Co-existence of 9.6 Tb/s Classical and Quantum Key Distribution (QKD) Channels over a 7-Core Multicore Fibre

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**Co-existence Methods**

- Relies on laws of physics
- Security against brute force attacks (Classical Computers)
- Field trials with QKD

**Motivation**

- ICT infrastructure will not change to accommodate Quantum network functions
- Co-existence of classical (CC)/quantum channels (QC) is limited by these effects!

**Record high transmission of 9.6Tb/s (CCs) and DV-QKD (QC)**

**over a 1km long 7-core Multicore Fibre**

**Experimental Test-bed**

**Co-existence of 9.6 Tb/s Classical and Quantum Key Distribution (QKD) Channels over a 7-Core Multicore Fibre**

- Spectrum of the 8xCCs at the output of the Voyager/WSS
- 50GHz bandwidth/channel
- 0.8nm channel spacing (adjacent)

- Measured Crosstalk per core
- -51dBs crosstalk from other channels to core 6 (QC)

**QKD System Performance**

- Keys generated with crosstalk from 6 cores
- OSNR=24.6dB for BER of 5.6x10^{-4}, (<15% FEC)