Call for papers

Special issue on
"Quantum interference and cryptographic keys: novel physics and advancing technologies"

The collective phenomena of quantum interference, including wave particle duality and apparent non-locality, have intrigued the physics community for many years. It is only recently that we have begun to turn these somewhat counter intuitive quantum phenomena to good use. A leading force in that direction is quantum cryptography — absolute secure key exchange encoding data on the polarisation or phase of individual photons, or using the quantum correlations between pairs of particles. Technologies are now implemented to bring the various forms of quantum cryptography to commercial application. At the same time the possibility of communications applications has stimulated the study of a variety of novel quantum interference phenomena. Quantum information experiments involving two, three and four photons are planned and a novel field of continuous variable (many photon) quantum information has emerged.

These various aspects of quantum cryptography are considered in the conference "QUICK: Quantum interference and cryptographic keys: novel physics and advancing technologies", taking place in Cargese from April 7 to 13, 2001. Following that conference, we invite submission of original papers to a special issue of the European Physical Journal D, on the following topics:

- quantum cryptography technologies,
- quantum cryptography systems,
- free space quantum cryptography and satellites,
- pair-photon sources and multiphoton interference,
- single photon sources,
- continuous variable quantum information,
- security aspects,
- cryptographic protocols,
- entanglement purification in cryptographic schemes,
- novel physics and quantum gates for photonic qubits.

The submitted articles should be sent to the EPJ D Editorial Office in Orsay. **The deadline is July 15, 2001**. We look forward to a stimulating special issue.

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