

Waveguide Characterization: Quantitative Analysis of Sum Frequency Generation, Second Harmonic Generation (SHG) and Spontaneous Parametric Down-Conversion (SPDC) Signals

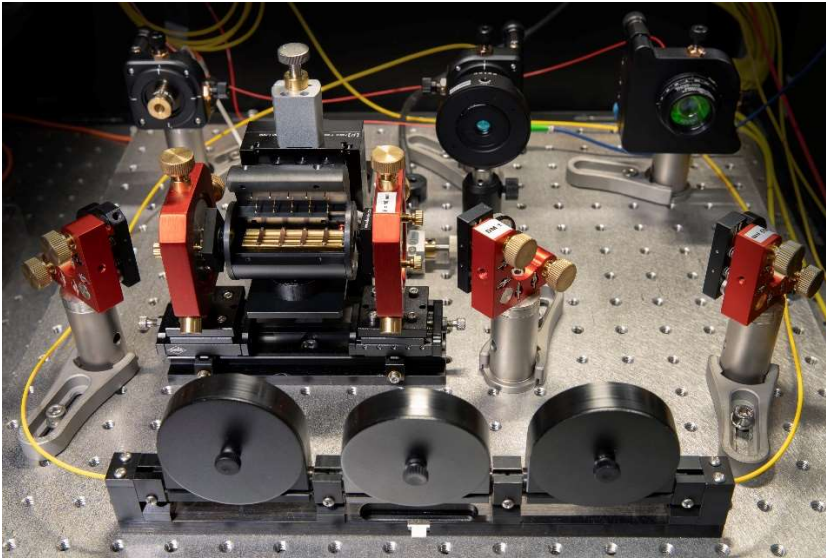


Fig. 1. Waveguide characterization setup

Overview

Our services involve characterizing waveguides (e.g., PPLN, PPKTP) of different lengths (up to 50 mm) and mode field diameters down to a few micrometers. Characterized waveguides can serve, for example, as sources of photons with high spectral purity at specific wavelengths, such as $780 \rightarrow 1560$ nm and $405 \rightarrow 810$ nm. The characterized SPDC process from the waveguides can be utilized to create small and integrated Entangled Photon Sources (EPS). Entangled photon sources are essential for Quantum Key Distribution (QKD) system and other Quantum Communication applications. EPS are also utilized in the development of various integrated Quantum Imaging systems. Such compact EPSs are also ideal for space applications.

Field of Application and Applied Technology

- Communication

Specifications

- Characterization involving Sum Frequency Generation, Second Harmonic Generation and Spontaneous Parametric Down-conversion with signals at wavelengths around 405 nm, 810 nm, 780 nm, 1550 nm, and 1950 nm.
- Measurement of coupling efficiency, non-linear process efficiency, and source brightness along with the analysis of mode field.