

*Quantum Information: Conceptual Foundations,
Developments and Perspectives
OVIEDO, SPAIN
13-18 July 2002*

*Conference Secretariat
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Scientific report on the International Conference on 'Quantum Information: Conceptual Foundations, Developments and Perspectives', 13-18 July 2002, Oviedo, Spain.

Dear Sir or Madam

the International Conference on 'Quantum Information: Conceptual Foundations, Developments and Perspectives' has taken place on the 13-18 July 2002, Oviedo, Spain.

Around 160 researchers from all over the world participated in the conference. Many leading researchers both in theoretical and experimental research were able to attend the meeting to present their most recent results. The conference programme contained **28 talks** and **two long poster** sessions. The number of presentations has been kept at a moderate level to allow space for discussions between researchers thereby contributing to the stimulating atmosphere of the conference. The conference schedule was designed ensure that both leading researchers and promising younger researchers (PhD students, young postdocs) were given the opportunity to present their most recent results. Indeed, of the 28 speakers 2 were PhD students and 8 were postdocs (i.e. without permanent academic positions). True to the title of the conference the programme was split into days focussed on experimental work, theoretical work closely related to experiments, work on various aspects of quantum entanglement in quantum information and on the foundations of quantum mechanics. Researchers from these different directions were given the possibility to interact and opportunity enhanced by **two public discussion sessions**, the **long poster sessions** and the **general free time for discussions**. In general we believe that we

have been able to make the conference interdisciplinary with participants from experimental and theoretical physics (mathematical physics, quantum optics etc), mathematics, computer science and philosophy of science.

Generally the **scientific standard** of the meeting was high and a number of **exciting new results were reported**. Beautiful progress in experimental work of ion trap groups that now allows to trap ions inside optical cavities has been presented which will surely stimulate future research. Very interesting work reported by **N. Gisin** tested the foundations of quantum mechanics and provided food for thought for the day on foundations of quantum mechanics. Interesting work on theoretical aspects of the field were presented on days 3 and 4 including a range of novel results and no-go theorems on continuous variable physics and the application of ideas of quantum information to problems from statistical mechanics were reported by young researcher **J. Eisert**.

The results of the conference will be documented in a special issue of **Journal of Modern Optics** which will be edited by **Miguel Ferrero**. Further to that a conference webpage has been (and will continue) to be available.

It was the general feeling that the conference has been **very successful** and represented an important event in the field this year. The support of **QUIPROCONE** ensured that a significant number of young researchers could participate in the meeting, contributing to its lively atmosphere.

The large number of participants, the even larger number of applicants as well as the scientific quality of the meeting demonstrated that the field is progressing well.

Yours sincerely



Miguel Ferrero

Secretary of the Organizing Committee

List of speakers

Christoph Becher. Universität Innsbruck. Austria.
Jeffrey Bub. University of Maryland. USA.
Jeremy Butterfield. University of Cambridge. U.K.
Dagmar Bruss. Institut für Theoretische Physik. Hannover. Germany.
Adan Cabello. Universidad de Sevilla. Spain.
Jens Eisert. Imperial College. London. U.K.
Artur K. Ekert. Oxford University. U.K.
Edward S. Fry. Texas A&M. University. USA.
Christopher A. Fuchs. Bell Labs. USA.
Nicolas Gisin. University of Geneve. Switzerland.
Lucien Hardy. Oxford University. U.K.
Pawel Horodecki. University of Gdan'sk. Poland.
Dieter Jaksch. Universitat Innsbruck. Austria
Julia Kempe. University of California at Berkeley. USA.
Peter Knight. Imperial College. London. U.K.
Barbara Kraus. Universität Innsbruck. Austria.
Axel Kuhn. Max Planck Institut. Garching. Germany
Antia Lamas-Linares. Oxford University. U.K.
Dietrich Leibfried. NITS. Boulder. USA.
Chiara Macchiavello. Università di Pavia. Italy.
Asher Peres. Technion-Israel Institute of Technology. Haifa. Israel.
Benni Reznik. Tel Aviv University. Israel.
Anna Sanpera. Institut für Theoretische Physik. Hannover. Germany.
Marlan O. Scully. Texas A&M University. USA.
Herbert Walther. Max Planck Institut. Garching. Germany.
Reinhardt F. Werner. Braunschweig. Germany.
Marek Zukowski. Uniwersytet Gdanski. Poland.
Wojciech H. Zurek. Los Alamos. USA.