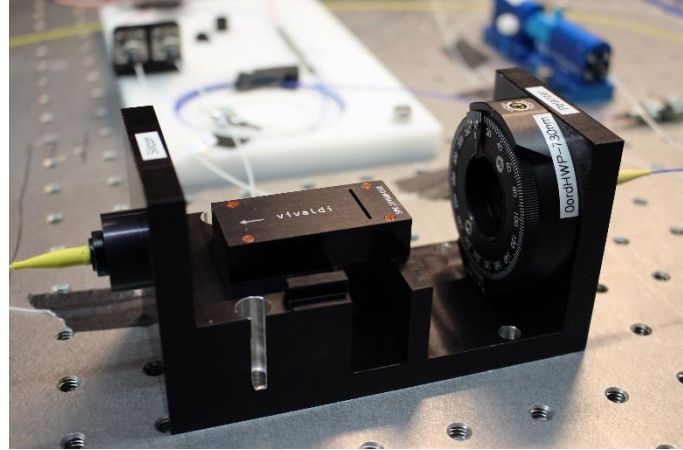


POLARIZATION ENTANGLED PHOTON SOURCE

- Telecomm pairs (center $\lambda = 1550\text{nm}$)
- >95% fidelity with maximally entangled state
- Pre-aligned and stable
- 25%-35% fiber coupling efficiency
- Frequency non-degenerate
- Tunable pump polarization
- Easy basis alignment
- Pump removal filter included



Overview: Based on Type-0 phase matched SPDC in PPLN, the polarization entangled photon source can produce high fidelity (>95%) polarization entangled photon pairs at rates of around 2.5 – 3million pairs per second using only modest (<1mW CW) pump powers from standard laser pump sources (eg. diode lasers, ti:sa, etc.)

Supporting Equipment: Using a dichroic beam splitter, tomographic measurement equipment (HWP, QWP, PBS) and single photon detectors (eg. the quantum Opus detectors) it takes seconds to measure photon pairs, and only a few trial settings of the HWP to generate very high quality (>95% fidelity) polarization entanglement.

Device operation: (assumes you have the supporting equipment required)

The device can be operated both as a simple pair producer or in polarization entanglement mode:

Creating photon pairs: simply pump at the stated phase matching wavelength, split the output with a standard beam splitter or dichroic, and plug into a suitable single photon detector / detectors.

Creating polarization entanglement (5 easy steps!)

- 1) While creating and detecting pairs, insert the provided beam block into the device.
- 2) Maximize the count rate by rotating the HWP.
- 3) Using polarization controllers, minimize the detector counts to set the HV basis.
- 4) Zero the HWP using the allen key to engage the click-locking mechanism on the HWP mount.
- 5) Remove the beam block and click the HWP mount to the 22.5 degree position.

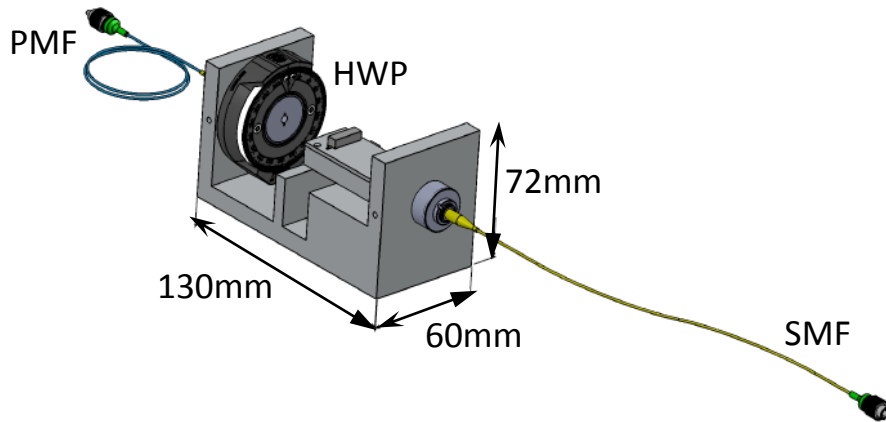
The device is now producing entangled photon pairs!! Further optimization can be achieved if desired.

Applications

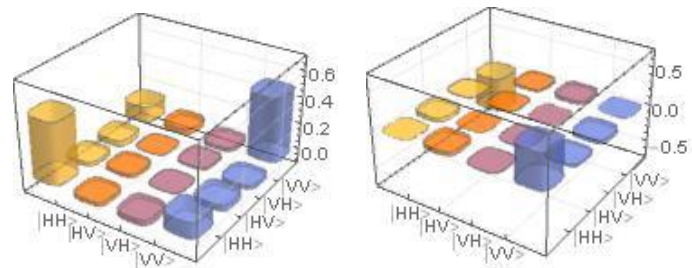
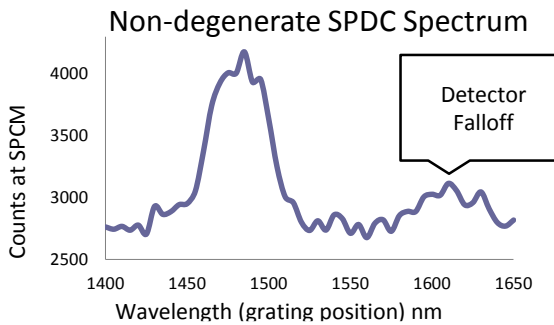
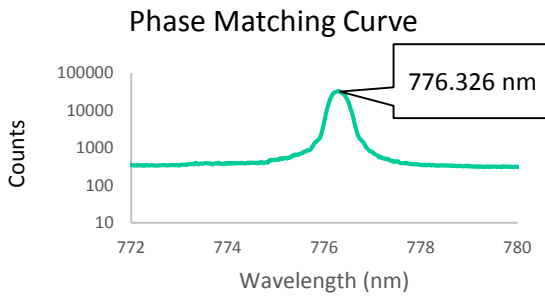
- Fundamental quantum information science
 - Quantum key distribution
 - Quantum computing
 - Quantum Metrology

POLARIZATION ENTANGLED PHOTON SOURCE

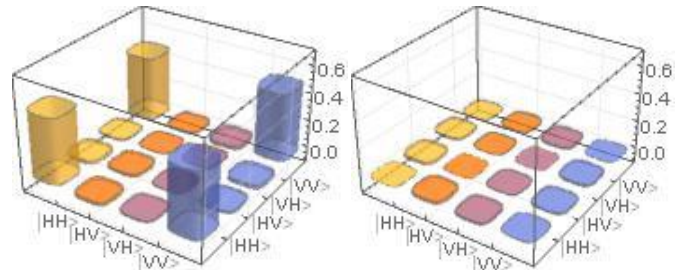
Mechanical Specifications



Optical Specifications



TYPICAL RAW ENTANGLED DATA



.....AFTER LOCAL UNITARY OPERATIONS APPLIED TO ALICE / BOB.

Ordering Information

For more information on this product and availability, please contact:

Nick.Bertone@optoelectronics.com

www.optoelectronics.com

Tel: 514-694-0336

Fax: 514-694-8535