

SeQureNet Software

SeQureNet proposes its QKD post-processing software to academic institutions, enabling them to focus on their core know-how in quantum physics. High-Efficiency (capacity of the error-corrected channel above 90% of the Shannon bound), high-speed error correction for a wide range of SNRs, and fast privacy amplification are provided. Error correction does not require many interactions since it uses error-correction codes (LDPC or polar codes) instead of multiple-pass algorithms such as Cascade.

Features

- Error correction available on channels with Gaussian noise (for CVQKD experiments) or Binary Symmetric noise (for Discrete Variables QKD experiments). Performance obtained in the Gaussian case described in our publication "Long Distance Continuous-Variable Quantum Key Distribution with a Gaussian Modulation"
- High-efficiency maintained through large intervals of SNRs thanks to code threshold adaptation techniques
- Codes for SNRs as low as 0.03 available out of the box, codes for lower SNRs designed on demand
- Multidimensional reconciliation enabling error-correction on channels with Gaussian modulation at low SNRs, as described in the article "Multidimensional reconciliation for continuous-variable quantum key distribution" referenced in our publication page
- Integrated network communication capability to simplify development of real-world applications
- Targets CPUs or GPUs with OpenCL capability, enabling decoding speeds up to 10 Mb/sec
- Thread-safe
- Low-level parallelization capability

Availability

- Available for 32-bit and 64-bit GNU/Linux
- Licensing: for academic use, per project or custom licensing
- Training can be provided

Customization Services

- APIs and packaging (libraries or standalone programs)
- Design of error-correcting codes for custom SNRs
- Porting to non-Linux platforms