



XII International Conference on Squeezed States and Uncertainty Relations and V Feynman Festival

Hotel Mabú, May 02-06, 2011, Foz do Iguaçu, Brazil

PROGRAM

Monday, 02.05.2011

8:30-8:45 OPENING

Chair: Salomon S. Mizrahi

8:45-9:35 Plenary session

hall: Pacífico

Chair: Young S. Kim

Rajiah Simon

Squeezed states, uncertainty relations, and quantum information science

9:40-10:30 Parallel sessions

hall: Pacífico

Chair: Young S. Kim

9:40-10:05 **Aikaterini Mandilara**

Non-Gaussianity bounded uncertainty relation

10:05-10:30 **Lukasz Rudnicki**

Entropic uncertainty relations including experimental accuracies

hall: Assunção

Chair: Nicim Zagury

9:40-10:05 **Mikael Lassen**

Quantum averaging of squeezed quadratures

10:05-10:30 **Alberto Marino**

Multi-spatial mode properties of squeezed light from four-wave mixing

10:30-11:00 COFFEE BREAK



11:00-13:00 Parallel sessions

hall: Pacífico

Chair: Marcos Cesar de Oliveira

11:00-11:35 **Allan Solomon**

Links to entanglement

11:35-12:05 **Christine Muschik**

Entanglement generated by dissipation

12:05-12:35 **Sascha Wallentowitz**

Phonon-induced disentanglement in a semiconductor quantum register

12:35-13:00 **Felipe Fanchini**

The conservation law between entanglement and quantum discord

hall: Assunção

Chair: Gustavo Rigolin

11:00-11:35 **Markus Mueller**

Open-system quantum simulation with Rydberg atoms and ions

11:35-12:10 **Alessandra Gatti**

Exploring the spatio-temporal correlation of twin photons via sum frequency generation

12:10-12:35 **Andrii Semenov**

Quantum channels in the atmosphere: theoretical treatments and unexpected properties

12:35-13:00 **Ernesto Galvão**

Time travel in measurement-based quantum computation

13:00 LUNCH

14:30-15:20 Plenary session

hall: Pacífico

Chair: Markus Oberthaler

Wojciech Zurek

Quantum theory of the Classical



15:25-16:25 Parallel sessions

hall: Pacífico

Chair: Markus Oberthaler

15:25-16:00 **Amir Caldeira**

Quantum dynamics of two Brownian particles

16:00-16:25 **Renato Angelo**

Physics within a quantum reference frame

hall: Assunção

Chair: Stephen Walborn

15:25-16:00 **Nicim Zagury**

Unitary perturbative expansion of the time evolution operator: applications

16:00-16:25 **Antonino Di Lorenzo**

Nonlocal and local hidden-variables models violating Bell and Leggett inequality

16:25-16:55 COFFEE BREAK

16:55-18:20 Parallel sessions

hall: Pacífico

Chair: Sergei Suslov

16:55-17:30 **Apostolos Vourdas**

Quantum systems with variables in $GF(p^n)$

17:30-17:55 **Marcio de Miranda**

Suppression of dipolar collisions in quantum regime

hall: Assunção

Chair: Amir Caldeira

16:55-17:30 **Vanderlei Bagnato**

Quantum turbulence in an atomic superfluid: generation and properties

17:30-17:55 **Zahra Shaterzadeh-Yazdi**

On measuring dangling-bond charge-qubit dynamics

20:00 WELCOME COCKTAIL
Tuesday, 03.05.2011



8:45-9:35 Plenary session

hall: Pacífico

Chair: Wojciech Zurek

Luiz Davidovich

Ultimate precision limits in noisy quantum-enhanced metrology

9:40-10:30 Parallel sessions

hall: Pacífico

Chair: Wojciech Zurek

9:40-10:05 **Lock Yue Chew**

Quantum entanglement and squeezing in coupled harmonic and anharmonic oscillator systems

