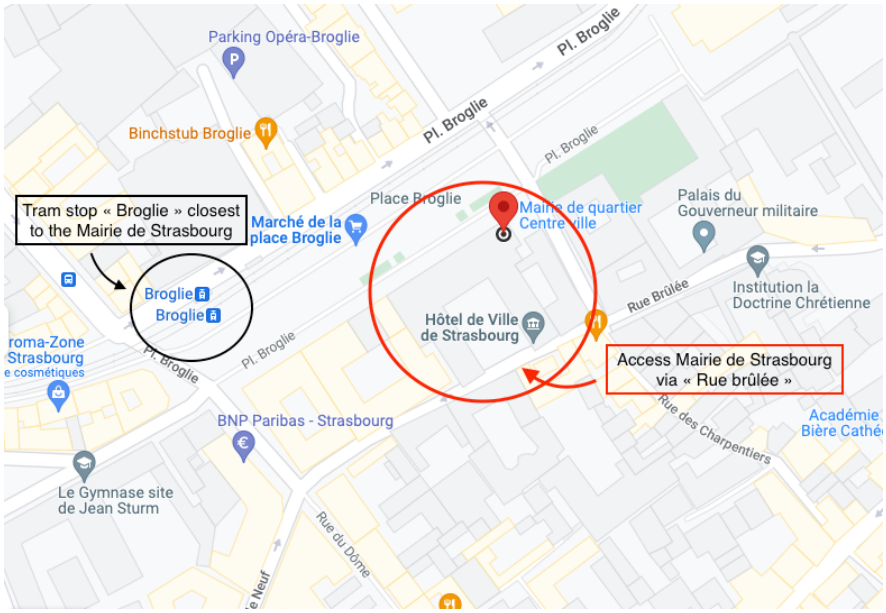
Wednesday 20 July at 10:10 on the stairs in front of the Faculté de droit.

Welcome Drink

A welcome drink is offered on Monday 18 July at 20:30 in the Garden of the University, rue de l'Université (near the Faculté de physique).

The Wigner-Weyl Award Medal and Weyl Prize Ceremony

The traditional presentation of the the Wigner-Weyl Award and the Hermann Weyl Prize is organised on Wednesday 19 July at 19:00 by the Mairie de Strasbourg, rue Brûlée. (Invitation and programme in your conference bag.)



Boat Tour

Departure Thursday 21 July at 15:30, 3 Impasse de la Grande Boucherie – 67000 STRASBOURG 2 minutes away from Strasbourg Cathedrale.

Batorama offers original tours of Strasbourg. Aboard a river boat, you will discover the historical treasures and heritage of the European capital. An unmissable experience that allows you to see Strasbourg from a unique angle.

Banquet

The conference banquet is scheduled on Thursday 21 July at 20:00 at Maison Kammerzell, 16, place de la Cathédrale, 67000 STRASBOURG. You should present your invitation card (see your conference bag).

Lunch

Strasbourg has an excellent range of accommodation of (many) small restaurants in the vicinity of the central campus of Strasbourg University. The city centre of Strasbourg is also within walking distance. A list of suggestions is given on the website of the conference.

Titles of All Presentations

Plenary Lectures

Amphitheatre Carré de Malberg, Faculté de droit, 1 Place d'Athènes

1. Bossard, Guillaume **Kac-Moody Exceptional field theory**
2. Chanu, Claudia Maria **Geometry of regular and not regular separation: the example of the bi-Helmoltz equation,**
3. Dunkl, Charles **The Harmonic Oscillator, Enhancements and Applications**
4. Gannon, Terry **What comes after Cappelli-Itzykson-Zuber's A-D-E?**
5. Gazeau, Jean-Pierre **Dark matter as a QCD effect in an Anti de Sitter background**
6. Launey, Kristina **Emergent symmetries in nuclei: Probing physics beyond the standard model**
7. Loebbert, Florian **Integrability for Feynman Integrals**
8. Marrani, Alessio **Jordan meets Freudenthal : a black hole exceptional story**
9. Panzer, Erik **Cosmic Galois group and ϕ^4 theory**
10. Reshetikhin, Nicolai **Two dimensional QCD revisited again**
11. Saleur, Hubert **Global symmetry and conformal bootstrap in the two-dimensional $O(n)$ model**
12. Vallejo, José Antonio **An overview of perturbation theory and its applications**
13. van Suijlekom, Walter **Noncommutative spaces at finite resolution**

