

# INTERNATIONAL CONFERENCE ON QUANTUM OPTICS

December 17-20, 2005, Hong Kong

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## Program

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### December 17 (Saturday)

**Venue: L2, Science Centre, CUHK**

08:45 - 09:00 Opening

*Session Chair: J. M. Li*

09:00 - 09:30 **P. L. Knight:** Manipulating Cold Atoms on Atom Chips

09:30 - 10:00 **P. Meystre:** Quantum Optics of Ultracold Molecular Fields

10:00 - 10:30 **X. C. Shen:** Micro-Photoluminescence Investigation of Single Quantum Dot and its Molecule of CdSe/ZnSe

10:30 - 10:50 Coffee Break

*Session Chair: H. Q. Lin*

10:50 - 11:20 **P. W. Milonni:** Photon Momentum in a Dielectric Medium

11:20 - 11:50 **G. Kurizki:** Decoherence Control of Single- and Multi-Partite Wavepackets

11:50 - 12:20 **S. P. Singh:** Coherence Properties of Light from Optical Parametric Oscillators

12:20 - 14:00 Lunch Break

*Session Chair: H. Walther*

14:00 - 14:30 **M. Fleischhauer:** Chirality and Negative Refraction without Absorption in the Optical Domain Using Electromagnetically Induced Transparency

14:30 - 15:00 **W. Schleich:** Michelangelo Wave Packets and Interference Forces

15:00 - 15:30 Coffee Break

### Parallel Sessions:

**Venue: L2, Science Centre, CUHK**

*Session Chair: L. A. Wu*

15:30 - 15:55 **Y. P. Yang:** Suppression and Acceleration Effects of Measurements on  $\rho$ -type Atomic Decay in Anisotropic Photonic Crystals

15:55 - 16:20 **C. G. Du:** Theoretical Research on a Kind of Quantum Left-handed Metamaterial

16:20 - 16:45 **X. H. Yang:** Collision-induced Quantum Interferences in Both the Frequency and Time Domains

16:45 - 17:10 **L. Xia:** Experimental Study on Atom Laser and Bose-Einstein Condensate

**Venue: L3, Science Centre, CUHK**

*Session Chair: W. Becker*

**J. Cheng:** Transverse Effects in Slow Light Propagation

**X. F. Zhou:** Nonlocal Gate of a Quantum Network via Cavity Quantum Electrodynamics

**P. X. Chen:** The Second Law of Thermodynamic in Quantum System

**A. Pathak:** Total Quantum Fluctuation as a Measure of Nonclassicality

## December 18 (Sunday)

Venue: L2, Science Centre, CUHK

Session Chair: M. S. Zubairy

09:00 - 09:30 **H. Walther**: Deterministic Generation of Single Photons

09:30 - 10:00 **C. T. Chen**: 6th Harmonic Generation of Nd:YAG Laser and the Ultrahigh Resolution Photoemission Spectroscopy

10:00 - 10:30 **C. H. Keitel**: Relativistic Quantum Optics

10:30 - 10:50 Coffee Break

Session Chair: W. Schleich

10:50 - 11:20 **M. S. Zubairy**: Correlated Emission Laser as an Entanglement Amplifier

11:20 - 11:50 **E. Arimondo**: Nonlinear Effects for Bose Einstein Condensates in Optical Lattices

11:50 - 12:20 **L. A. Wu**: Photon Correlations and Applications

12:20 - 14:00 Lunch Break

Session Chair: R. B. Liu

14:00 - 14:30 **J. Y. Zhou**: Stopping and Manipulating Ultrashort Light Pulses with Nonlinear Photonic Crystals

14:30 - 15:00 **J. Evers**: Collective Quantum Dynamics in Multi-atom Systems

15:00 - 15:30 Coffee Break

### Parallel Sessions:

Venue: L2, Science Centre, CUHK

Session Chair: Surendra Singh

15:30 - 15:55 **X. L. Li**: A Radio-frequency Atomchip for Neutral Atoms

15:55 - 16:20 **L. G. Wang**: Beam Shaping and Displacement in Single- and Multi-layered Structures Containing Metamaterials and Dielectric Media

16:20 - 16:45 **J. X. Zhang**: The Quantum Coherence Effects in Degenerate Two-level Atomic System

16:45 - 17:10 **C. Y. Zhao**: Influence of Pump Depletion of Non-degenerate Optical Parametric Amplification on the Optimum Realization of EPR Paradox