10:05-10:30 **Alexandre Ribeiro**

Entanglement dynamics via coherent-state propagators

hall: Assunção

Chair: Miloslav Dusek

9:40-10:05 **Karel Lemr**

Experimental implementation of the optimal linear-optical controlled phase gate

10:05-10:30 **Daniel Jonathan**

Random quantum circuits from locally invariant gates

10:30-11:00 COFFEE BREAK

11:00-13:00 Parallel sessions

hall: Pacífico

Chair: Vladimir Man'ko

11:00-11:35 **Göran Johansson**

Investigating the dynamical Casimir effect in superconducting circuits

11:35-12:10 **Per Delsing**

Photon generation in an electromagnetic cavity with a time-dependent boundary

12:10-12:35 **Viktor Dodonov**

Theoretical model of the Dynamical Casimir Effect in cavities with laser excited semiconductor mirrors

12:35-13:00 **Antonio Zelaquett Khoury**

Continuous variable hyperentanglement in a parametric oscillator

hall: Assunção

Chair: Paulo Nussenzveig



11:00-11:35 **Mario Napolitano**

Interaction-based quantum metrology showing scaling beyond the Heisenberg limit

11:35-12:10 **Marco Bellini**

Experimental coherent superpositions of quantum operators for noiseless amplification and advanced state manipulation

12:10-12:35 **Petr Marek**

Noiseless amplification powered by noise

12:35-13:00 **Paolo Traina**

Experimental QKD based on orthogonal states

13:00 LUNCH

14:30-15:20 Plenary session

hall: Pacífico

Chair: Allan Solomon

Barry Sanders

Quantum process tomography with coherent states

15:25-16:15 Parallel sessions

hall: Pacífico

Chair: Allan Solomon

15:25-15:50 **Silvio De Siena**

Engineering of non Gaussian resources with high performance in quantum information

15:50-16:15 **Marcelo Martinelli**

Complete reconstruction of the spectral covariance matrix

hall: Assunção

Chair: Sasha Wallentowitz

15:25-15:50 **Jingbo Wang**

Quantum walks and graph characterization

15:50-16:15 **Andreas Schreiber**

Decoherence and disorder in quantum walks: from ballistic spread to localization

16:15-18:30 COFFEE BREAK and Poster session – I

20:00 DINNER

Wednesday, 04.05.2011



8:45-9:35 Plenary session

hall: Pacífico

Chair: Rajiah Simon

Young S. Kim

Dirac and Feynman bonded by squeezed states

9:40-10:30 Parallel sessions

hall: Pacífico

Chair: Rajiah Simon

9:40-10:05 **Raúl Rossignoli**

Generalized entropic measures of quantum correlations

10:05-10:30 **Pavel Alekseev**

Symplectically invariant multidimensional uncertainty relations

hall: Assunção

Chair: Apostolos Vourdas

9:40-10:05 **Thiago Maciel**

Certified optimal lower bound estimation of quantum properties using incomplete information: variational quantum tomography

10:05-10:30 **Augusto Lobo**

Modular variables and Schwinger's finite phase space

10:30-11:00 COFFEE BREAK

11:00-12:45 Parallel sessions

hall: Pacífico

Chair: Vanderlei Bagnato

11:00-11:50 **Roman Schnabel**

The first application of squeezed light in a gravitational wave detector

11:50-12:40 **Gerd Leuchs**

Polarization squeezing for macroscopic Bell states

hall: Assunção

Chair: Dmitri Gitman

11:00-11:35 **Vladimir Man'ko**



Homodyne quadrature statistics and probability representation of quantum states

11:35-12:10 **Stephen Walborn**

An entropic Einstein-Podolsky-Rosen steering criteria

12:10-12:45 **Benedetto D. Militello**

STIRAP in the presence of quantum noise: a case of time-dependent Hamiltonian under environmental effects

13:00 LUNCH

14:00-18:30 FREE AFTERNOON for TOURS

20:00 BANQUET

Thursday, 05.05.2011

8:45-9:35 Plenary session

hall: Pacífico

Chair: Gerd Leuchs

Markus Oberthaler

Quantum atom optics: atomic spin squeezed and Einstein-Podolsky-Rosen entangled states

9:40-10:30 Parallel sessions

hall: Pacífico

Chair: Gerd Leuchs

9:40-10:05 **Liliana Sanz**

All-optical generation of states for “encoding a qubit in an oscillator”

