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

Hotel Mabu, 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

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 Svozílk
Intense emission of entangled photon pairs in randomly poled nonlinear crystals

12:35-13:00 Osvaldo 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 Poulios
Integrated quantum photonics

10:05-10:30 Aiko Samblowski
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