

The 33/35th International Colloquium on Group Theoretical Methods in Physics (GROUP33/35)

July 15th - 19th, 2024

Provisional Programme

PLENARY TALKS

Monday, July 15th, 2024

MORNING SESSION 09 :00 - 12 :30

Chairman :

9 :00 - 09 :45 : **Registration**

09 :45 - 10 :00 Opening Session

M Norbert Hounkonnou - Mariano A. M.- Recteur - Ministry of Higher Education and
Scientific Research

10 :00 - 10 :30 Group photo and Coffee break

10 :30 - 11 :30

From bi-Hamiltonian systems to Dirac-Nijenhuis structures

Aissa Wade, PenState University, USA

11 :30 - 12 :30

Universality of the Weyl-Heisenberg symmetry and its covariant quantizations

Jean-Pierre Gazeau, (Université Paris Cité, France)

12 :30 - 13 :30

2D magnetic stability

Douglas Lundholm, Mathematisches Institut der Universität München Theresien

12 :30 - 13 :45 : **Lunch**

Tuesday, July 16th, 2024

MORNING SESSION 09 :00 - 12 :30

Chairman :

- 09 :00 - 10 :00 *Convex Hulls of Higher-Dimensional Random Walks*
Julien Randon-Furling, ENS Paris-Saclay, France
- 10 :00 - 11 :00 *Some problems in combinatorial physics and representation theory of
the symmetric group*
Joseph Ben Geloun, University Paris 13, France
- 11 :00 - 11 :30 Coffee break
- 11 :30 - 12 :30 *2 X Z₂-graded Lie (super)algebras and generalized quantum statis-
tics*
Van Der Jeugt Joris, Toegepaste Wiskunde en Informatica, Gent, Belgium
- 12 :30 - 13 :30 *Banach Lie groupoids, von Neumann algebras and restricted Grass-
mannian*
Goliński Tomasz, University of Bialystok, Poland

13 :30 - 14 :30 : Lunch

Wednesday, July 17th, 2024

MORNING SESSION 09 :00 - 12 :30

Chairman :

- 09 :00 - 10 :00 - **Katrin Wendland**, Trinity College in Dublin, Ireland
- 10 :00 - 11 :00 - **Chengming Bai**, (Nankai University, China)
- 11 :00 - 11 :30 Coffee break
- 11 :30 - 12 :30 - **G. A. Goldin**, Rutgers University, USA

12 :30 - 13 :45 : Lunch

Thursday, July 18th, 2024

MORNING SESSION 09 :00 - 13 :30

Chairman :

- 09 :00 - 10 :00 *Basic representation of loop algebras in perspective :
From Weyl's constructions to Wigner's philosophy*
Frenkel Igor, Department of Mathematics, Yale University, United States
- 10 :00 - 11 :00 *Combinatorial problems on lattice walks related to the Hofstadter model*
Stephan Wagner, TU Graz, Graz, Austria, and Uppsala University,
Uppsala, Sweden
- 11 :00 - 11 :30 Coffee break
- 11 :30 - 12 :30 *Towards a conceptual approach to supersymmetry (CASSy)*
A. Afouda, University of Abomey Calavi, Benin
- 12 :30 - 13 :30 - **Michele Vergne**, Institut de Mathématiques de Jussieu - Paris
- **Nicole Younger Halpern**, University of Maryland

13 :30 - 14 :30 : Lunch

Friday, July 19th, 2024

MORNING SESSION 09 :00 - 12 :30

Chairman :

- 09 :00 - 10 :00 *A quantum deformation of the conformally compactified
(super) Minkowski spacetime*
Maria Antonia Lledó, Universidad de Valencia, Spain
- 10 :00 - 11 :00 *Metasymmetry of braided Majorana qubits*
Toppan Francesco, CBPF - Rio de Janeiro, Brazil
- 11 :00 - 11 :30 Coffee break
- 11 :30 - 12 :30 *Optimal Stopping under Model Uncertainty in a General Setting*
Youssef Ouknine, Cadi Ayyad University, Morocco

12 :30 - 13 :45 : Lunch

PARALLEL SESSIONS

Parallel Session I :

- Group theory, Lie groups, Semigroups, Lie superalgebras, representation theory and harmonic analysis
- Hom-algebras, Lie groupoids, Lie algebroids and nonassociative algebras
- Integrable models, geometric mechanics, differential geometry methods and symmetry
- Adinkra Symbols in mathematical physics, Clifford algebras, Clifford analysis and applications

