Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supplementary Information

Copper Sulfide-Incorporated Layered Porous Sulfur-Doped Graphitic Carbon Nitride Nanosheets for an Efficient Catalytic Reduction of 4-Nitrophenol

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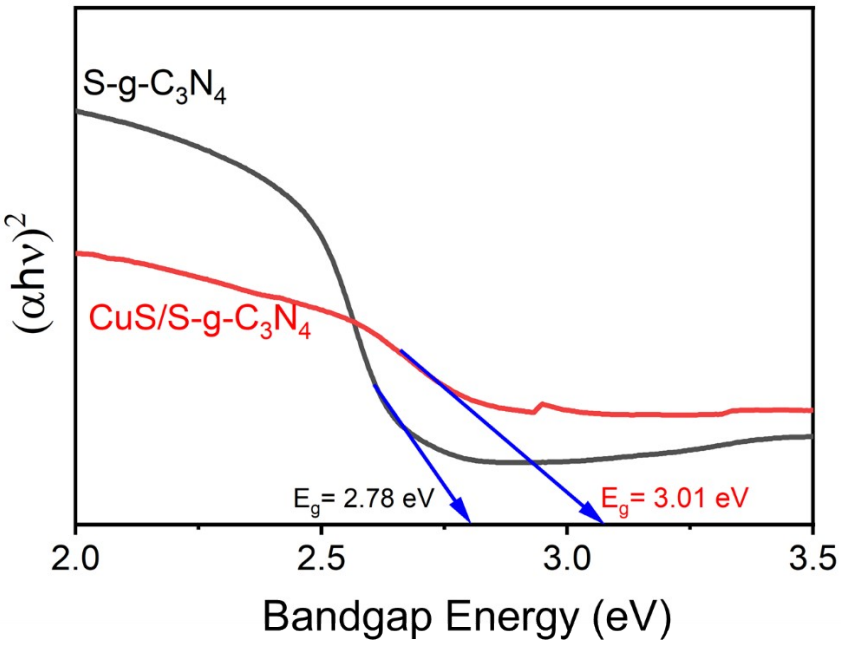


Figure S1. Tauc's plot of $(\alpha h\nu)^2$ *vs.* Band gap energy of s-g-C_3N_4 (Black line) and CuS/ s-g-C_3N_4 (Red line) samples.

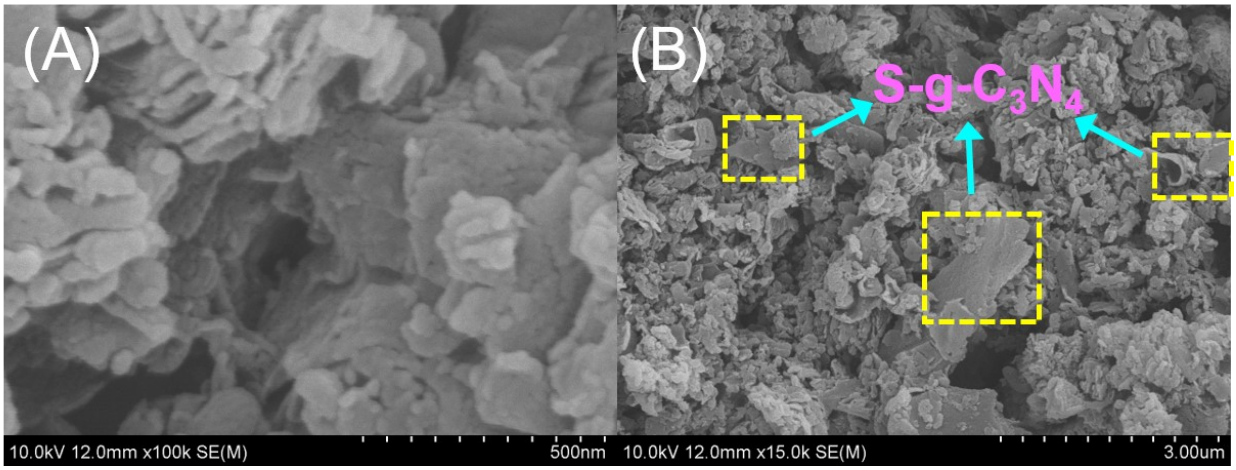


Figure S2. SEM micrographs of **(A)** s-g-C_3N_4 and **(B)** CuS/s-g-C_3N_4 samples.

