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Sending quantum information through a quantum field

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The theory of classical information transmission through quantum fields has been extensively studied in previous literature. On the other hand, while there have been successful experiments transmitting quantum information over hundreds of kilometres, our understanding of the fundamental mechanism by which quantum information is broadcast through a quantum field has been limited. In this talk we will analyze the most elementary setup which allows an emitter Alice to transmit a qubit of information to a receiver Bob via a quantum field, thus providing insight into the information theoretic aspects of fundamental light-matter interactions.

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