

Supporting information

Preparation of Heterojunctions Based on $\text{Cs}_3\text{Bi}_2\text{Br}_9$ Nanocrystals and $\text{g-C}_3\text{N}_4$ Nanosheets for Photocatalytic Hydrogen Evolution

María Medina-Llamas ^{1,2,*}, Andrea Speltini ², Antonella Profumo ², Francesca Panzarea ³, Antonella Milella ³, Francesco Fracassi ^{3,4}, Andrea Listorti ³ and Lorenzo Malavasi ^{2,*}

¹ Unidad Académica Preparatoria, Plantel II, Universidad Autónoma de Zacatecas, Zacatecas 98068, México

² Department of Chemistry, University of Pavia, Via Taramelli 12, 27100 Pavia, Italy

³ Department of Chemistry, University of Bari "Aldo Moro" Via Orabona 4, 70126 Bari, Italy

⁴ National Research Council, Department of Chemistry, Institute of Nanotechnology (CNR-NANOTEC), 70125 Bari, Italy

* Correspondence: maria.medina@uaz.edu.mx (M.M.-L.); lorenzo.malavasi@unipv.it (L.M.)

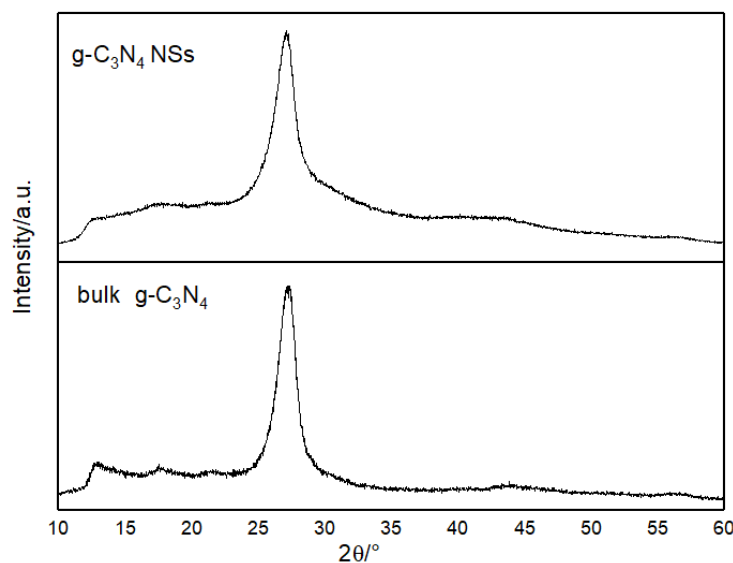


Figure S1. XRD pattern of the bulk $\text{g-C}_3\text{N}_4$ and the $\text{g-C}_3\text{N}_4$ nanosheets.

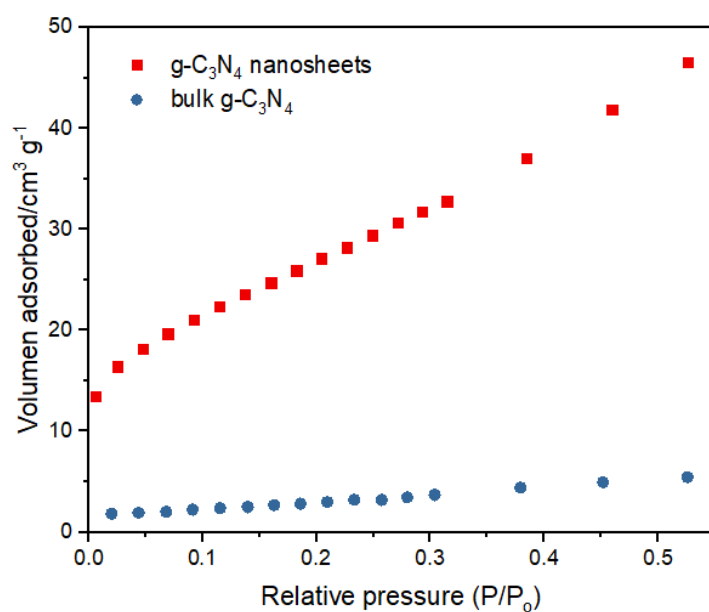


Figure S2 Nitrogen adsorption isotherms of bulk $\text{g-C}_3\text{N}_4$ and $\text{g-C}_3\text{N}_4$ nanosheets.

