Experimental Data for „Observation of photonic constant-intensity waves and induced transparency in tailored non-Hermitian lattices”

Andrea Steinfurth, Sebastian Weidemann, and Alexander Szameit

1 General information

Data set title	Experimental Data for “Observation of photonic constant-intensity waves and induced transparency in tailored non-Hermitian lattices”
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Type	Measurements
Language	English
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Download link	https://doi.org/10.18453/rosdok_id00003418

2 Description

This is a guideline for the data repository of the publication „Observation of photonic constant-intensity waves and induced transparency in tailored non-Hermitian lattices” [1]. This file contains information about the acquisition, processing and format of the experimental data as well as the relation to the figures of [1].

3 Data Acquisition

The measurement consisted of a time-resolved record of the intensity in the shorter fiber loop, which was performed by a photodiode (DET01CFC). A logarithmic amplifier (FEMTO HLVA-100) amplified the electric signal of the photodiode. Afterwards, the signal was sampled by an oscilloscope (RTO1104). The corresponding files are denoted by ‘RawData’. By the use of the characteristic time scales T and ΔT of the setup, the intensities of the pulses can be mapped onto a photonic lattice (m, n) with time steps m and position n. The provided data sets are the basis for Fig. 3 and Fig. 4 in publication [1].

4 File Format

The data is deposited as csv-files, where each row corresponds to a time step and thus contains the data for all position in that time step separated by commata.

5 Archive Structure

Filename	Description
Fig3A_RawData	Vector of time-resolved voltages for Fig. 3A
Fig3B_RawData	Vector of time-resolved voltages for Fig. 3B
Fig4A_RawData	Vector of time-resolved voltages for Fig. 4A
Fig4B_RawData	Vector of time-resolved voltages for Fig. 4B

6 References

[1] Andrea Steinfurth, Ivor Krešić, Sebastian Weidemann, Mark Kremer, Konstantinos G. Makris, Matthias Heinrich, Stefan Rotter, Alexander Szameit,
Observation of photonic constant-intensity waves and induced transparency in tailored non-Hermitian lattices. *Science Advances* (2022); DOI: 10.1126/sciadv.abl7412