Venue: L3, Science Centre, CUHK

Session Chair: C. H. Keitel

**F. L. Li**: Entangling Two Multi-atomic Clusters through a Cavity Field

**G. X. Li**: Unconditional Generation of Two-mode Motional Entanglement for Two Ions Trapped in a Cavity

**K. G. Wang**: A Test of Two-photon Entanglement in Spatial Modes

**J. R. Gao**: Entanglement Swapping and Quantum Correlation Transferring

## **December 19 (Monday)**

**Venue: L2, Science Centre, CUHK**

*Session Chair: W. P. Zhang*

09:00 - 09:30 **J. Ye**: Uniting Precision Measurement and Quantum Control

09:30 - 10:00 **L. A. Lugiato**: Ghost Imaging

10:00 - 10:30 **L. Davidovich**: Heisenberg-limited Measurements and Sub-Planck Structures in Phase Space

10:30 - 10:50 Coffee Break

*Session Chair: M. Fleischhauer*

10:50 - 11:20 **W. P. Zhang**: Creation of Molecular Vortex

11:20 - 11:50 **W. Becker**: Electron Single and Double-slit Diffraction in the Temporal Domain

11:50 - 12:20 **G. P. Guo**: Interaction of Quantum Optics and Surface Plasmon

12:20 - 14:00 Lunch Break

*Session Chair: P. Meystre*

14:00 - 14:30 **R. Vyas**: Conditional Detection of Fluctuations of Light from an Optical Cavity with One Atom

14:30 - 15:00 **R. B. Liu**: Spin-photon Entanglement in Spontaneous Emission

15:00 - 15:30 **M. Haas**: Excitation Dynamics in High-precision Two-photon Spectroscopy

15:30 - 17:10 **Poster Presentations** & Coffee Break

**J. T. Chang** : Measurement of the Separation between Atoms beyond Diffraction Limit

**H. Y. Chen** : Field Quantization and Spontaneous Emission in Left-handed Material

**X. Q. Feng** : Formation of High Concentration Cr<sup>4+</sup> Ion in a PbWO<sub>4</sub> Single Crystal

**G. Q. Ge** : Continuous Two-mode Entanglement Laser

**C. Han** : Multipartite Entanglement Preparation and Quantum Communication with Atomic Ensembles

**H. C. Li** : Generation of Four-atom Cluster States in Thermal Cavity and Implementing Remote Controlled Not Gate

**X. M. Lin** : Multiqubit Nonlocal Operation and Physical Implementation

**N. H. Liu** : Spontaneous Emission Decay of a Two-level Atom in a Structure with Modified Density of Spectrum

**Z. D. Liu** : The Electromagnetically Induced Transparency of Quasi- $\Lambda$ -type Four-level Atom System at Low Light Levels

**X. H. Lu** : Generation of a Dark Elliptical Hollow Beam and Interaction between It and a Two-level Atom

**A. Q. Ma** : A Class of Two-mode Nonclassical State via Generalize Super Positions of Two-mode Coherent States

**S. P. Singh** : Synchronized Chaos in a Modulated Bidirectional Ring Laser

**H. T. Tan** : Continuous-variable Entanglement in a Correlated Spontaneous Emission Laser

**Q. Wang** : Experimental Demonstration of an Easy Method to Realize Weak Measurement for the Arrival Time of a Single Photon

- J. P. Xu** : Spontaneous Emission Field of a Two-level Atom Embedded in One Dimensional LHM-RHM Photonic Crystals
- Z. Q. Yin** : Simple Schemes of CQED for Realizing Swap, Entangling and CNOT Quantum Gates
- Z. M. Zhang** : Generating the W States and the EPR States of Atoms in Cavity QED
- S. N. Zhu** : Enhanced Raman Scattering by Quasi-phase-matched Processes in a  $\chi^{(2)}$  Photonic Crystal

19:00 Banquet

## December 20 (Tuesday)

**Venue: L2, Science Centre, CUHK**

*Session Chair: E. Arimondo*

- 09:00 - 09:30 **J. Dowling**: Single-Photon Nonlinear Optics: Putting Projective Measurements to Work
- 09:30 - 10:00 **E. S. Fry**: Do the Experimental Violations of Bell Inequalities Require a Non-Local Interpretation of Quantum Mechanics?
- 10:00 - 10:30 **M. Orszag**: A Single-ion Stochastic Quantum Processor
- 10:30 - 10:50 Coffee Break

*Session Chair: J. Dowling*

- 10:50 - 11:20 **J. Ou**: Distinguishing N Photons in an Entangled State from N Separate Photons
- 11:20 - 11:50 **J. von Zanthier**: Nonclassical Radiation from Two Atoms and Quantum Search Algorithms
- 11:50 - 12:20 **T. Yu**: Entanglement Sudden Death in Quantum Optics: What is it and why does it happen?
- 12:20 - 14:00 Lunch Break

*Session Chair: E. S. Fry*

- 14:00 - 14:30 **H. W. Lee**: Single-particle Entanglement and Its Application to Quantum Information Processing
- 14:30 - 15:00 **S. Y. Zhu**: Non-Markoffian Dynamic Evolution of Spontaneous Emission in Photonic Crystals
- 15:00 - 15:30 Coffee Break