SCHOOL AND WORKSHOP
ON
QUANTUM ENTANGLEMENT, DECOHERENCE, INFORMATION, AND GEOMETRICAL PHASES IN COMPLEX SYSTEMS

1 - 12 November 2004

ICTP, Miramare - Trieste, Italy

A seven-day school followed by a four-day workshop, entitled **Quantum Entanglement, Decoherence, Information, and Geometrical Phases in Complex Systems**, is to take place in Trieste, from 1 to 12 November 2004, under the auspices of the International Center for Theoretical Physics (ICTP) and the European Community Research Training Network QUACS.

The aim of the school is to expose young researchers (pre- and post-docs) to the fundamental aspects of quantum mechanics in large-scale (macroscopic and mesoscopic) systems in a comprehensive and cohesive fashion.

The school and the workshop will give an opportunity to theoreticians and experimentalists from both developed and developing countries to discuss common features of complex quantum systems encountered in various domains of contemporary physics from nano to macro scales, along with current and future applications of such systems to information processing.

The school programme will consist of four to five lectures daily. Each lecture will be approximately one-hour long followed by a lengthy discussion. The four-day workshop will consist of shorter topical presentations on recent developments.

Main topics:

- **Dynamics of Complex Quantum Systems: Decoherence and Dissipation**
- **Fundamentals of Quantum Entanglement in Multiparticle Systems**
- **Fundamentals of Quantum Information Theory: Processing and Protection of Quantum Information**
- **Holonomic and Non-holonomic Quantum Systems**
- **Geometric Phases in Quantum Information**

Scientists from all countries that are members of the UN, UNESCO or IAEA can attend the activity. The main purpose of the Centre is to help researchers from developing countries within the framework of international cooperation. However, scientists from developed countries are most welcome to attend. As the activity will be conducted in English, participants must have an adequate working knowledge of that language.

As a rule, travel and subsistence expenses of the participants are borne by their home institutions. However, limited funds are available for some applicants who are nationals of, and working in, developing countries, to be selected by the organizers. As scarcity of funds allows travel to be granted only in a few exceptional cases, every effort should be made by candidates to secure support for their fare (or at least half-fare) from their home country. Such financial support is available only to those attending the entire activity. There is no registration fee.

The closing date for the receipt of requests for participation is
2 June 2004

Candidates should complete, sign and return the **Application Form** obtainable through the ICTP WWW Server from the activity's WEB Page, which will be constantly updated (http://agenda.ictp.trieste.it/smr.php?1587).

We would like to stress that the list of recent publications is necessary to evaluate the pertinence to the subject of the activity.

The Application form should be sent to:

the Abdus Salam International Centre for Theoretical Physics
School and Workshop on Quantum Entanglement, Decoherence, Information, and Geometrical Phases in Complex Systems (smr1587)
c/o Ms. A. Bergamo
Strada Costiera 11
I-34014 Trieste, Italy

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E-mail: smr1587@ictp.trieste.it
ICTP Home Page: http://www.ictp.trieste.it/

Trieste, December 2003

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DEADLINE

for receipt of applications:

2 June 2004

ACTIVITY WEB PAGE:

http://agenda.ictp.trieste.it/smr.php?1587

QUACS WEB PAGE:

www.weizmann.ac.il/chemphys/gershon/quacs/quacs.html