In Memoriam Sessions

Amphitheatre Carré de Malberg, Faculté de droit, 1 Place d'Athènes

1. Pogosian, George (presented by del Olmo, Mariano) **Kurt Bernardo Wolf**
2. Stoilova, Neli **Tchavdar Palev**
3. Van Isacker, Piet **David J. Rowe**
4. Vinet, Luc **Jiri Patera and Pavel Winternitz**

50th Anniversary Ceremony

Amphitheatre Fresnel, Faculté de physique, 3-5 rue de l'Université

1. Goldin, Gerald **The Prediction of Anyons: Its History and Wider Implications**
2. Lévy-Leblond Jean-Marc **On the unexpected fate of scientific ideas — a personal account**
3. Lévy-Leblond Jean-Marc **L'évolution de la théorie des groupes et ses applications en sciences** (in French)

Parallel Sessions

Amphitheatres Fresnel & Carnot, Rooms 104, 150, 346 Faculté de physique, 3-5 rue de l'Université

Session 1: Representation theory

1. Aizawa, Naruhiko **Irreducible representations of Z_2^2-graded supersymmetry algebra and their applications**
2. Ben Geloun, Joseph **A combinatorial interpretation of the Kronecker coefficient via quantum mechanics of bipartite ribbon graphs**
3. Bisbo, Asmus **Dirac operators, vector variables and bases for parastatistical Fock space representations**
4. Claerebout, Sam **A minimal representation of the exceptional Lie superalgebra $D(2,1,\alpha)$.**
5. del Olmo, Mariano **Symmetry Groups, Quantum Mechanics and Generalized Hermite Functions**
6. Girard, Patrick R **Hyperquaternions and Physics**
7. Goncharov, Yegor **Traceless projection of tensors of any rank and symmetry via Brauer algebra**
8. Kozic, Slaven **Associating quantum vertex algebras with quantum affine algebras**
9. Langlois-Rémillard, Alexis **Monogenic representations of the algebra of symmetries of the generalised Dirac operator**
10. Muarem, Guner **The orthogonal branching problem for symplectic monogenics**
11. Postnova, Olga **Tensor powers of vector representation of quantum $sl(2)$ at roots of unity**
12. Stoilova, Neli **A class of representations of the infinite-rank $Z_2 \times Z_2-$graded Lie superalgebra $pso(\infty|\infty)$**
13. Van der Jeugt, Joris **Parabosons: basis constructions**

Session 2: Symmetries in integrable systems

1. de León, Manuel **Reduction of contact Hamiltonian systems**
2. Gomes, Jose Francisco **Twisted Affine Integrable Hierarchies and Soliton Solutions**
3. Hoque, Fazlul **A family of three-dimensional classical Hamiltonian systems in magnetic field**
4. Hounkonnou, Mahouton Norbert **Newton mechanics, Galilean relativity and special relativity in $\alpha-$ deformed binary operation setting**
5. Hussin, Véronique **Differential realization of ladder operators for the Rosen-Morse systems**
6. López-Gordón, Asier **Non-conservative systems can have conserved quantities! Symmetries, reduction and Hamilton-Jacobi theory for forced mechanical systems**
7. Rastelli, Giovanni **Complete separability of the Hamilton-Jacobi equation for the charged particle orbits in a Liénard-Wiechert field**
8. Tempesta, Piergiulio **Generalized Nijenhuis tensors and integrable systems**
9. Toda, Magdalena **Generalized Willmore Energies and Elastic Surfaces with Applications to Biophysics**
10. Yoneyama, Akihito **Tetrahedron and 3D reflection equation from PBW bases of the nilpotent subalgebra of quantum superalgebras**

Session 3: Symmetries in differential, difference and nonlinear equations

1. Buring, Ricardo **How Kontsevich's (affine) star product is associative up to order 6 (respectively 7)**
2. Campoamor-Stursberg, Rutwig **Symmetry algebras of ODEs and the embedding problem for Lie algebras**
3. Kiselev, Arthemy **Kontsevich's universal graph flows on the spaces of Nambu–Poisson brackets: their hidden symmetry**
4. Yehorchenko, Iryna **Extension of Realisations for Low-Dimensional Lie Algebras**

Session 4: Infinite dimensional symmetries and supersymmetries

1. Campoarmor-Stursberg, Rutwig **Generalisation of affine Lie algebras on compact real manifolds**
2. Ducrocq, Robin **New perspectives in Gravity Mediated SUSY Breaking**
3. Kiselev, Arthemy **Kontsevich graphs in Poisson bracket deformations: open problems**

