Data set for Non-adiabatic holonomies for photonic quantum computing

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1. General Information

Dataset title:	Data set for Non-adiabatic holonomies for photonic quantum computing
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Date:	04.02.2025
Type:	Measurement results
Language:	English
Rights:	CC BY-ND 4.0
DOI:	https://doi.org/10.18453/rosdok_id00004700
Original article:	Vera Neef, Julien Pinske, Tom A.W. Wolterink, Karo Becker, Matthias Heinrich, Stefan Scheel, and Alexander Szameit: *Non-adiabatic holonomies for photonic quantum computing.* Optica Quantum, Vol. 3, No. 1 (2025), DOI 10.1364/OPTICAQ.530855

2. Description

This document provides information to extract the data used and presented in the publication from the raw measurements, as well as structural information about the deposited files.

3. Structure

The subfolders contain raw data for the associated figures shown in the manuscript.

./Fig 3

This folder contains the raw click data associated with the experimental results in figure 3a and 3b in the manuscript. The files “Hadamard_1.txt” and “Hadamard_2.txt” contain the detected photon clicks of the Hadamard gate for the signal photon being injected into the left (L) or right (R) waveguide respectively. Likewise, the files “PauliX_1.txt” and “PauliX_2.txt” contain the detected photon clicks for the Pauli-X gate. The first column contains the channel in which a photon is being detected: 0 – herald, 1 – left waveguide, 2 – central waveguide, 3 – right waveguide. The second column contains the number of time bins that have passed since the last photon was detected. Each time bin has a length of 164.61 ps. A coincidence click was defined as the signal photon (in channel 1, 2 or 3) and the herald photon (in channel 0) being detected within 5 ns. To obtain the data depicted in figure 3, all clicks in the central waveguide are disregarded, as it lies outside of the geometric subspace at the end of the propagation.

./Fig 4

This folder contains the raw click data associated with the experimental results in figure 4a, 4b and 4c in the manuscript. The data is structured similarly to the data for figure 3. The raw data for figure 4a is contained in the files “PX_H_H_1.txt” and “PX_H_H_2.txt”, the data for figure 4b is in “H_PX_H_1.txt” and “H_PX_H_2.txt”, and the data for figure 4c in “H_none_H_1.txt” and “H_none_H_2.txt”. The ending “_1” indicates the signal photon being launched into the left waveguide (L) and the ending “_2” indicates the right waveguide (R).

./Fig S3

This folder contains the coincidence counts of the Hong-Ou-Mandel measurements as depicted in figure S3 in the supplementary information. The file “Fiber_HOM.csv” contains the measurement in a fiber integrated beam splitter. For the measurement in the holonomic Hadamard gate, one photon is injected into the left and one into the right waveguide. Coincidences between left and right waveguide are stored in the file “Hadamard_HOM.csv”. The first column contains the time delay in ps; in figure S1 (both a and b) it was normalized, so that the zero-time-delay corresponds to the minimum of the coincidence counts. The second column contains ten times the measured coincidence counts between both outputs. The decimal separator in the first column is “,” and columns have been separated by a tab.