



UNIVERSITÀ DEGLI STUDI DI MILANO
SCUOLA DI DOTTORATO IN FISICA
ASTROFISICA E FISICA APPLICATA

Physics Colloquia 2010/2011

Quantum information and the foundations of quantum mechanics

Experiments in quantum information science, having emerged from experiments testing the foundations of quantum physics, are giving rise to a renewed debate about just these foundations.

Most notably entanglement, dismissed as “spooky” by Einstein while called “the characteristic trait of quantum mechanics” by Schrödinger emerged both as a central fundamental concept and as important, in cases even crucial, for procedures like quantum cryptography, quantum computation, and quantum teleportation.

Today entangled states can cover large distances, for example between two Canary Islands, employ a significant number of particles and many different kinds of degrees of freedom, internal and external.

The resulting development of experimental tools opened up possibilities for new experiments shedding more light on fundamental questions. The emerging picture is that the notions of reality or objectivity have to be scrutinized more deeply and information itself plays a fundamental role in the understanding the foundations of quantum mechanics.

JAN

26.01.2011

Anton Zeilinger
Universität Wien, Vienna, Austria
Quantum information and
the foundations of quantum mechanics

Gli incontri si terranno alle **ore 15:00**
nell'**aula A** del **DIPARTIMENTO DI FISICA**
via Celoria 16 | 20133 MILANO | Tel. +39 02 50317740
<http://phd.fisica.unimi.it> | phd@fisica.unimi.it