Session 5: PT-symmetries, dynamical symmetries and superintegrability

1. Latini, Danilo **Polynomial algebras of superintegrable systems separating in Cartesian coordinates from higher order ladder operators**
2. Marquette, Ian **Exact solvability and superintegrability : Algebraic constructions**
3. Quesne, Christiane **Ladder operators and Lie algebras for a model with quadratic complex interaction**
4. Snobl, Libor **Pairs of commuting quadratic elements in the universal enveloping algebra of Euclidean algebra and integrals of motion**

Session 6: Loop algebras, W-algebras, polynomial algebras

1. Mavaddat Nezhaad, Kurosh **On Möbius Gyrogroups**

Session 7: Q-algebras and groups, q-special functions

1. Gourevitch, Dimitri **Reflection Equation Algebra as quantum analog of $U(gl(N))$**
2. Gutiérrez Sagredo, Ivàn **Noncommutative spaces of worldlines from quantum groups: Construction and phenomenological implications**
3. Herranz, Francisco J. **From quantum deformations to noncommutative spaces: Application to quantum (A)dS and Poincaré groups**
4. Lledó Barrena, María Antonia $N = 2$ **Supersymmetry, quantization and quantum superbundles**

Session 8: Superstrings, cosmology and quantum gravity

1. Ben Geloun, Joseph **Dimensional flow from nonlocality: some results in Tensor Field Theory**
2. Marrani, Alessio **Vinberg special T-algebras : from black hole entropy to "exceptional periodicity**
3. Ramda, Khaled **A novel scenario for the emergence of geometry and gravity from random multitrace matrix models**
4. Rios, Michael **Beyond M-theory with Nested Braneworlds**
5. Sasakura, Naoki **Splitting-merging transitions in a tensor-vectors system in exact large-N limits**
6. Smigla, Walter **Noether's theorem, conservation of momentum, and gravitation in multiparticle systems**
7. Suszek, Rafal R. **Towards higher super-$\sigma-$model categories**
8. Valenzuela, Mauricio **On the spin contents of the massless Rarita–Schwinger system**

Session 9: Conformal field theory

1. Kuwata, Seiichi **Spin degrees of freedom incorporated in conformal group**
2. Popov, Todor **Jordan algebras and Conformal Dynamical Symmetries**
3. Yokoyama, Shuichi **A recent development of spin CFT and level-rank duality**

Session 10: Foundations of quantum physics

1. Campobasso, Lucas **The Klein paradox in the Wigner phase-space formulation**
2. Dahm, Rolf **On Old Relations of Lie Theory, Classical Geometry and Invariant Theory**
3. Hassanabadi, Hassan **Investigation of the Dunkl-Schrödinger equation for Position Dependent Mass in the presence of a Lie algebraic approach**
4. Ibort, Alberto **On Schwinger's picture of Quantum Mechanics: Groupoids and their algebras**
5. Moylan, Patrick **Relativistic Kinematics in Flat and Curved Space-Times**
6. Nisticò, Giuseppe **Group Theoretical Derivation of Consistent Free Particle**
7. Schuch, Dieter **On a Reformulation of Bohmian Mechanics**
8. Toppan, Francesco **Inequivalent multiparticle quantizations from nontrivial braidings**
9. Yau, Hou **Quantum Fluctuations of a Particle's Arrival Time**

Session 11: Symmetries in particle physics

1. Gresnigt, Niels **Standard Model symmetries from Cayley-Dickson algebras**
2. Kumar, Kaushlendra **Yang–Mills solutions on Minkowski space via non-compact coset spaces**
3. Pietrzak, Tobiasz **Clocking mechanism from a minimal spinning particle model**
4. Quadri, Andrea **Renormalizable Extension of the Abelian Higgs-Kibble Model with a Dim. 6 Derivative Operator**
5. Schubert, Christian **Group invariants for Feynman diagrams**
6. Thierry-Mieg, Jean **Towards a self-dual super-chiral QFT of the weak interactions gauging the simple Lie-Kac superalgebra $SU(2/1)$**
7. Thierry-Mieg, Jean **Chiral Casimirs and indecomposable representations of the $sl(m/n)$ superalgebras**

Session 12: Noncommutative field theories

1. Beggs, Edwin **Quantum geodesics in quantum mechanics.**
2. Nieuviarts, Gaston **Non Commutative Gauge Field Theory on Approximately Finite C*-algebras and GUT**

