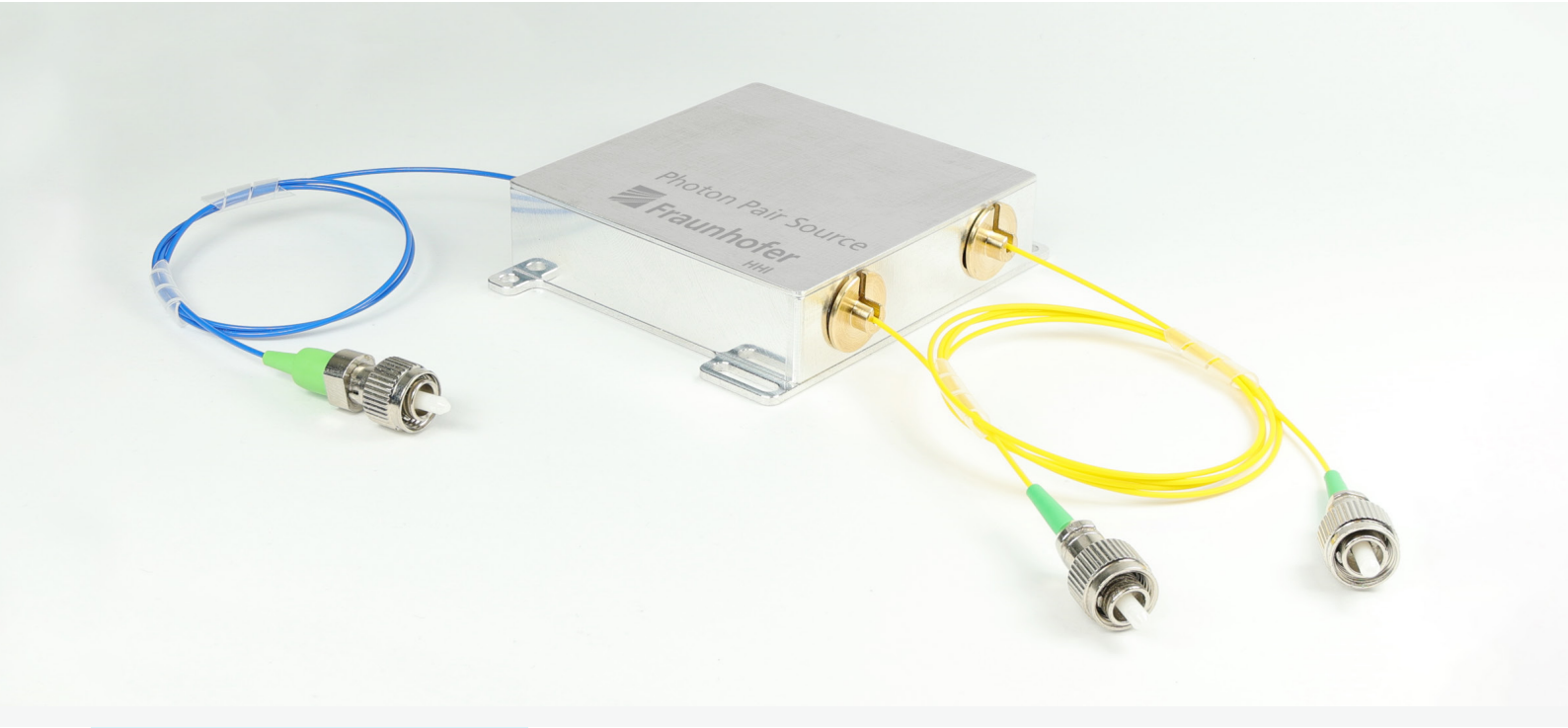
PHOTON PAIR SOURCE

Fraunhofer HHI



AT A GLANCE

Photon pair source for quantum technologies based on HHI's hybrid integration platform PolyBoard

Features

- Fiber-coupled nonlinear crystals based on hybrid integration
- Spontaneous parametric down-conversion (SPDC) using nonlinear crystals
- Polarization handling on PIC
- Temperature stabilization

Applications

- Quantum communications
- Quantum processors
- Quantum sensing

Photon Pair Source

The PolyBoard wafer technology, featuring hybrid integration and a micro-optical bench, enables the implementation of photonic integrated circuits for quantum technologies, including photon-pair sources with hybrid integrated nonlinear crystals.

