

This is a repository copy of *Computational design of graphitic carbon nitride photocatalysts for water splitting*.

White Rose Research Online URL for this paper: https://eprints.whiterose.ac.uk/158309/

Version: Supplemental Material

### Article:

Hartley, G.O. and Martsinovich, N. orcid.org/0000-0001-9226-8175 (2021) Computational design of graphitic carbon nitride photocatalysts for water splitting. Faraday Discussions, 227. pp. 341-358. ISSN 1359-6640

https://doi.org/10.1039/c9fd00147f

© 2020 The Royal Society of Chemistry. This is an author-produced version of a paper subsequently published in Faraday Discussions. Uploaded in accordance with the publisher's self-archiving policy.

#### Reuse

Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

#### Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



## **Supplementary Information for**

# Computational design of graphitic carbon nitride photocatalysts for water splitting

Gareth O. Hartley,<sup>a,b</sup> Natalia Martsinovich <sup>a</sup>

<sup>a</sup> Department of Chemistry, University of Sheffield, Brook Hill, Sheffield, S3 7HF, United Kingdom

<sup>b</sup> Department of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, United Kingdom



**Figure S1**. Projected densities of states for N-, P- and B-linked graphitic carbon nitride structures. Atom types (N central, edge and linker, C bay and corner) are indicated. The zero energy is the energy of electron in vacuum.



**Figure S2**. Projected densities of states for triazine-, benzene- and substituted benzene-linked graphitic carbon nitride structures. The zero energy is the energy of electron in vacuum.



**Figure S3**. Band structure plots for N-, P- and B-linked graphitic carbon nitrides (2D and 3D AA-stacked structures). The zero energy is at the top of the valence band.



**Figure S4**. Band structure plots for triazine-, benzene- and substituted benzene-linked graphitic carbon nitrides (2D and 3D AA-stacked structures). The zero energy is at the top of the valence band.