Monday, July 15th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

14 :00 - 14 :40 *Supersymmetry, Adinkras and Codes*

Iga Kevin, Pepperdine University, United States

14 :40 - 15 :20 *On calculation of spin group elements*

Shirokov Dmitry, National Research University Higher School
of Economics, Moscow, Russia

15 :20 - 16 :00 *Affine extensions of $Z_2xZ_2osp(1|2)$ and Virasoro algebra*

Aizawa Naruhiko, Osaka Metropolitan University, Japan

16 :00 - 16 :30 Coffee break

16 :30 - 17 :10 *Massive Elementary Systems in a (3+1) Anti-deSitter Space-Time*

Del Olmo Mariano A, Department of Physics, Razi University,
Kermanshah, Iran

17 :10 : **End of the day's session**

Tuesday, July 16th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :30 - 15 :10 *N = 2Z₂² Supersymmetry and Quantum Mechanics*
Ito Ren, Department of Physics, Graduate School of Science,
Osaka Metropolitan University, Japan
- 15 :10 - 15 :50 *Spin-dependent conformally invariant integral transform*
Kuwata Seiichi, Hiroshima City University, Japan
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :10 *On Sobolev spaces on groups and beyond*
Mensah Yaogan, Université de Lomé, Togo
- 17 :10 - 17 :50 *A Kac-Moody algebra associated to the non-compact manifold SL(2,R)*
Rausch De Traubenberg Michel, Institut Pluridisciplinaire Hubert Curien, France

17 :50 : **End of the day's session**

Wednesday, July 17th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :00 - 16 :00 **Award ceremony**
- 16 :00 - 18 :00 **Special Colloquium on Southern Cooperation**
- 18 :00 - 19 :00 Break
- 20 :00 - 22 :00 *Diner de Gala*

18 :00 : **End of the day's session**

Thursday, July 18th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

14 :30 - 15 :10 *Cohomologies des opérateurs relatifs de Rota-Baxter sur les algèbres de Jacobi-Jordan*

Sylvain Attan, Faculté des Sciences Techniques,
Université d'Abomey-Calavi, Benin

15 :10 - 15 :50 *A convergence on some definitions of differential operators on noncommutative algebras*

Sama Anzoumana, Université Polytechnique de San-Pédro, 01 BP 1800 San-Pédro 01

16 :00 - 16 :30 Coffee break

16 :30 - 17 :10 *$Z_2 \times Z_2$ -graded Lie (super)algebras and generalized quantum statistics* Joint work with
N.I. Stoilova, Joris Van der Jeugt, Ghent University, Krijgslaan 281-S9-WE02, 9000 Ghent

17 :10 - 17 :50 *To be announced*

17 :40 : End of the day's session

Friday, July 19th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

14 :00 - 14 :40 *Kepler dynamics on a α -deformed Poisson manifold : recursion operators and master symmetries*

Landalidji Mahougnon Justin, Université Polytechnique de San-Pédro, Côte d'Ivoire

14 :40 - 15 :20 *Decomposition of module over the spherical subalgebra of the Cherednik algebra*

Ibrahim Nonkane , Université Thomas Sankara

15 :20 - 16 :00 *em On the uncertainty principles for hypergroups*

Kouakou Germain Brou and Kinvi Kangni, Université Félix Houphoët Boigny

16 :00 - 16 :30 Coffee break

16 :30 - 17 :10 *Vibration de l'interaction pont-charge roulante par approche semi-analytique*

Yao Ekoun Narcisse, Barou Roplo Ange-Paulin, Sylla Moussa,
Université Félix Houphouët-Boigny de Cocody, Abidjan, RCI

17 :10 : End of the day's session

Parallel Session II : - Lie algebraic aspects in mathematical physics

Monday, July 15th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :00 - 14 :50 *Algebras in a pseudotensor category*
Zhixiang Wu School of Mathematical Sciences Zhejiang University
- 14 :50 - 15 :40 - **Yu Ye**
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :20 *Post-groups, post-groupoids and the Yang-Baxter equation*
Yunhe Sheng, (Jilin University)

