SFB/TRR 21 - Colloquium

17. Juni 2011, Ulm

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Quantum correlations and mutual synchronization

Synchronization phenomena have been observed in a broad range of biological, chemical and physical systems, generally classical. We will discuss this phenomenon in fundamental quantum models consisting on coupled quantum harmonic oscillators dissipating into the environment. We will show that the ability of the system to synchronize depends on the existence of disparate decay rates. This phenomenon is accompanied by robust quantum discord and mutual information between the oscillators, preventing the leak of information from the system.

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