



QUANTUM COMMUNICATIONS

Research project (for Bachelor, Master or Ph.D. students)



The project aims to address the practical challenges of quantum communication towards its full integration in the already existing fiber networks in Trieste.

With the increasing amount of sensitive data and confidential information that are continuously transmitted around the globe, the security of communications is becoming more and more important. However, commonly used cryptographic technologies rely only on the computational limitations of current machines, which could be suddenly broken by new algorithms and, at the same time, are threatened by the constant advancement of quantum computers.

Quantum Cryptography or Quantum Key Distribution (QKD) is nowadays the sole technology able to guarantee the unconditional security of communications. QKD relies on the physical laws and principles of Quantum Mechanics, whose validity is unaffected by the increasing computational power of future machines. In collaboration with the CNR-INO of Firenze, we will study and implement QKD systems based on quantum light that will be tested in the Trieste's Lightnet fiber infrastructure.

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