Session 13: Symmetries in molecular, atomic and nuclear physics

1. Gavrielov, Noamy **An algebraic approach to intertwined quantum phase transitions in the Zr isotopes**
2. Mayorgas, Alberto **Role of mixed permutation symmetry sectors in the thermodynamic limit of critical three-level Lipkin-Meshkov-Glick atom models**
3. Ricotta, Regina Maria **A Mathematical Model for the Statistics of Tri-Stable Potentials**
4. Van Isacker, Piet **Seniority and particle-hole conjugation in atomic nuclei**

Session 14: Quantum optics, coherent states and quantum information

1. Chiribella, Giulio **Optimal programming of quantum gates**
2. Guerrero, Julio **Parity adapted coherent states for symmetric multiqudits**
3. Mancini, Stefano **P-adic qubits from irreducible representations of $SO(3)_p$**
4. Nahmad-Achar, Eduardo **Wigner Function Analysis of Finite Matter-Radiation Systems**
5. Vourdas, Apostolos **A study of multipartite quantum systems based on Markov matrices and the Gini index**
6. Woods, Mischa **Optimal Universal Quantum Error Correction via Bounded Reference Frames**

Session 15: Condensed matter and statistical physics

1. Calixto, Manuel **Hilbert Space Structure of the Low Energy Sector of $U(N)$ Quantum Hall Ferromagnets and Their Classical Limit**
2. Gorska, Katarzyna **Do the solutions of the generalized Cattaneo-Vernotte equation vanish outside the compact region?**
3. Horzela, Andrzej **Subordination and memory dependent kinetics in diffusion and relaxation phenomena**
4. Vinet, Luc **Entanglement of free Fermions on graphs**

Session 16: Symmetries in biophysics, chemical physics and natural sciences

1. Planat, Michel **Infinite groups and symmetries in biophysics at the DNA/RNA scale**

In Memoriam Sessions

Amphitheatre Carré de Malberg, Faculté de droit, 1 Place d'Athènes

Thursday 21 July at 9:00

- David J Rowe (1936-2020) was a renowned nuclear physicist, who studied at Cambridge University and Oxford University, England, and spent most of his professional life at the University of Toronto, Canada. He made seminal contributions to the theory of nuclear collective motion and its microscopic understanding, for which he developed sophisticated group-theoretical methods.

- Kurt Bernardo Wolf, our great friend, the humanist and famous theoretical physicist, left us on 25 of May 2022 in Cuernavaca, Mexico. He is well known for his contribution to mathematical physics, in particular in the application of group theory and symmetry methods in atomic, nuclear physics, classical and quantum optics, theory of differential equations, integrable and superintegrable systems. Bernardo Wolf participated in almost all group theory conferences and for a long time was a member of the Standing Committee of ICGTMP. He was an excellent organizer of many symmetry conferences in particular GROUP – 25 in Cocoyoc, Mexico in 2004.

22 July at 11:30

- Tchavdar Palev, a member of the Standing Committee of "International Colloquium of Group Theoretical Methods in Physics" from 1988 until December 2008, passed away in November 2021. He was an active contributor to the organization of our Colloquia, and this was universally appreciated.

- Jiri Patera (1936-2022) was a prominent mathematician and physicist who along with his colleague Pavel Winternitz has much contributed to establishing the international reputation of Montréal in mathematical physics. He was a world-renowned expert on the representation theory of Lie algebras and their generalizations. He has done influential work on quasi-crystals and their application to cryptography as well as in signal analysis through the study of orbit functions. He has been awarded a Killam fellowship and many distinctions.

- Pavel Winternitz (1936-2021) was a distinguished theoretical physicist who much contributed with Jiri Patera to the establishment around the CRM of the Montréal Mathematical Physics school. He has made seminal contributions on integrable and superintegrable models, symmetries of discrete and differential equations, the classification of subalgebras of Lie algebras and nucleon-nucleon scattering. He has been awarded the Wigner medal in 2018.

Group Theory Lectures

Amphitheatre Weiss, Faculté de physique, 3-5 rue de l'université.

Since 2022 will mark the 50th year of the 34th International Colloquium on Group Theoretical Methods in Physics, created in France, homeland of major front runners of group theory, such as Évariste Galois, Émile Mathieu, and Élie Cartan, we will celebrate this milestone during a special session devoted to lectures on group theory. Three lectures of 4 hours each will be organised:

- General introduction on group theory by P. Baumann (IRMA, Université de Strasbourg) ;
- Application of group theory to particle physics by G. Bossard (École Polytechnique, France) ;
- Application of group theory to condensed matter physics by R. Jalabert (IPCMS, Université de Strasbourg)

These lectures are mainly aimed at students (PhD students as well as 1st and 2nd year Master students). No prerequisite is needed to attend these lectures. For PhD students from Strasbourg these lectures are approved by the Doctoral School of Physics and Chemical-Physics (ED182) and the Doctoral School Mathématiques, Sciences de l'Information et de l'Ingénieur (ED269).

