

CEA - Saclay 91191 Gif-sur-yvette Cedex
Service de Physique de l'Etat Condensé
SÉMINAIRE

Mercredi 17 décembre 11h00

Orme des Merisiers SPEC Salle Itzykson, Bât.774

Quantum Hot Potato: Tripartite entanglement between two qubits and a cavity

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The entanglement of quantum systems represents a real physical property, a resource for quantum computation. Quantum information theory describes different classes of multi-particle entanglement, such as BELL, GHZ, and W states. In this talk, I will describe our experimental results for a superconducting system with two phase qubits coupled to a cavity. If we restrict ourselves to excitations involving only a single photon, the 'hot potato', three-particle or tripartite entanglement of the system evolves from various initial conditions, i.e., the quantum hot potato is passed between each system. The rich dynamics have allowed us to create a Bell state between two qubits (with the cavity disentangled) and a W state between the three systems. Future possibilities include the observation of GHZ states, particularly interesting for testing the non-locality of quantum mechanics.

Ce séminaire sera précédé d'une pause café à 10h45

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