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## **Quantum Categories**

## Lou Kauffman University of Illinois in Chicago

This talk will begin by describing how teleportation works in quantum information theory, how a quantum state can be transported from one place to another. In order to understand this "beam me up Scotty" scenario, we need to talk about basic principles of quantum information, why one cannot clone quantum states (that's right if you are a quantum state and we are teleporting you to Mars we'll have to distintegrate you here on Earth, not to worry -- your perfect copy appears on Mars...). Then we see that the information can be traced through a network of interactions. These interactions involve observers and it is here that we can begin to discuss the relationships of quantum information transfer and second order cybernetics.