

Coherent States and their applications: A contemporary panorama

CIRM, November 13-18, 2016

Program

Monday, November 14

- 8:50-9:00 : Welcome
- 9:00-9:45 : **J. Klauder** (Gainesville, FL), Enhanced Quantization: The *right* way to quantize *everything*
- 9:50-10:35 : **H. Führ** (Aachen, Germany), Wavelet approximation theory in higher dimensions
- 10:35-11:00 : coffee break
- 11:00-11:30 : **S. De Bièvre** (Lille), Entanglement of quantum circular states of light
- 11:35-12:05 : **E. Czuchry** (Warszawa), Regularised Bianchi IX potential
- 12:05-14:00 : lunch
- 14:00-14:45 : **B. Bahr** (DESY, Hamburg), Renormalization in spin foam quantum gravity with coherent states
- 14:50-15:35 : **A. Fring** (London), Coherent states for unitary quantum evolution for time-dependent quasi-Hermitian systems with non-observable Hamiltonians
- 15:35-16:00 : coffee break
- 16:00-16:30 : **S. Sanjib Dey** (Montréal), Higher order squeezing of noncommutative q -photon-added coherent states
- 16:35-17:05 : **M. Del Olmo** (Valladolid, Spain), Covariant integral quantization of the unit disk
- 17:10-17:40 : **J. Guerrero** (Murcia), Non-Hermitian coherent states for finite-dimensional systems

Tuesday, November 15

- 9:00-9:45 : **I. Daubechies** (Duke U., Durham, NC), Phase retrieval in infinite dimensions
- 9:50-10:35 : **G. Chiribella** (Beijing, China), New applications of coherent states in quantum information theory
- 10:35-11:00 : coffee break
- 11:00-11:30 : **V. Hussin** (Montréal), Coherent states for supersymmetric partners of solvable systems
- 11:35-12:05 : **H. Bergeron** (Paris-Sud), Affine coherent state quantization and quantum cosmology
- 12:05-14:00 : lunch
- 14:00-14:45 : **F. Voigtlaender** (Berlin), Shearlets: Theory, applications and generalizations
- 14:50-15:35 : **A. Odziejewicz** (Białystok, Poland), Classical and quantum Kummer shape algebras
- 15:35-16:00 : coffee break
- 16:00-16:30 : **P. Bieliavsky** (Louvain-la-Neuve, Belgium), Coherent states and non-commutative surfaces in higher genera
- 16:35-17:05 : **E. Curado** (Rio de Janeiro), Construction of linear and nonlinear coherent states using GHA
- 17:10-17:55 : **M. Bownik** (Eugene, OR), Lyapunov theorem for continuous frames

Wednesday, November 16

- 8:45-9:15 : In memory of S. Twareque Ali, by the organizers
- 9:15-9:45 : **K. Thirulogasanthar** (Montréal), Coherent state quantization and the Heisenberg uncertainty relation in the quaternionic setting
- 9:50-10:35 : **F. Szafraniec** (Kraków), The anatomy of coherent states
- 10:35-11:00 : coffee break
- 11:00-11:30 : **K. Górska** (Kraków), Hermite polynomials in two complex variables: Mathematical properties
- 11:35-12:05 : **A. Horzela** (Kraków), Hermite polynomials in two complex variables: Coherent states

Wednesday, November 16 (cont.)

- 12:05-14:00 : lunch
14:00-14:45 : **M. Englis** (Prague), Hankel operators and the Dixmier trace on the Hardy space
14:50-15:35 : **B. Hall** (Calgary, Canada), Coherent state transforms for compact groups, and their large- N limits
15:35-16:00 : coffee break
16:00-16:30 : **M. Spera** (Brescia), Geometric aspects of coherent states
16:35-17:05 : **M. Speckbacher** (Vienna), Reproducing pairs and Gabor systems at critical density

Thursday, November 17

- 9:00-9:45 : **B. Sanders** (Calgary, Canada), Spacetime replication of continuous-variable quantum information
9:50-10:35 : **K. Zyczkowski** (Kraków), Finite dimensional Hilbert space: Spin coherent, basis coherent and anti-coherent states
10:35-11:00 : coffee break
11:00-11:30 : **A. Klimov** (Guadalajara), Wigner-like function for variable spin systems: Semiclassical limit and asymptotic quantization
11:35-12:05 : **P. Malkiewicz** (Paris 7 and Warszawa), Coherent states in a study of time problem
12:05-14:00 : lunch
14:00-14:45 : **A. Joye** (Grenoble), Representations of CCR describing infinite coherent states
14:50-15:35 : **C. Rovelli** (Marseille), The essential role of coherent states in quantum gravity
15:35-16:00 : coffee break
16:00-16:30 : **Z. Mouayn** (Beni Mellal, Morocco), Orthogonal polynomials attached to coherent states for the symmetric Pöschl-Teller oscillator
16:35-17:05 : **I. Aremua** (Lomé, Togo), $\mathfrak{su}(1,1)$ coherent states for Landau levels: Physical and mathematical description
17:10-17:55 : **P. Aniello** (Naples), Square integrable representations, an invaluable tool: from coherent states to quantum mechanics on phase space

Friday, November 18

- 9:00-9:45 : **R. Oeckl** (Mexico), Fermionic coherent states in infinite dimensions
9:50-10:35 : **A. Vourdas** (Bradford, UK), Coherent spaces, Boolean rings and their applications
10:35-11:00 : coffee break
11:00-11:30 : **S. Speziale** (Marseille), Coherent states in Loop Quantum Gravity and phase spaces of shapes of polyhedra
11:35-12:05 : **U. Moschella** (Como), Two dimensional de Sitter spinors and their $SL(2, \mathbb{R})$ covariance
12:05-14:00 : lunch
14:00-14:45 : **V. Dodonov** (Brasilia), Coherent and minimum energy states of a charged particle in a uniform magnetic field
14:50-15:20 : **M. Fanuel** (Leuven), Coherent states, Support Vector Machines and function estimation
15:25-16:00 : coffee break
16:00-16:30 : discussion and conclusions