Monday 18 July 2022

14:00-14:55	Pierre Baumann
14:55-15:00	Break
15:00-15:55	Pierre Baumann
16:00-16:25	Coffee break
16:30-17:25	Rodolfo Jalabert

Tuesday 19 July 2022

14:00-14:55	Pierre Baumann
14:55-15:00	Break
15:00-15:55	Pierre Baumann
16:00-16:25	Coffee break
16:30-17:25	Guillaume Bossard

Wednesday 20 July 2022

14:00-14:55	Rodolfo Jalabert
14:55-15:00	Break
15:00-15:55	Rodolfo Jalabert
16:00-16:25	Coffee break

Thursday 21 July 2022

9:00-9:55	Guillaume Bossard

Friday 22 July 2022

14:00-14:55	Guillaume Bossard
14:55-15:00	Break
15:00-15:55	Guillaume Bossard
16:00-16:25	Coffee break
16:30-17:25	Rodolfo Jalabert

50th Anniversary of ICGTMP

Amphitheatre Fresnel, Faculté de physique, 3-5 rue de l'Université.

Since 2022 will mark the 50th year that this Colloquium was created in France, homeland of major pioneers of group theory such as Évariste Galois, Émile Mathieu and Élie Cartan, we will celebrate this milestone during two special ceremonies.

- **First special ceremony**: Tuesday 19 July 2022, Faculté de physique, 3-5 rue de l'Université, amphitheatre Fresnel: one presentation -in French- for a general public
  - 20:30-21:30 – Jean-Marc Lévy-Leblond: L'évolution de la théorie des groupes et ses applications en sciences (in English, Evolution of group theory and its applications in science).
- **Second special ceremony**: Wednesday 20 July 2022, Faculté de physique, 3-5 rue de l'Université, amphitheatre Fresnel, two presentations (in English) for the Colloquium's participants
  - 16:30-17:10 – Jean-Marc Lévy-Leblond: On the unexpected fate of scientific ideas — a personal account.
  - 17:15-17:55 – Gerald Goldin: The Prediction of Anyons: Its History and Wider Implications.

Programme: Poster Session

Room 248, Faculté de physique, second floor.

1. Buring, Ricardo **On the associativity of Kontsevich's (affine) star product up to order 7**
2. Hassanabadi Sepehr **TBA**
3. Kubu, Ondrej **Superintegrability of separable systems with magnetic field: the cylindrical case.**

The poster session is scheduled on Tuesday 20 July, during the coffee break from 16:00 till 16:25.

Poster should be removed Friday 18 at noon.

Programme: Plenary Lectures And Overview

- Plenary lectures: Amphitheatre Carré de Malberg, Faculté de droit, 1 Place d'Athènes
- Parallel sessions: Amphitheatres Fresnel & Carnot, Rooms 104, 150, 346, Faculté de physique, 3-5 rue de l'Université
- In Memoriam sessions: Amphitheatre Carré de Malberg, Faculté de droit, 1 Place d'Athènes
- Special ceremonies: Amphitheatres Fresnel, Faculté de physique, 3-5 rue de l'Université
- Group theory lectures: Amphitheatres Weiss, Faculté de physique, 3-5 rue de l'Université
- Poster sessions, Room 248, Faculté de physique.
- Award Ceremony: Mairie de Strasbourg, rue Brûlée.

Monday 18 July 2022

07:00-12:00	Registration		
09:00-09:10	Opening		
09:10-10:05	Jean-Pierre Gazeau		
10:05-10:35	Coffee break		
10:35-11:30	Guillaume Bossard		
11:30-12:25	Claudia Maria Chanu		
12:25-14:00	Lunch break		
14:00-16:00	Parallel sessions	14:00-15:55	Group Theory Lectures
16:00-16:30	Coffee break		
16:30-17:30	Parallel sessions	16:30-17:25	Group Theory Lectures
20:30-22:30	Welcome drink		

Tuesday 19 July 2022

07:00-9:00	Registration		
09:10-10:05	Nicolai Reshetikhin		
10:05-10:35	Coffee break		
10:35-11:30	Terry Gannon		
11:30-12:25	Kristina Launey		
12:25-14:00	Lunch break		
14:00-16:00	Parallel sessions	14:00-15:55	Group Theory Lectures
16:00-16:30	Coffee break		
16:30-17:30	Parallel sessions	16:30-17:25	Group Theory Lectures
20:30-21:30	First Special Ceremony		

