

# Quantum system for generation and certification of non classically correlated random numbers

## About the solution

The invention relates to a system for generating non classically correlated strings of random numbers together with a method for certifying their non classical origin. The solution is based on the preparation and measurement of high dimensional quantum states, enabling reliable verification of quantum correlations under realistic detection conditions.

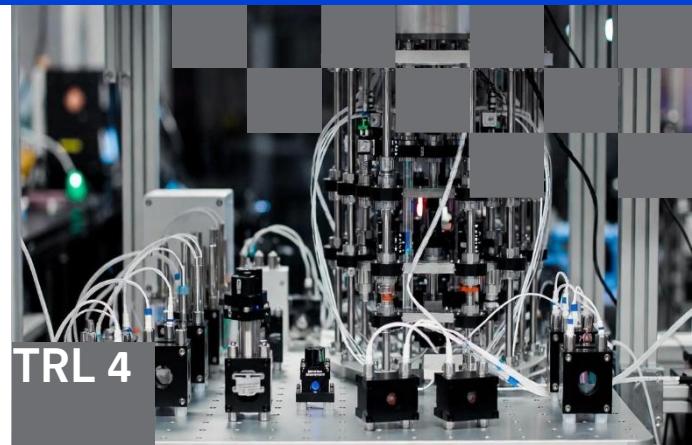
The system allows for certified randomness generation and can be applied in quantum cryptography and quantum key distribution. Compared to standard non classicality tests, the proposed approach offers improved practicality and compatibility with existing quantum hardware.

## IP protection

The invention is protected by a patent application filed with the EPO under number **EP22723834.2** and under number **PCT/PL2022/050022**.

## Technology readiness level

**TRL 4** - Technology validated in laboratory conditions.



## Authors

**University of Gdańsk**

Prof. Marcin Pawłowski

PhD Nikolai Miklin

**University of Sevilla**

Prof. Adan Cabello Quintero

**University of Stockholm**

Prof. Mohamed Bourennane

## Applications

- Certified random number generation for cryptographic applications,
- Cybersecurity systems and quantum key distribution,
- Secure randomness for lotteries, gaming and betting platforms.

## Possible cooperation

- Licensing of the technology and certification method,
- Joint research and development activities,
- Integration with existing hardware and software platforms.