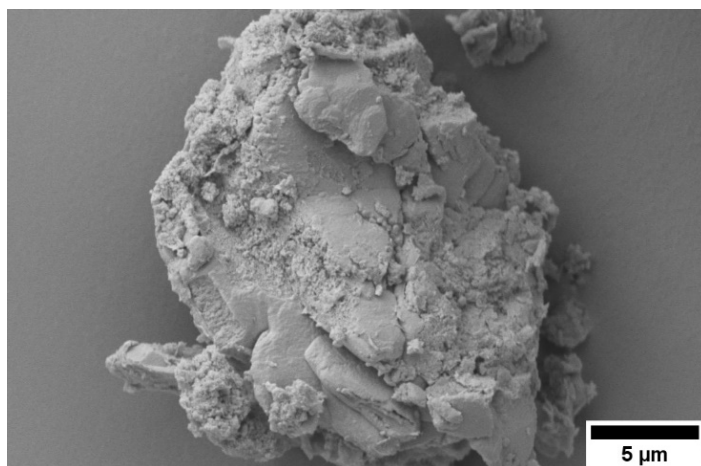
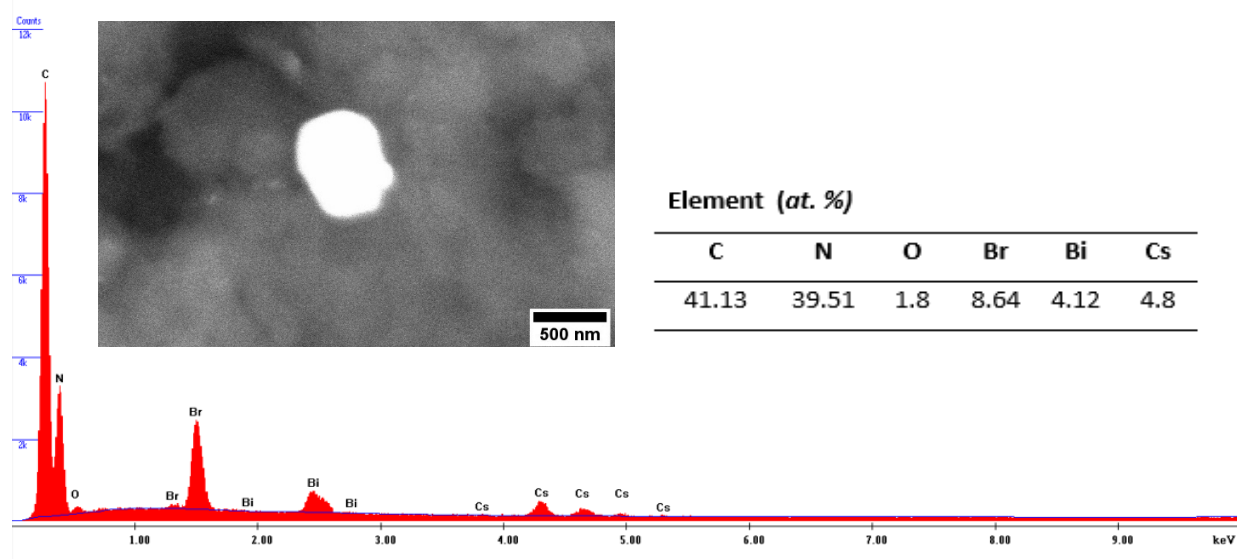


Figure S3. SEM micrograph of the bulk $\text{g-C}_3\text{N}_4$.

(a)



(b)

