

This read me file describes the research data for

Cryptography in coherent optical information networks using dissipative metamaterial gates

Angelos Xomalis^{1,2,*}, Iosif Demirtzioglou¹, Yongmin Jung¹, Eric Plum^{1,2,*}, Cosimo Lacava¹, Periklis Petropoulos¹, David J. Richardson¹, and Nikolay I. Zheludev^{1,2,3,*}

¹*Optoelectronics Research Centre, University of Southampton,
Highfield, Southampton, SO17 1BJ, UK*

²*Centre for Photonic Metamaterials, University of Southampton,
Highfield, Southampton, SO17 1BJ, UK*

³*Centre for Disruptive Photonic Technologies, SPMS, TPI,
Nanyang Technological University, Singapore 637371, Singapore*

*Email: ax1c15@soton.ac.uk, erp@orc.soton.ac.uk, niz@orc.soton.ac.uk

This research dataset should be interpreted and understood in the context of the corresponding manuscript, which has been published as *APL Photonics* **4**, 046102 (2019). All relevant information regarding the dataset, how it was obtained and its context is contained in the manuscript. The data corresponds to the data shown in figure 3 of the manuscript.

Figure 3 shows encryption and decryption in a coherent information network at 3 Gbit/s using different types of optical gates. Figure 3a shows the data and key sequences before encryption. Figures 3b-3d show encrypted and decrypted sequences for coherent optical gates operating in the following encryption modes: (b) XOR; (c) AND; (d) OR.

This dataset supports the publication:

Publication DOI: <https://doi.org/10.1063/1.5092216>

Title and authors: as above

Journal: APL Photonics

Volume: 4

Article number: 046102

Year: 2019

Dataset DOI: <https://doi.org/10.5258/SOTON/D0873>

Location of data collection: University of Southampton, UK

Licence: CC-BY

Research funded by: EPSRC (grants EP/M009122/1, EP/P003990/1 and EP/N00762X/1) and the MOE Singapore (Grant No. MOE2016-T3-1-006)

File creation: Data file created by Angelos Xomalis in April 2019
Read me file created by Eric Plum in May 2019