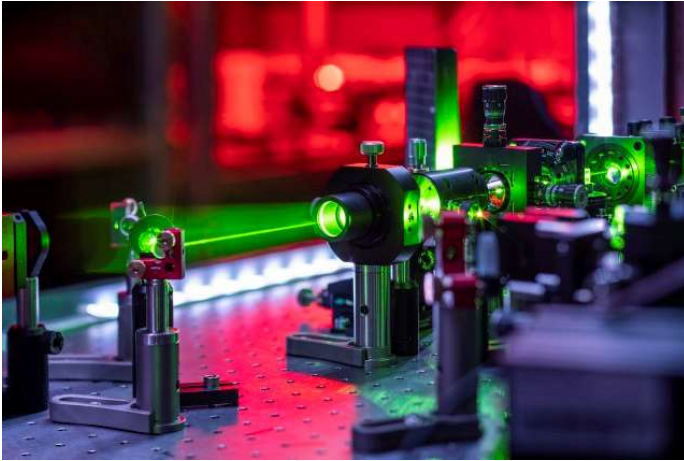


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## Characterization of entangled photon pair Sources



### Overview

Characterization of entangled photon pair sources (EPPS) regarding the most important properties for applications in quantum technologies. In addition, each measured parameter of the characterization is compared to a benchmark of IOF EPPSs. This provides the customer with a direct comparison of the performance of his tested EPPS compared to other EPPSs within the IOF library. The EPPSs that can be characterized at IOF are polarization, frequency bin and time bin entangled photon pair sources.

### Field of Application and applied technology

#### Quantum Technologies

- SNSPD (780 - 900nm, 1200 - 1700nm)
- SPAD (600 - 900nm)
- Ultra-low jitter time tagging unit
- Spectrometer (OSA)
- Monochromator
- Polarization analysis Module (PAM)

## Specifications

Source Parameter	Measurement Devices
Pair emission rate <i>in Pairs/s</i>	SNSPD, SPAD
Spectral brightness <i>in [Pairs/s /nm]</i>	SNSPD, SPAD
Heralding efficiency (signal/idler) Corrected for PDE <i>in [%]</i>	SNSPD, SPAD, Ultra-low jitter time tagging unit
Emission spectrum <i>in [nm] (Diagram, Center Wavelength, FWHM)</i>	Spectrometer (res: 1nm to 50pm) Monochromator (res: 0.1nm)
Estimation of quantum state fidelity	SNSPD, PAM
Coincidence-to-singles-ratio <i>in [%]</i>	SNSPD, SPAD
Comparison with benchmark	Source parameters are compared with a library

### Source Requirements:

- fiber coupled quantum source
- output wavelength: 780 to 1700 nm
- entangled photon pair source with frequency bin, time bin or polarization entanglement