Wednesday 20 July 2022

09:10-10:05 Erik Panzer
10:05-10:35 Coffee break
10:35-11:30 Hubert Saleur
11:30-12:25 Walter van Suijlekom
12:25-14:00 Lunch break
14:00-16:00 Parallel sessions 14:00-15:55 Group Theory Lectures
16:00-16:30 Coffee break
16:30-17:55 Second Special Ceremony

19:00-22:00 Award Ceremony

Thursday 21 July 2022

09:20-9:40 Piet van Isaker 9:00-9:55 Group Theory Lectures
(In Memoriam, D. Rowe)
9:45-10:05 Mariano del Olmo
(In Memoriam, K. Bernardo)
10:05-10:35 Coffee break
10:35-11:30 Alessio Marrani
11:30-12:25 Charles Dunkl
12:25-14:00 Lunch break

16:00-17:15 Boat tour

20:00- Banquet

Friday 22 July 2022

09:10-10:05 José Antonio Vallejo
10:05-10:35 Coffee break
10:35-11:30 Florian Loebbert
11:30-12:10 Luc Vinet
(In Memoriam, Jiri Patera and Pavel Winternitz)
12:10-12:30 Nedialka Stoilova
(In Memoriam, Tchavdar Palev)
12:25-14:00 Lunch break
14:00-16:00 Parallel sessions 14:00-15:55 Group Theory Lectures
16:00-16:30 Coffee break
16:30-17:25 Group Theory Lectures

Programme: Parallel Sessions

1. Representation theory: Amphitheatre Fresnel
   (a) Monday 18 14:00-16:00
   (b) Monday 18 16:30-17:30
   (c) Tuesday 19 14:00-16:00
   (d) Tuesday 19 16:30-17:30
   (e) Friday 22 14:00-16:00 (**Amphitheatre Carnot**)
2. Symmetries in integrable systems: Amphitheatre Carnot
   (a) Monday 18 16:30-17:30
   (b) Tuesday 19 14:00-16:00
   (c) Tuesday 19 16:30-17:30
   (d) Wednesday 22 14:00-16:00
3. Symmetries in differential, difference and nonlinear equations: Room 150
   (a) Monday 18 14:00-16:00
4. Infinite dimensional symmetries and supersymmetries: Room 104
   (a) Friday 22 14:00-16:00
5. PT-symmetries, dynamical symmetries and superintegrability: Room 346
   (a) Wednesday 20 14:00-16:00
6. Loop algebras, W-algebras, polynomial algebras: Room 346
   (a) Friday 22 14:00-16:00
7. Q-algebras and groups, q-special functions: Room 104
   (a) Monday 18 14:00-16:00
8. Superstrings, cosmology and quantum gravity: Room 104
   (a) Monday 18 16:30-17:30
   (b) Tuesday 19 14:00-16:00
   (c) Tuesday 19 16:30-17:30
9. Conformal field theory: Room 104
   (a) Wednesday 20 14:00-16:00
10. Foundations of quantum physics: Room 150
    (a) Monday 18 16:30-17:30