17 :20 : **End of the day's session**

Tuesday, July 16th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :30 - 15 :10 *Rota-Baxter Lie Bialgebras and Rota-Baxter Poisson Lie Groups*
Honglei Lang, China Agricultural University
- 15 :10 - 15 :50 *Quantum groups, Yang-Baxter equation and Stokes phenomenon*
Xiaomeng Xu, Peking University
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :10 *On R-matrix presentation of Yangians*
Ming Liu, South China University of Technology)

17 :10 : **End of the day's session**

Wednesday, July 17th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :00 - 16 :00 **Award ceremony**
- 16 :00 - 18 :00 **Special Colloquium on Southern Cooperation**
- 18 :00 - 19 :00 Break
- 20 :00 - 22 :00 *Diner de Gala*

18 :00 : **End of the day's session**

Thursday, July 18th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :30 - 15 :20 *Polynomial invariants of the quantum queer superalgebra*
Zhihua Chang, South China University of Technology
- 15 :20 - 16 :00 *Theoretical research on tensor-network based machine learning models*
Liwei Yu Chern Institute of Mathematics, Nankai University
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :20 - **To be announced** (-)

17 :20 : **End of the day's session**

Friday, July 19th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :00 - 14 :50 *To be announced* - (-)
- 14 :50 - 15 :40 *To be announced* - (-)
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :20 *To be announced* - (-)

17 :20 : **End of the day's session**

Parallel Session III :

- Quantum systems, quantum mechanics, quantification techniques and coherent states
- Signal theory, quantum formalism, wavelets, and related topics
- Supersymmetry, noncommutative geometry, string theory, quantum gravity, graph theory, and field theories
- Hopf algebras, quantum groups, and K-theory

Monday, July 15th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

14 :00 - 14 :40	<i>A direct approach to the coherent states of billiards using a quantum algebra structure</i> Evaldo Curado , Centro Brasileiro de Pesquisas Físicas and National Institute of Science and Technology for Complex Systems Brazil
14 :40 - 15 :20	<i>Barut-Girardello coherent states for isotonic harmonic oscillator</i> Isiaka Aremua , Université de Lome, Togo
15 :20 - 16 :00	<i>Odziejewicz, berezin and fedosov-type quantizations on smooth compact manifolds</i> Rukminy Dey (Online), I.C.T.S.-T.I.F.R., Bangalore, India
16 :00 - 16 :30	Coffee break
16 :30 - 17 :10	<i>Semi-Classical quantisation of 3-particles Toda lattice improved and its application to the Mixmaster anisotropy Hamiltonian</i> Ewa Czuchry (online), Military University of Technology, Warsaw, Poland
17 :10 - 17 :50	<i>A New Quantization and Its Vast Classical Realm</i> John Klauder , (Online), University of Florida, Florida, USA
17 :50 :	End of the day's session

Tuesday, July 16th, 2024

AFTERNOON SESSION 14 :00 - 17 :50

Chairman :

14 :00 - 15 :40	<i>Cauchy coherent states for the Euclidean group and their realization in a waveguide array</i> Julio Guerrero , Universidad de Jaén, Spain
14 :40 - 15 :20	<i>Landau Levels for the Haldane's Spheres</i> Todor Popov , Math and Science Department, American University in Bulgaria
15 :20 - 16 :00	<i>Landau levels versus Hydrogen atom</i> Philippe Nounahon , Institut de Mathématique et de Sciences Physiques, Porto-Novo, Benin
16 :00 - 16 :30	Coffee break
16 :30 - 17 :10	<i>SU(1,1)-displaced coherent states, photon counting and squeezing</i> Mariano A Del Olmo , Universidad de Valladolid, Espana
17 :10 - 17 :50	<i>Resolutions of the Identity and their Relatives(online)</i> Jean-Pierre Antoine , Université Louvain-La-Neuve, Belgium

17 :50 :	End of the day's session
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Wednesday, July 17th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

14 :00 - 16 :00	Award ceremony
16 :00 - 18 :00	Special Colloquium on Southern Cooperation
18 :00 - 19 :00	Break
20 :00 - 22 :00	<i>Diner de Gala</i>

18 :00 :	End of the day's session
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Thursday, July 18th, 2024

AFTERNOON SESSION 14 :30 - 17 :50

Chairman :

