

This read me file describes the research data for  
**Nonlinear optics enabled by structuring of matter**

**Dataset DOI: 10.5258/SOTON/D1969**

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This dataset supports the thesis entitled ‘Nonlinear optical frequency generation enabled by 2D structuring of matter’

AWARDED BY: University of Southampton

DATE OF AWARD: 2022

#### DESCRIPTION OF THE DATA

This research dataset should be interpreted and understood in the context of the corresponding PhD thesis entitled ‘Nonlinear optical frequency generation enabled by 2D structuring of matter’. All relevant information regarding the dataset, how it was obtained and its context is contained in the thesis. The data corresponds to the data shown in the figures of the thesis.

This dataset contains:

Six excel files for research data used in Chapter 3 to Chapter 8 in the thesis.

Date of data collection:	2017-2021
Location of data collection:	University of Southampton
Licence:	CC-BY
Related projects/Funders:	UK Engineering and Physical Sciences Research Council (grant EP/M009122/1, EP/T02643X/1) Chinese Scholarship Council (CSC No. 201706310145)
Related publication:	1. Jie Xu, Eric Plum, Vassili Savinov, and Nikolay I. Zheludev. <b>“Second harmonic generation in amorphous silicon-on-silica metamaterial.”</b> APL Photonics, 6(3) 036110 (2021). Publication DOI: 10.1063/5.0037428 2. Jie Xu, Eric Plum, and Vassili Savinov. <b>“Toy model of second harmonic generation due to structuring of centrosymmetric films.”</b> Optics Express 28(22): 33346-33354 (2020). Publication DOI: 10.1364/OE.408841 3. Jie Xu, Vassili Savinov, and Eric Plum. <b>“Toy model of harmonic and sum frequency generation in 2D dielectric nanostructures.”</b> Scientific Reports, 11: 20120 (2021). Publication DOI: 10.1038/s41598-021-99567-4 4. Jie Xu, and Eric Plum. <b>“Defect-induced nonlinearity in 2D nanoparticles.”</b> arXiv:2109.10308 Publication DOI: 10.1364/OE.443977
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