(b) Wednesday 20 14:00-16:00

(c) Friday 22 14:00-16:00

11. Symmetries in particle physics: Room 346

    (a) Monday 18 14:00-16:00

    (b) Tuesday 19 14:00-16:00

12. Noncommutative field theories: Room 150

    (a) Tuesday 19 14:00-16:00

13. Symmetries in molecular, atomic and nuclear physics: Room 346

    (a) Monday 18 16:30-17:30

    (b) Tuesday 19 16:30-17:30

14. Quantum optics, coherent states and quantum information: Amphitheatre Fresnel

    (a) Wednesday 20 14:00-16:00

    (b) Friday 22 14:00-16:00

15. Condensed matter and statistical physics: Amphitheatre Carnot

    (a) Monday 18 14:16:00

16. Symmetries in biophysics, chemical physics and natural sciences: Room 150

    (a) Tuesday 19 16:30-17:30

Monday 18 July

Room	Room 104	Room 346	Fresnel	Room 150	Carnot
Topics	Q-algebras and groups, q-special functions	Symmetries in particle physics	Representation theory	Symmetries in differential, difference and nonlinear equations	Condensed matter and statistical physics
14:00-14:30	Gutiérrez Sagredo: Noncommutative spaces of worldlines from quantum groups: Construction and phenomenological implications	Gresnigt: Standard Model symmetries from Cayley-Dickson algebras	Ben Geloun, Joseph: A combinatorial interpretation of the Kronecker coefficient via quantum mechanics of bipartite ribbon graphs	Yehorchenko: Extension of Realisations for Low-Dimensional Lie Algebras	Calixto: Hilbert Space Structure of the Low Energy Sector of $U(N)$ Quantum Hall Ferromagnets and Their Classical Limit
14:30-15:00	Herranz: From quantum deformations to noncommutative spaces: Application to quantum (A)dS and Poincaré groups	Kumar: Yang–Mills solutions on Minkowski space via noncompact coset spaces	Aizawa: Irreducible representations of Z_2^2-graded supersymmetry algebra and their applications	Buring: How Kontsevich's (affine) star product is associative up to order 6 (respectively 7)	Vinet: Entanglement of free Fermions on graphs
15:00-15:30	Lledó Barrena: $N = 2$ supersymmetry, quantization and quantum superbundles	Pietrzak: Clocking mechanism from a minimal spinning particle model	Bisbo: Dirac operators, vector variables and bases for parastatistical Fock space representations	Kiselev: Kontsevich's universal graph flows on the spaces of Nambu–Poisson brackets: their hidden symmetry	Horzela: Subordination and memory dependent kinetics in diffusion and relaxation phenomena
15:30-16:00	Gourevitch: Reflection Equation Algebra as quantum analog of $U(gl(N))$	Thierry-Mieg: Towards a self-dual super-chiral QFT of the weak interactions gauging the simple Lie-Kac superalgebra $SU(2/1)$	Claerebout: A minimal representation of the exceptional Lie superalgebra $D(2, 1, \alpha)$	Campoamor-Stursberg: Symmetry algebras of ODEs and the embedding problem for Lie algebras	Gorska: Do the solutions of the generalized Cattaneo-Vernotte equation vanish outside the compact region?
16:00-16:30	Coffee-break				
Topics	Superstrings, cosmology and quantum gravity	Symmetries in molecular, atomic and nuclear physics	Representation theory	Foundations of quantum physics	Symmetries in integrable systems
16:30-17:00	Marrani: Vinberg special T-algebras : from black hole entropy to "exceptional periodicity	Ricotta: A Mathematical Model for the Statistics of Tri-Stable Potentials	del Olmo: Symmetry Groups, Quantum Mechanics and Generalized Hermite Functions	Toppan: Inequivalent multiparticle quantizations from nontrivial braidings	de León: Reduction of contact Hamiltonian systems
17:00-17:30	Valenzuela: On the spin contents of the massless Rarita–Schwinger system	Mayorgas: Role of mixed permutation symmetry sectors in the thermodynamic limit of critical three-level Lipkin-Meshkov-Glick atom models	Goncharov: Traceless projection of tensors of any rank and symmetry via Brauer algebra	Yau: Quantum Fluctuations of a Particle's Arrival Time	

Tuesday 19 July

Room	Room 104	Room 346	Fresnel	Room 150	Carnot
Topics	Superstrings, cosmology and quantum gravity	Symmetries in particle physics	Representation theory	Noncommutative field theories	Symmetries in integrable systems
14:00-14:30	Ben Geloun: Dimensional flow from nonlocality: some results in Tensor Field Theory	Schubert: Group invariants for Feynman diagrams	Kozic: Associating quantum vertex algebras with quantum affine algebras	Beggs: Quantum geodesics in quantum mechanics	Hussin: Differential realization of ladder operators for the Rosen-Morse systems
14:30-15:00	Rios: Beyond M-theory with Nested Braneworlds	Thierry-Mieg: Chiral Casimirs and indecomposable representations of the $sl(m/n)$ superalgebras	Langlois-Rémillard: Monogenic representations of the algebra of symmetries of the generalised Dirac operator	Nieuviarts: Non Commutative Gauge Field Theory on Approximately Finite C*-algebras and GUT	Hounkonnou: Newton mechanics, Galilean relativity and special relativity in $\alpha-$ deformed binary operation setting
15:00-15:30	Sasakura: Splitting-merging transitions in a tensor-vectors system in exact large-N limits	Quadri: Renormalizable Extension of the Abelian Higgs-Kibble Model with a Dim. 6 Derivative Operator	Postnova: Tensor powers of vector representation of quantum $sl(2)$ at roots of unity		Toda: Generalized Willmore Energies and Elastic Surfaces with Applications to Biophysics
15:30-16:00	Ramada: A novel scenario for the emergence of geometry and gravity from random multitrace matrix models				Tempesta: Generalized Nijenhuis tensors and integrable systems
16:00-16:30	Coffee-break				
Topics	Superstrings, cosmology and quantum gravity	Symmetries in molecular, atomic and nuclear physics	Representation theory	Symmetries in biophysics, chemical physics and natural sciences	Symmetries in integrable systems
16:30-17:00	Smigla: Noether's theorem, conservation of momentum, and gravitation in multiparticle systems	Van Isacker: Seniority and particle-hole conjugation in atomic nuclei	Stoilova: A class of representations of the infinite-rank $Z_2 \times Z_2-$graded Lie superalgebra $pso(\infty\|\infty)$	Planat: Infinite groups and symmetries in biophysics at the DNA/RNA scale	Rastelli: Complete separability of the Hamilton-Jacobi equation for the charged particle orbits in a Liénard-Wiechert field
17:00-17:30	Suszek: Towards higher super-$\sigma-$model categories	Gavrielov: An algebraic approach to intertwined quantum phase transitions in the Zr isotopes	Van der Jeugt: Parabosons: basis constructions		Yoneyama: Tetrahedron and 3D reflection equation from PBW bases of the nilpotent subalgebra of quantum superalgebras