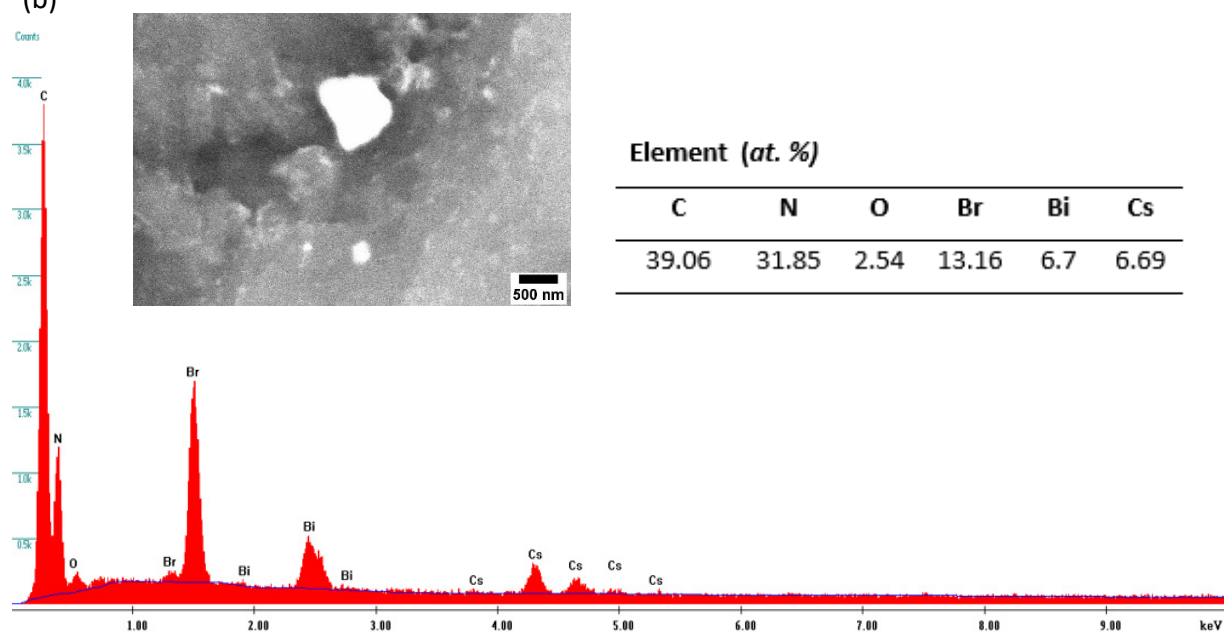


Figure S4. EDX analysis on the heterojunctions (a) 0.44wt. % $\text{Cs}_3\text{Bi}_2\text{Br}_9$ NCs/g- C_3N_4 NSs and the (b) 1.47 wt. % $\text{Cs}_3\text{Bi}_2\text{Br}_9$ NCs/g- C_3N_4 NSs.

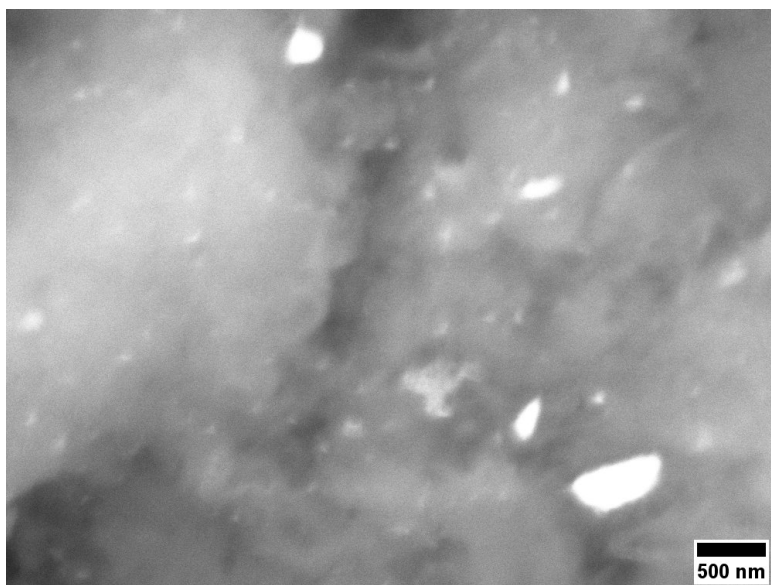


Figure S5. BSE-HRSEM micrograph of the 0.44 wt. % $\text{Cs}_3\text{Bi}_2\text{Br}_9$ NCs/g- C_3N_4 NS.

