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Communication over quantum channels with enhanced performance and security

**Abstract**

This invention disclosure describes how the security of existing quantum key distribution protocols can be enhanced with the use of a ternary/binary arithmetic conversion along with shared keys between communicating parties. With these schemes, Bob can detect eavesdropping attacks without exchanging the content of the transmitted data stream with the Alice. Addressable physical unclonable function (PUF) technology can be exploited to design protocols that securely exchange the shared keys.

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| **Inventors:** | ***Cambou*; Bertrand F** (Flagstaff, AZ) |