10:05-10:30 **Fernando Nicacio**

Mapping Gaussians and qubits

hall: Assunção

Chair: Barry Sanders

9:40-10:05 **Ramon Muñoz-Tapia**

No quantum memory for programmable discrimination

10:05-10:30 **Marcelo França Santos**

Distant entanglement protected through artificially increased local temperature

10:30-11:00 COFFEE BREAK

11:00-13:00 Parallel sessions

hall: Pacífico



Chair: Viktor Dodonov

11:00-11:35 **José Tito Mendonça**

Time refraction in perturbed quantum vacuum

11:35-12:10 **Dmitri Gitman**

Coherent and semiclassical states in magnetic field in the presence of the Aharonov-Bohm solenoid

12:10-12:35 **Jeff Tollaksen**

A new approach to quantum interference

12:35-13:00 **Rodrigo Fresneda**

Quantization of the damped harmonic oscillator revisited

hall: Assunção

Chair: Celso Villas-Boas

11:00-11:35 **Filippo Caruso**

Noise-enhanced transfer of energy and quantum information in complex networks

11:35-12:10 **Jan Perina Jr.**

Nonlinear layered media as promising sources of entangled photon pairs

12:10-12:35 **Jiří Svozilik**

Intense emission of entangled photon pairs in randomly poled nonlinear crystals

12:35-13:00 **Oswaldo Jimenez Farias**

Experimental investigation of dynamical invariants in bipartite entanglement

13:00 LUNCH

14:30-16:20 Parallel sessions

hall: Pacífico

Chair: José Roversi

14:30-15:05 **Margarita Man'ko**

Probabilistic and information characteristics of photon states

15:05-15:30 **Jesus Sanchez Dehesa**

Fisher-information-based uncertainty relations and physical implications

15:30-15:55 **Marko Znidaric**

A solvable quantum diffusive model

15:55-16:20 **Marcio Cornelio**

Entanglement irreversibility from quantum discord and quantum deficit

hall: Assunção



Chair: Miled Moussa

14:30-15:05 **Eden Figueroa**

A single-atom quantum memory

15:05-15:30 **Christian Gabriel**

Generation of multi-partite entanglement between different degrees of freedom by squeezing cylindrically polarized modes

15:30-15:55 **Denis Sych**

Quantum uniqueness and objective randomness generation from quantum uncertainty

15:55-16:20 **Thiago de Oliveira**

Typicality in random matrix product states

**16:20-18:30 COFFEE BREAK
and Poster session - II**

20:00 DINNER

Friday, 06.05.2011

8:45-9:35 Plenary session

hall: Pacífico

Chair: Luiz Davidovich

Juan Ignacio Cirac

Efficient descriptions of quantum many-body systems

9:40-10:30 Parallel sessions

hall: Pacífico

Chair: Luiz Davidovich

9:40-10:05 **Elvira Romera**

Revivals, classical periodicity, and zitterbewegung of electron currents in monolayer graphene

10:05-10:30 **Andrew Beckwith**

Can a massive graviton be a stable particle?

hall: Assunção

Chair: Jan Perina

9:40-10:05 **Konstantinos Poullos**



Integrated quantum photonics

10:05-10:30 **Aiko Sambrowski**

Unconditional preparation of bound entanglement

10:30-11:00 COFFEE BREAK

11:00-12:35 Parallel sessions

hall: Pacífico

Chair: Ady Mann

11:00-11:35 **Sergei Suslov**

Dynamical invariants for variable quadratic Hamiltonians

11:35-12:10 **Juan Pablo Paz**

Evolution of quantum correlations (entanglement and discord) for quantum open systems

12:10-12:35 **Francisco F. Lopez-Ruiz**

The quantum Arnold transformation

hall: Assunção

Chair: Alessandra Gatti

11:00-11:35 **Jan Sperling**

Entanglement conditions and quasi-probabilities

11:35-12:10 **Miloslav Dusek**

Linear-optical quantum information processing: a few experiments

12:10-12:35 **Miroslav Gavenda**

How much does a distinguishable particle destroy coherence of a quantum bit?

13:00 LUNCH
