



Single Photon Statistics, Detection and Applications



Prof. Val Zwiller

KTH Stockholm and Single Quantum BV
with Andreas Fognini (Single Quantum BV)

Tuesday, February 4th @ 12:00 - 1:00 pm in BRK 2001

Pizza will be served at 12pm and we will start at 12:10pm

Abstract:

Future quantum communication and sensing require high-performance quantum devices that can generate and detect light one photon at a time. With our semiconductor based single photon sources based we generate single and entangled photons at telecom wavelengths and operate a quantum network made of deployed optical fibers that can demonstrate single photon transmission and quantum key generation over large distances.

Single photon detectors with high detection efficiency, low noise and high time resolution are major enabling techniques. We develop superconducting nanowire single photon detectors with applications in quantum photonics, communication, integrated quantum circuits as well as lidar. We will discuss our latest results for quantum microscopy with SNSPD with the capability for providing spectral and statistical information in one measurement.

Bio:

Val Zwiller got his PhD in 2001 from Lund University on single photon generation with quantum dots. He worked at the Humboldt University in Berlin, EPFL and ETH in Switzerland before joining TU Delft in 2006 as an assistant professor. He co-founded Single Quantum in 2012, a company supplying high-performance single photon detectors. He has been a professor at the Royal Institute of Technology in Stockholm since 2015.

Host: Zubin Jacob