





## **Meetings of the Belgian Quantum Physics Initiative**

# Colloquium



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### Demonstrating quantum advantage in security and efficiency with practical photonic systems

In this talk, we discuss the current landscape in quantum communication and cryptography, and focus in particular on recent photonic implementations, using encoding in discrete or continuous properties of light, of central quantum network protocols, enabling secret key distribution, verification of entangled resources and transactions of quantum money, with maximal security guarantees. We also describe current challenges in this field and our efforts towards the miniaturization of the developed photonic systems, their integration into telecommunication network infrastructures, including with satellite links, as well as the practical demonstration of useful tasks in a network environment. These advances enrich the resources and applications of the emerging quantum networks that will play a central role in the context of future quantum-safe communications.

### Thursday 8th NOVEMBER 2018 AT 2.00 P.M.

#### COFFEE AND TEA WILL BE SERVED AT 3.00 P.M.

Two short talks will follow:

#### 4pm: Peter Schlagheck (ULg)

« Dynamical thermalization in Bose-Hubbard systems»

#### 4:30pm: Bram Vanhecke (Ghent Univ.)

« Using tensor networks to study classical spin lattice models »

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