This read me file describes the research data for

Cryptography in coherent optical information networks using dissipative metamaterial gates

Angelos Xomalis[1,2,*], Iosif Demirtzioglou[1], Yongmin Jung[1], Eric Plum[1,2,*], Cosimo Lacava[1], Periklis Petropoulos[1], David J. Richardson[1], 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.