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## **【561】 Quantum cryptography with highly entangled photons from GaAs quantum dots**

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Quantum-key distribution (QKD) is one of the most promising strategies for perfectly secure communication. Protocols based on entangled photon pairs are particularly attractive because of enhanced tolerance to losses and simplified generation of perfectly random secure keys. We use semiconductor-based sources of entangled photon pairs to implement QKD. Different from sources explored so far, quantum dots offer the triggered generation of near-unity entangled photon pairs and have the potential of generating photon pairs at GHz rates. We demonstrate continuous key generation for 13 hours between two buildings, connected via a 350 m single mode fiber with a resulting average error rate of 1.91% and a key rate of 135 bits/s

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