

Physics of Information Group

Sun, 2015-04-05 19:15 - [admin](#) [1] **Website:**
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Research Type: Theory

Quantum Information

We are interested in entanglement theory, non-locality, as well as in developing low-control schemes to generate entanglement in solids. Furthermore, we investigate quantum walks and their applications to quantum algorithms and quantum simulation. Finally, we collaborate with other colleagues at IT in the development and quantum optical implementation of cryptographic protocols.

Nanoenergetics and Quantum Thermodynamics

We are interested in understanding the fundamental limits in energy dissipation as well as the origins of irreversibility in quantum systems.

Quantum Effects in Biological Systems

We are interested in studying the role of quantum coherence in the dynamics of biological systems, namely in vibrational dynamics.

Leader: Yasser Omar

Location

Instituto de Telecomunicações IST, Universidade de Lisboa Av. Rovisco Pais, Torre Norte, piso 10
Lisbon P-1049-001 Portugal

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