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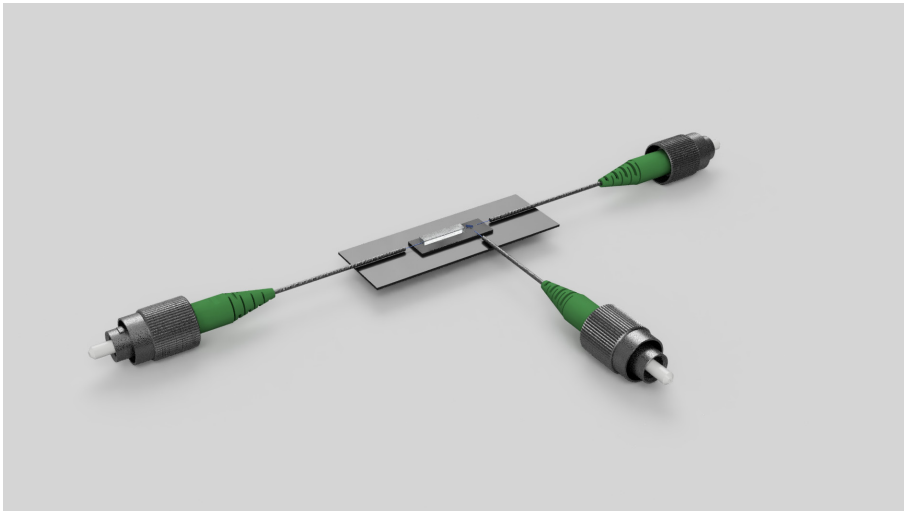
References

International R&D projects
POLYNICES

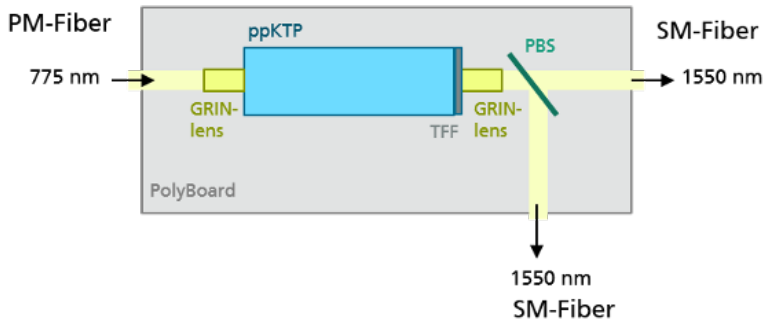
Technical Background

Down-conversion of 775 nm to 1550 nm using a ppKTP crystal, TE/TM separation by a polarisation beam splitter (PBS).

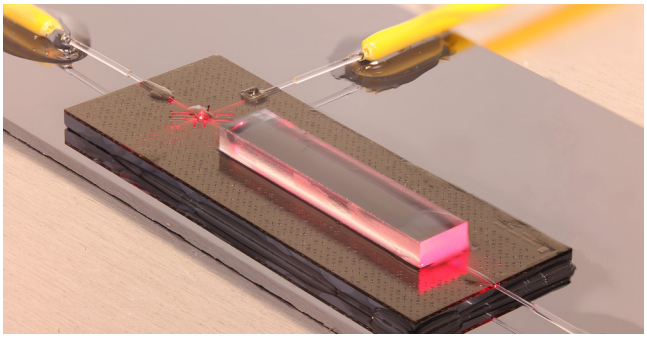
Other types of crystals can also be utilized.



Photon pair source with embedded ppKTP crystal



Schematic of photon pair source



Hybrid integrated photon pair source in HHI photonic platform

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