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## Entanglement distribution for QKD over telecom fiber

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### Abstract

A key primitive in quantum networks is entanglement distribution, and bridging large distances usually requires photons at the transparency windows of telecom fibers. Moderate photon pair rates from conventional down conversion sources limit fiber-based entanglement distribution. A bright non-degenerate photon pair source, designed for high idler photon detection efficiency on single-photon avalanche photodiodes and low signal photon dispersion in optical fiber, enables high pair rates even after propagating through 50km standard telecommunication fiber. We present application of such a source for quantum key distribution using a BBM92 protocol.