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# System and method for generating a symmetric cryptographic key and random numbers

## About the solution

The invention concerns a system and method for generating a symmetric cryptographic key and random numbers designed to secure communication in public infrastructure.

The solution is based on device-independent cryptography and optimized entangled states, enabling certified randomness generation and quantum-resistant symmetric keys.

The system increases the operational range of secure key distribution while reducing hardware requirements for end users, maintaining high security even with low detection efficiency.

## AIP protection

The invention is protected by the Polish Patent Office under the following number: **Pat.246884**

## ATechnology readiness level

TRL 4 - Technology validated in laboratory conditions.

## Authors

**University of Gdańsk**
Prof. Marcin Pawłowski

**Quantum Cybersecurity Group Limited Liability Company**
PhD Anubhav Chaturvedi
PhD Giuseppe Viola

## Applications

- Secure communication in public infrastructure,
- Telecommunication systems requiring quantum-resistant security,
- Generation of certified keys and random numbers.

## Possible cooperation

- Technology licensing and implementation in public institutions,
- Collaboration on integration with existing security systems,
- Joint development and optimization research.