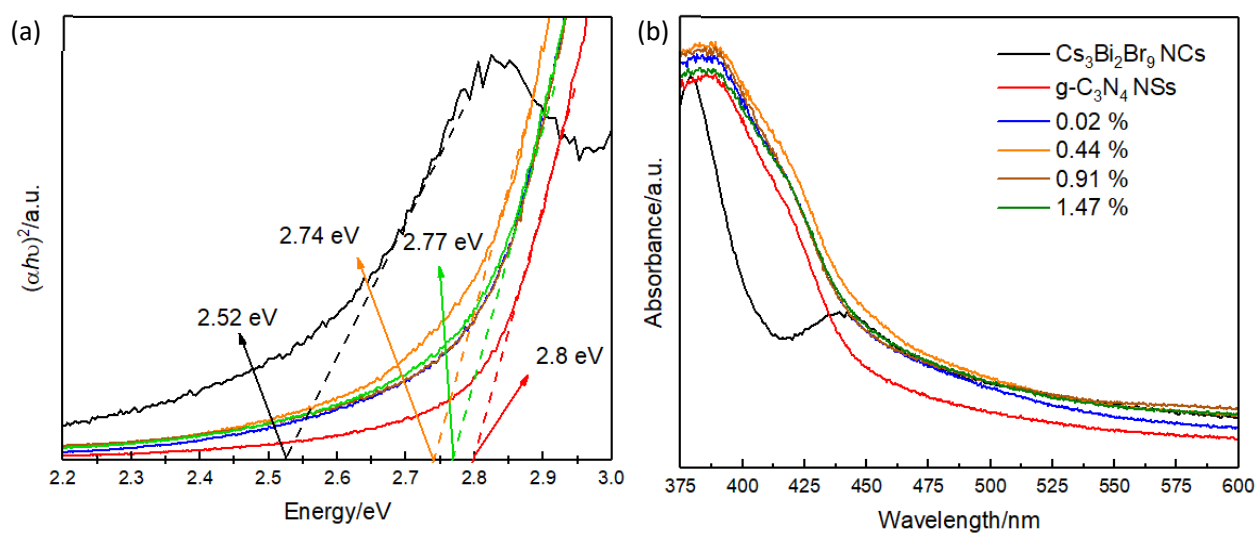


Figure S6. (a) Enlarge section of the Tauc plot and (b) absorbance spectra versus wavelength of the g- C_3N_4 NSs, the $\text{Cs}_3\text{Bi}_2\text{Br}_9$ NCs and the $\text{Cs}_3\text{Bi}_2\text{Br}_9$ /g- C_3N_4 NSs composites produced at different percentages of perovskite loading (wt. %).

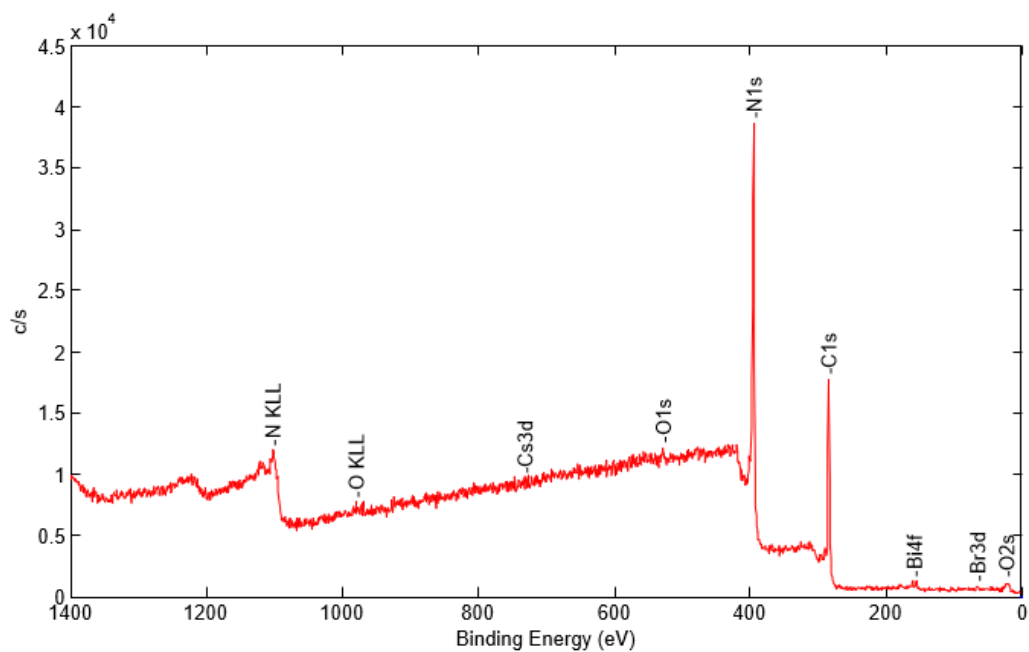


Figure S7. Survey spectra of the 0.02 wt. % $\text{Cs}_3\text{Bi}_2\text{Br}_9/\text{g-C}_3\text{N}_4$ NSs.

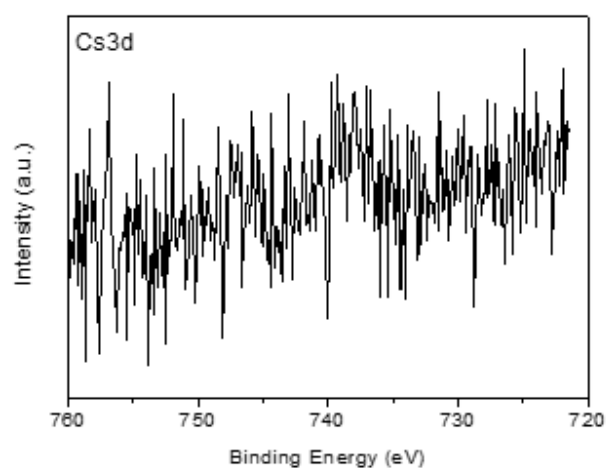


Figure S8. High-resolution XPS analysis of Cs 3d for the 0.02 wt. % $\text{Cs}_3\text{Bi}_2\text{Br}_9/\text{g-C}_3\text{N}_4$ NSs.