- 14 :00 - 14 :40 *Entanglement and $U(D)$ -spin squeezing as quantum phase transitions indicators in symmetric multi-quDit systems*
Alberto Mayorgas , Polytechnic University of Cartagena, Spain
- 14 :40 - 15 :20 *Entanglement and $U(D)$ -spin squeezing in symmetric multi-quDit systems and applications to quantum phase transitions in Lipkin-Meshkov-Glick D -level atom models*
Julio Guerrero , Universidad de Jaén, Spain
- 15 :20 - 16 :00 *Generalizations of Schrödinger equation for open systems : Modern Approach*
K. G. Zloshchastiev , Durban University of Technology, South Africa
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :10 *Fidelity in quantum physics*
Laure Gouba, (online), ICTP, Trieste, Italy
- 17 :10 - 17 :50 *Wigner function for a quantum particle on a sphere*
Krzysztof Kowalski, (online), University of Łódź, Poland
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- 17 :50 :** **End of the day's session**
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Friday, July 19th, 2024

AFTERNOON SESSION 14 :00 - 17 :50

Chairman :

- 14 :00 - 14 :40 *Covariant Quantization of the Discrete Torus Phase Space : Applications to Quantum Information and Computation*
Romain Murenzi, (online), Worcester Polytechnic Institute, USA
- 14 :40 - 15 :20 *Integral Quantization of the Semi-Discrete Cylinder and its Related Quantum States*
Aidan Zlotak, (Online), Worcester Polytechnic Institute, USA
- 15 :20 - 16 :00 *New Paradigm for Signal Analysis*
Célestin Habonimana, (online), Ecole Normale Supérieure, Bujumbura, Burundi
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :10 *Some aspects of quantum correlations in multipartite coherent states systems*
Mohammed Daoud, (online), University of Ibn Tofail, Kenitra, Morocco
- 17 :10 - 17 :50 *Modular Quantization and Non-commutative Space-time*
Paolo Bertozzini , Thammasat University, Bangkok, Thailand
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- 17 :50 :** **End of the day's session**
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Parallel Session IV :

- Analysis, Control theory, mathematical biology/epidemiology
- Fluid mechanics, partial differential equations and related topics
- Operator theory, differential/difference equations, orthogonal polynomials, and special functions

Monday, July 15th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :00 - 14 :40 *A mathematical model of the interrelated dynamics of TB transmission in people and animals amidst seasonal flux, saturation incidence rates, and intervention efficacy*
Peter Benjamin Aina, Kampala International University, Uganda, Uganda
- 14 :40 - 15 :20 *Analyse d'erreur a-posteriori pour une nouvelle méthode d'approximation par éléments finis conforme sous-contraintes d'égalité*
Houedanou Wilfrid , Université d'Abomey-Calavi
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :10 *q-Difference equations for Cigler type polynomials and some applications*
Arjika Sama, University of Agadez, Department of Mathematics and informatics, Agadez Niger
- 16 :30 - 17 :10 *Bessel Functions of Purely Imaginary Order and an Exactly Solvable Quantum-mechanical Potential*
Yuta Nasuda, Department of Physics and Astronomy Tokyo University of Science
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- 17 :20 :** **End of the day's session**
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Tuesday, July 16th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :30 - 15 :10 *Transition de phase et brisure spontanée de symétrie : Cas du modèle quasi-Gaussien o*
Keumo Tsiaze Roger Magloire , Université de Douala, Cameroun
- 15 :10 - 15 :50 *Cyclotron frequency and electron-phonon effects on thermodynamic properties of GaAs*
quantum dot under laser field and impurity
F. Manfouo and A. J. Fotue, Mesoscopic and Multilayers Structures Laboratory,
Department of Physics, Faculty of Science, University of Dschang, Cameroon
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :10

17 :10 : **End of the day's session**

Wednesday, July 17th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :00 - 16 :00 **Award ceremony**
- 16 :00 - 18 :00 **Special Colloquium on Southern Cooperation**
- 18 :00 - 19 :00 Break
- 20 :00 - 22 :00 *Diner de Gala*

18 :00 : **End of the day's session**

Thursday, July 18th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :00 - 14 :40 *To be announced* - (-)
- 14 :40 - 15 :20 *To be announced* - (-)
- 15 :20 - 16 :00 *To be announced* - (-)
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :10 *To be announced* - (-)
- 17 :10 - 17 :50 *To be announced* - (-)

17 :50 : **End of the day's session**

Friday, July 19th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

14 :00 - 14 :50 *To be announced* - (-)

