



# VIRTUAL QUANTUM SENSING TESTBED

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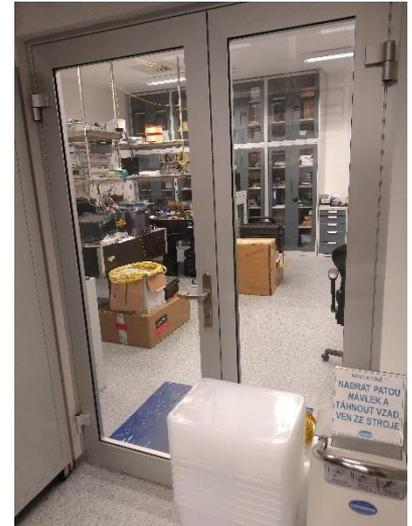
**Optical networks department**

**CESNET**

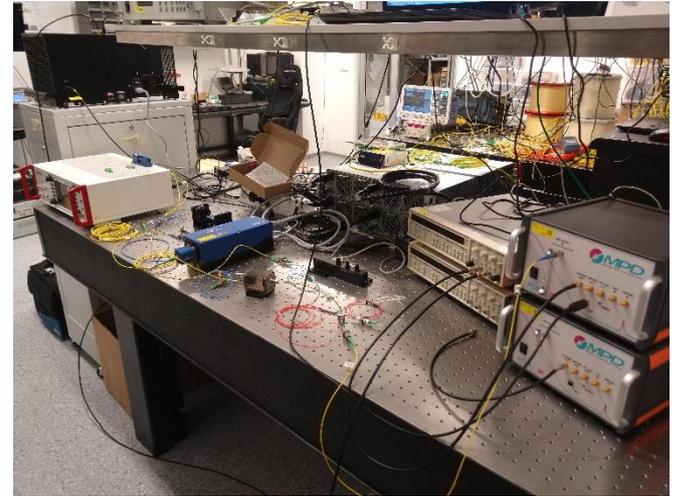
**October 15th 2021**

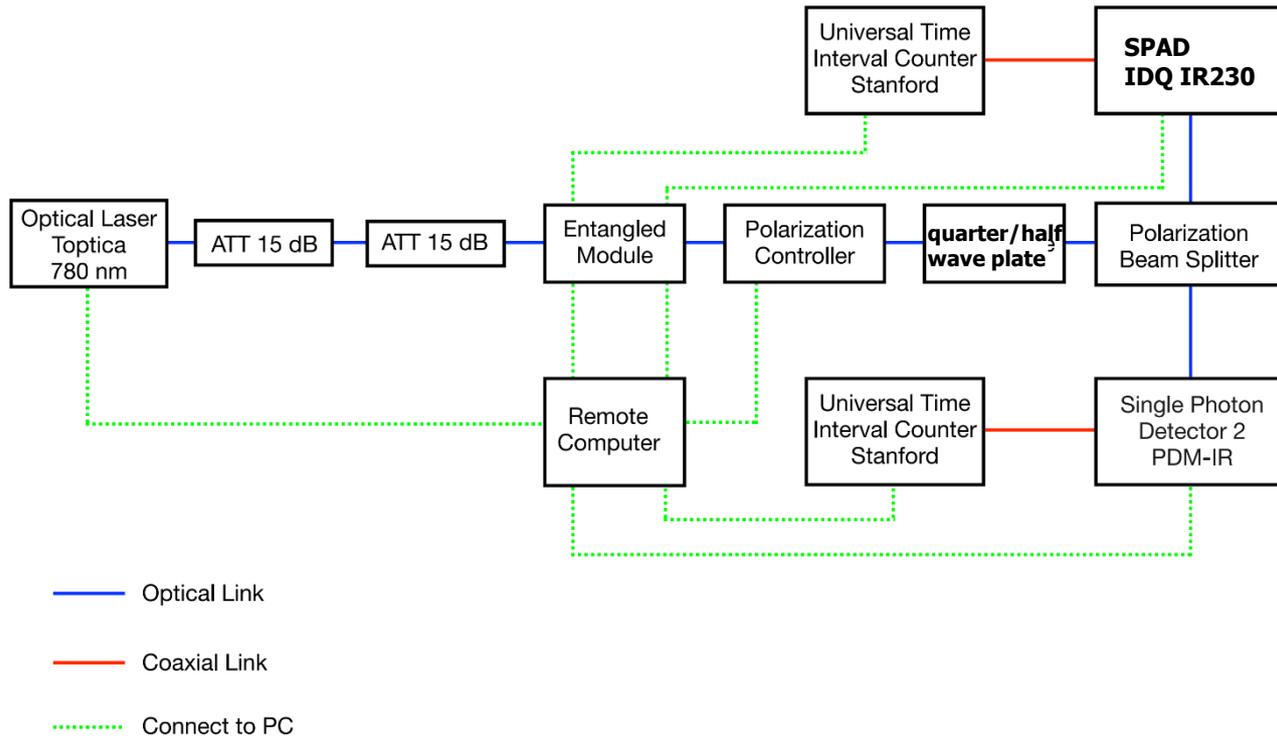
- **Motivation**
- **Setup and pictures**
- **Remote Access and Showcase**

- **Basic quantum sensing test site in-house**
- **To better understand fundamentals**
- **To get the required expertise**
- **Part of the CESNET Optical Lab**
- **To experiment with muxing and demuxing with data channels**
- **To play with polarization**
- **Verification of components**

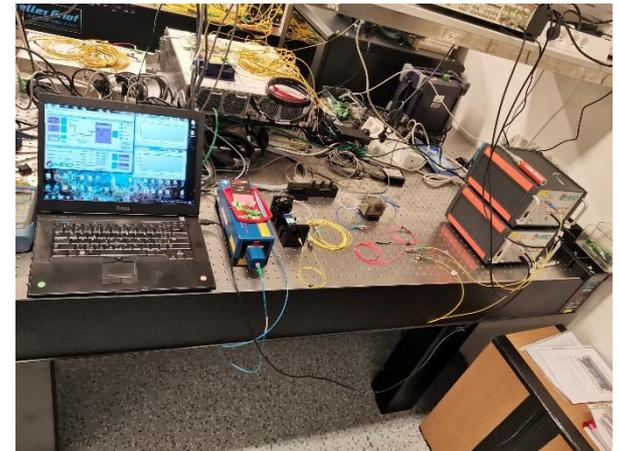


- Source: TOPTICA DLC Pro
- Entanglement source: Uni of Waterloo CA
- Polarization controller: Phoenix Photonics
- Single photon detectors:  
MPD PDM-IR (2x), SPAD + IDQ ID230
- Counters: STANFORD SR620 (few)
- Other parts: Some attenuators,  
beams splitters...





## ■ Basic quantum sensing test site in-house



- **Network Cybersecurity in Post-Quantum Era – NeSPoQ (Brno TU, TU Ostrava)**
  - Practical applicability of QKD over lines with 100G traffic and optical sensing
  - PQC (post-quantum cryptography) technologies
  - Development of in-house key reading and data encryption based on FPGA
  - Supervised by National Bureau for Cybersecurity
- **Ongoing task**
  - Definition of scenarios QKD with parallel traffic, different filtering, etc.



■ Limited showcase 😞

# Thank You for your attention!

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