

An Introduction to Quantum Information and Entanglement

**Prof. Eric Chitambar (ND BS in Physics, 2005)
Southern Illinois University**

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3:00 P.M.

Rm 118 NSH

Quantum information is a relatively new field of science that studies how information processing can be enhanced through the use of quantum systems and quantum phenomena. The first part of this talk will offer a general overview of the subject. To demonstrate the potential power of quantum information processing, paradigm examples of quantum algorithms, quantum coding, and quantum teleportation will be discussed.

The second part of the talk will take a closer examination of quantum entanglement as an information-theoretic resource. In particular, we will see that two or more parties sharing quantum entanglement is remarkably similar to these parties sharing a classical secret from some unwanted eavesdropper. This suggests the possibility of unifying entanglement and classical secrecy under the same theoretical framework.