Wednesday 20 July

Room	Room 104	Room 346	Frenel	Room 150	Carnot
Topics	Conformal field theory	PT-symmetries, dynamical symmetries and superintegrability	Quantum optics, coherent states and quantum information	Foundations of quantum physics	Symmetries in integrable systems
14:00-14:30	Yokoyama: A recent development of spin CFT and level-rank duality	Latini: Polynomial algebras of superintegrable systems separating in Cartesian coordinates from higher order ladder operators	Chiribella: Optimal programming of quantum gates	Moylan: Relativistic Kinematics in Flat and Curved Space-Times	Gomes: Twisted Affine Integrable Hierarchies and Soliton Solutions
14:30-15:00	Popov: Jordan algebras and Conformal Dynamical Symmetries	Snobl: Pairs of commuting quadratic elements in the universal enveloping algebra of Euclidean algebra and integrals of motion	Vourdas: A study of multipartite quantum systems based on Markov matrices and the Gini index	Nisticò: Group Theoretical Derivation of Consistent Free Particle	Hoque: A family of three-dimensional classical Hamiltonian systems in magnetic field
15:00-15:30	Kuwata: Spin degrees of freedom incorporated in conformal group	Quesne: Ladder operators and Lie algebras for a model with quadratic complex interaction	Mancini: p-adic qubits from irreducible representations of $SO(3)_p$	Schuch: On a Reformulation of Bohmian Mechanics	López-Gordón: Non-conservative systems can have conserved quantities! Symmetries, reduction and Hamilton-Jacobi theory for forced mechanical systems
15:30-16:00		Marquette: Exact solvability and superintegrability : Algebraic constructions	Woods: Optimal Universal Quantum Error Correction via Bounded Reference Frames		
16:00-16:30	Coffee-break				

Friday 22 July

Room	Room 104	Room 346	Fresnel	Room 150	Carnot
Topics	Infinite dimensional symmetries and supersymmetries	Loop algebras, W-algebras, polynomial algebras	Quantum optics, coherent states and quantum information	Foundations of quantum physics	Representation theory
14:00-14:30	Ducrocq: New perspectives in Gravity Mediated SUSY Breaking	Mavaddat Nezhaad: On Möbius Gyrogroups	Guerrero: Parity adapted coherent states for symmetric multiqudits	Campobasso: The Klein paradox in the Wigner phase-space formulation	Girard: Hyperquaternions and Physics
14:30-15:00	Kiselev: Kontsevich graphs in Poisson bracket deformations: open problems		Nahmad-Achar: Wigner Function Analysis of Finite Matter-Radiation Systems	Dahm: On Old Relations of Lie Theory, Classical Geometry and Invariant Theory	Muarem: The orthogonal branching problem for symplectic monogenics
15:00-15:30	Campoamor-Stursberg: Generalisation of affine Lie algebras on compact real manifolds			Hassanabadi H.: Investigation of the Dunkl-Schrödinger equation for Position Dependent Mass in the presence of a Lie algebraic approach	
15:30-16:00				Ibort: On Schwinger's picture of Quantum Mechanics: Groupoids and their algebras	
16:00-16:30	Coffee-break				

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