14 :50 - 15 :40 *To be announced* - (-)

16 :00 - 16 :30 Coffee break

16 :30 - 17 :20 *To be announced* - (-)

17 :20 : **End of the day's session**

Parallel Session V :

- Combinatorics, Probability, statistical models, infinite dimensional analysis and related topics
- Discrete mathematics, graph theory, combinatorics and applications in theoretical physics

Monday, July 15th, 2024

AFTERNOON SESSION 14 :00 - 17 :50

Chairman :

- 14 :00 - 14 :40 *The T-X Arctan Log-Logistic Odd Family of Distributions : properties and applications to materials and composite engineering data*
Atchadé Mintodê Nicodème, UNSTIM, Benin
- 14 :40 - 15 :20 *Approximate controllability for some integrodifferential evolution equations with nonlocal conditions*
Elghandouri Mohammed, Cadi Ayyad University, Faculty of Science, Department of Mathematics, Morocco
- 15 :20 - 16 :00 *-Multivariate Principal Component Analysis and Binary Functional Linear Models under non-random sampling*
Sophie Dabo-Niang, Laboratory Painleve CNRS-8524, University of Lille, Villeneuve d'Ascq, France INRIA-MODAL, INRIA Lille Nord-Europe
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :10 *Volatility estimation of Gaussian mean-reverting Ornstein-Uhlenbeck process of the second kind*
Farah Fatima-Ezzahra Faculté des sciences d'Agadir Morocco
- 17 :10 - 17 :50 *On level energy and level characteristic polynomials of rooted trees*
Audace Amen Dossou-Olory, Université d'Abomey-Calavi
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- 17 :50 :** **End of the day's session**

Tuesday, July 16th, 2024

AFTERNOON SESSION 14 :30 - 17 :50

Chairman :

14 :30 - 15 :10 *On the universality polynomial invariants and handle slide operation*

Rémi Cocou Avohou, Chaire Internationale en Physique Mathématiques
et Applications, Benin

15 :10 - 15 :50 *on brauer configurations and brauer hypergraphs algebras*

Elie Corneille Dêgnon Ayosso, ICMIPA-UNESCO CHAIR

16 :00 - 16 :30 Coffee break

16 :30 - 17 :10 *Partial duality for hypermaps and polynomial invariant*

Sessi Exaucée Esther AKabassi, ICMIPA-UNESCO CHAIR

16 :30 - 17 :10 *The number of 1-nearly independent vertex subsets*

Eric Ould Dadah (online), Andriantiana Rhodes University Makhanda, South Africa

17 :10 - 17 :50

17 :20 : **End of the day's session**

Wednesday, July 17th, 2024

AFTERNOON SESSION 14 :00 - 22 :00

Chairman :

14 :00 - 16 :00 **Award ceremony**

16 :00 - 18 :00 **Special Colloquium on Southern Cooperation**

18 :00 - 19 :00 Break

20 :00 - 22 :00 *Diner de Gala*

18 :00 : **End of the day's session**

Thursday, July 18th, 2024

AFTERNOON SESSION 14 :00 - 17 :50

Chairman :

- 14 :00 - 14 :40 *Why deal with self-normalized sums in high dimension ?*
em Which covariance estimator can be used ?
Emmanuelle Gautherat (online), Université Paris Nanterre, France,
Université de Reims, France,
Université Technologique de Compiègne, France.
- 14 :40 - 15 :20 *Copula-based estimation of health concentration curves*
Taoufik Bouezmarni,(online), Université de Sherbrooke, Canada
Abderrahim Taamouti, The University of Liverpool, UK
- 14 :40 - 15 :20 *Estimation of extreme risks for β -mixing time series and applications*
in Environment and Public Health,
Deme , (online)
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :10 *Maximum likelihood estimation in ageneralized extreme value*
regression model forbinary response data
Aba Diop, Département de MathématiquesUniversité Alioune DiopBambey
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- 17 :50 :** **End of the day's session**
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Friday, July 19th, 2024

AFTERNOON SESSION 14 :00 - 17 :20

Chairman :

- 14 :00 - 14 :50 *To be announced* - (-)
- 14 :50 - 15 :40 *To be announced* - (-)
- 16 :00 - 16 :30 Coffee break
- 16 :30 - 17 :20 *To be announced* - (-)

17 :20 : **End of the day's session**
