

# Optical setups for device-independent quantum key distribution

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Device-Independent Quantum Key Distribution is a formalism that supersedes traditional quantum key distribution, as its security does not rely on any detailed modelling of the internal working of the devices. This strong form of security is possible only using devices producing correlations that violate a Bell inequality. Such violation is challenging experimentally due to photo-detection inefficiencies and, especially, channel losses. We describe quantum optical proposals that allow two distant parties to observe a Bell inequality violation. We then compute the corresponding key rates and discuss the possible implementation using present technology.