Physics Department Seminar

Friday April 25th, 2003 11:00am in PhSc 105



"Quantum Computing, Teleportation and Cryptography"

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Abstract:

Quantum mechanics requires the states of particles to become entangled under certain circumstances. Measurements on one particle in such a configuration give knowledge about a similar measurement on its entangled pair. These correlations between measurements cannot be explained by a realist interpretation of quantum mechanics. Instead it appears that certain influences can propagate instantly. Einstein called this "spooky action at a distance" and is an example of an attempt by him to refute QM. By examining entanglement we will be able understand many of the ideas behind quantum computing, teleportation and cryptography.