Quantum Information – The **Light** *Edition*

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In this talk, I will explore the bizarre world of quantum mechanics. Its properties, such as superposition, coherence, entanglement, teleportation, etc., have given rise to various paradoxes (Schrodinger's cat, the Einstein-Podolsky-Rosen paradox, etc.). Back in the early '80s, Feynman was among the first to suggest that these principles may enable us to process information at much faster speeds than any classical computer. Ever since, people have been trying to harness the power of quantum mechanics and build a quantum computer. This effort is still in its infancy, but already industry giants, such as Microsoft, IBM and Google, are involved. Another promising application of quantum mechanics is in cryptography. It provides unprecedented means of transmitting encrypted information over a public channel. Quantum information and quantum computation are rapidly developing arenas of interdisciplinary basic as well as applied research. I will highlight some of my work in quantum cryptography, quantum games, quantum machine learning, and quantum walks.