



ACCADEMIA NAZIONALE DEI LINCEI

CENTRO LINCEO INTERDISCIPLINARE
«BENIAMINO SEGRE»

INTERNATIONAL CONFERENCE

**ENTANGLEMENT, QUANTUM INFORMATION
AND THE QUANTUM - TO - CLASSICAL TRANSITION**

MAY 5 - 6 - 7 2011

PROGRAMME

SCIENTIFIC COMMITTEE: H. BRIEGEL, F. DE MARTINI (CHAIRMAN) S. HAROCHE, E. PICASSO, W.H. ZUREK

ORGANIZING COMMITTEE: F. DE MARTINI (CHAIRMAN), M. MASCIANGELO (SECRETARIAT), F. SCIARRINO

Thursday, May 5

14.50 Welcome addresses

Chairman: E. POLZIK

- 15.00 S. HAROCHE (École Normale Supérieure, Paris): *Playing with Schrödinger Cats and other non-classical states of light in a cavity*
- 15.45 H.J. BRIEGEL (Universität Innsbruck): *Quantum information and entanglement in biological systems*
- 16.30 Coffee break
- 16.45 F. DE MARTINI (Accademia dei Lincei): *Macroscopic Superpositions from quantum cloning and the Quantum - to - Classical transition*
- 17.30 W. DÜR (Universität Innsbruck): *Stable macroscopic quantum superpositions*

Friday, May 6

Chairman: D. BOUWMEESTER

- 9.00 M. D'ARIANO (Università di Pavia): *A quantum - digital Universe*
- 9.45 G. GHIRARDI (Università di Trieste): *Collapse theories: are experimental tests possible?*
- 10.30 Coffee break
- 10.45 C. CURCEANU (INFN - Laboratori Nazionali di Frascati): *Experimental tests of quantum mechanics: Pauli Exclusion Principle violation and X rays from spontaneous collapse models (GRW)*
- 11.30 E. POLZIK (Niels Bohr Institute, Copenhagen): *Entanglement generated by dissipation and steady - state entanglement of two macroscopic objects*

Chairman: M. D'ARIANO

- 14.30 D. BOUWMEESTER (Leiden University): *Towards macroscopic quantum superpositions*
- 15.15 R. FAZIO (Scuola Normale Superiore, Pisa): *Entanglement and geometrical phases in superconducting nano-circuits*
- 16.00 Coffee break
- 16.15 O. ROMERO-ISART (Max-Planck Institut für Quantenoptik, Garching): *Large quantum superpositions and interference of massive nano-objects*
- 17.00 E. SANTAMATO (Università "Federico II", Napoli): *Entanglement and contextuality of the orbital angular momentum of photons generated by free propagation*

Saturday, May 7

Chairman: F. DE MARTINI

- 9.00 F. SCIARRINO (Sapienza Università di Roma): *Hybrid nonlocality test in a microscopic - macroscopic system*
- 9.45 M. ARNDT (Universität Wien): *On the role of mass, size and complexity in matter wave interferometry with clusters and molecules*
- 10.30 Coffee break
- 10.45 F.S. CATALIOTTI (Laboratori LENS, Firenze): *Quantum opto-mechanics: observing quantum features in the mechanical interaction between light and macroscopic objects*
- 11.30 W.H. ZUREK (Los Alamos National Laboratories): *Quantum Theory of the classical*
- 12.15 General discussion
Panel: S. HAROCHE, G. GHIRARDI, F. DE MARTINI, E. PLZIK

ROMA - PALAZZO CORSINI - VIA DELLA LUNGARA, 10

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