

Quantum technologies, and in particular quantum communication, is one of the most rapidly developing branch of modern experimental and theoretical quantum optics. The basic laws of quantum mechanics offer new, classically inaccessible, possibilities of secure information processing and transmission. Such a systems became of an great interest and importance for many companies and public institutions. Current technology allows for generation of a single photons, which can be used as an information carriers transmitted over long distances. In practice there are the range of the communication is limited by imperfections of realistic single photon sources, transmission channels and single photon detectors.

The **QuanTime** project investigates methods of an efficient and secure information transmission with single photons. The methods are based on the advantages that quantum mechanics offers by its basic laws. Those are high amount of information that in principle can be encoded in a single particle and quantum correlations, called entanglement, which can be used for extending the range of quantum communication protocols. The **QuanTime** project has a potential to substantially improve known protocols and also be a basis for practical applications.