CO.CO.MAT
CONTROL OF QUANTUM CORRELATIONS IN TAILORED MATTER
SFB/TR 21 – STUTTGART, ULM, TÜBINGEN

Seminar

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Numerical Approach to Dissipative Quantum Systems

In quantum-state engineering such as quantum computation, the surrounding environment coupled with quantum systems suppresses quantum mechanical features. For example, decoherence of the two-state systems (qubits) is caused by excitation in the environment, which can be interpreted as `dissipation'. Although dissipation should be suppressed in quantum computation, it is a fundamental question to ask how the quantum-classical transition occurs when dissipation increases. In this talk, after reviewing a pioneering work by Caldeira and Leggett, I present recent development of numerical study by path-integral Monte Carlo methods. I show the results on quantum-classical transition in dissipative systems for both periodic and double-well potential. Experimental realization of this transition in Josephson devices is also discussed.

Wann? Freitag, 08.12.2006, 14:00 Uhr

Wo? Universität Tübingen, Auf der Morgenstelle 14, Raum D4A19