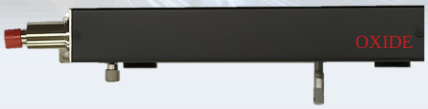
Reference exhibit

Polarization-Entangled Photon Pair Source

For Quantum Applications

Fiber-in type



Laser integrated type

EPS-PS series
Post-selection type module

Fiber-in type

EPS-SN series
Sagnac type module

Quantum polarization-entangled photon pair generated by SPDC. (SPDC device: PPKTP/PPLN/PPSLT)

Optimization capability:

- ✓ **Input power for SPDC device**
- ✓ **Iris diameter for SPDC light**
- ✓ **SPDC device temperature**

Performance example

	EPS-PS	EPS-SN
EPS scheme	Post-selection	Sagnac
SPDC device	Type Ⅱ SPDC Single-pass PPKTP	Type Ⅱ SPDC Double-pass PPKTP
Wavelength (nm)	405 → 810	405 → 810
Coincidence counts(/s)	10^4 order	10^4 order
Fidelity (%)	98	97
Visibility (%)	>96	>95

Above performance data are examples.
They depend on several parameters such as pump wavelength, its stability, signal/idler wavelength, detection scheme etc.

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Contents are things of 24-Jan.-2024.

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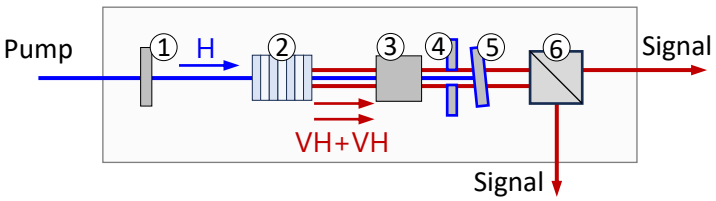
EPS-PS Post-selection type

Features

- SPDC device: Type II (degenerate regime)
- Simple single-pass configuration
- Optimization capability: – Input power for SPDC device
  – Iris diameter for SPDC light
  – SPDC device temperature

Example of Internal structure

№	Optics
①	Polarizer
②	SPDC device (PPKTP)
③	Compensation crystal (KTP)
④	Iris
⑤	Filter
⑥	Beam splitter (50:50)



Example of wavelength combination (nm)	・405 → 810 + 810 ・775 → 1550 + 1550

EPS-SN Sagnac type

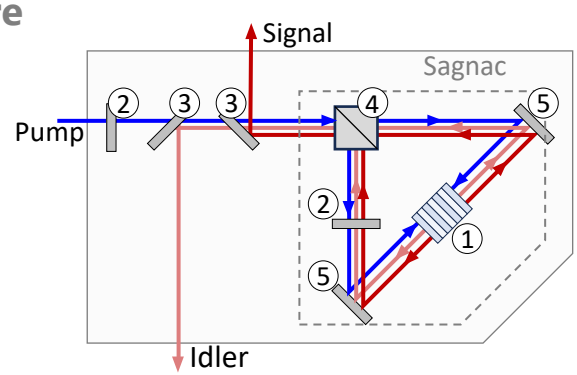
Features

- SPDC device: Type 0, Type II
- Degenerate/Non-degenerate SPDC available
- Higher brightness and visibility by Sagnac scheme
- Wider tolerances in operation temp and wavelength

Example of Internal structure

Type 0 For non-degenerate SPDC

№	Optics
①	SPDC device (PPKTP/PPSLT/PPLN)
②	Half waveplate
③	Dichroic mirror
④	Polarizing Beam Splitter
⑤	Mirror



Example of wavelength combination (nm)	・405 → 810 + 810 ・775 → 1550 + 1550 ・436 → 606 + 1550

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