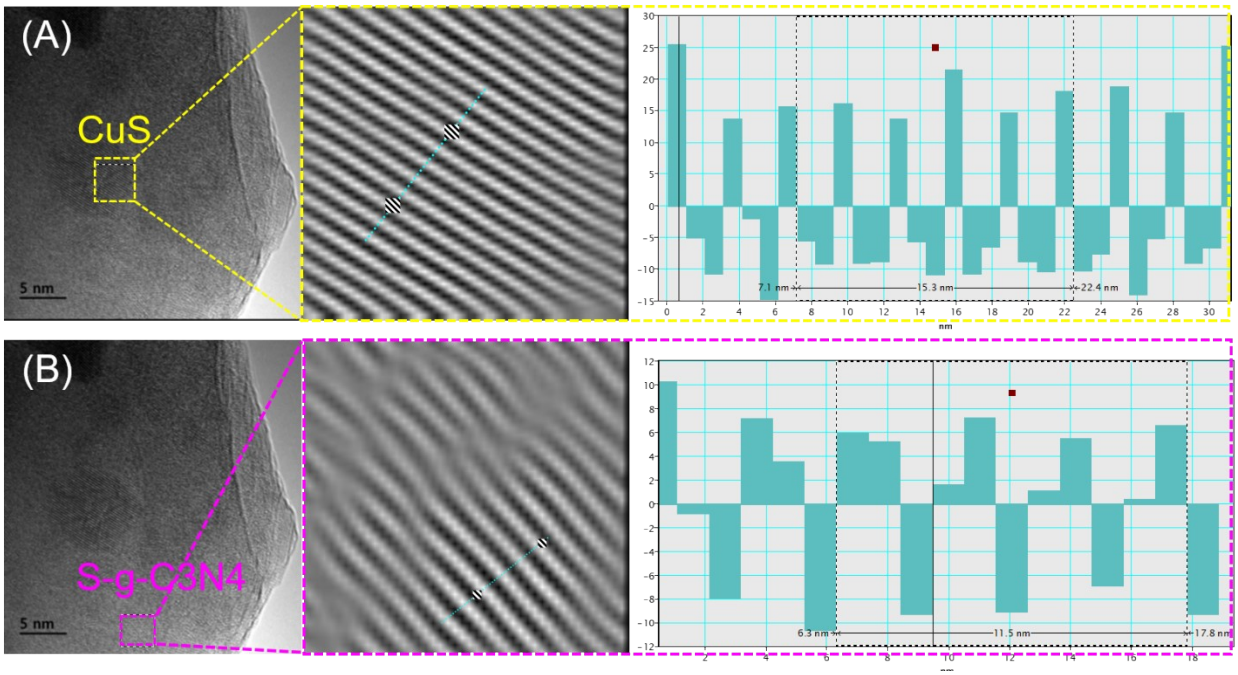


Figure S3. HR-TEM image of the CuS/ S-g-C_3N_4 composite used for the determination of d-spacing CuS **(A)** and s-g-C_3N_4 **(B)**.

Table S1. The catalytic reduction of various nitro scaffolds using CuS/s-g-C_3N_4.

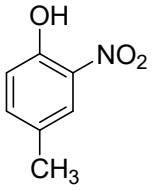
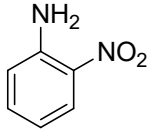
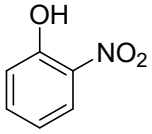
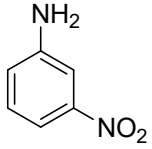
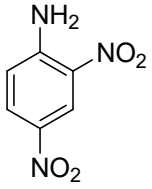
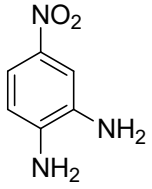
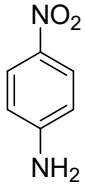
Sl No	Substrate	Abbreviations	Reduction rate (%)	Time (min)
1		4-methyl-2-nitrophenol	99.3	3
2		2-nitroamine	98.7	6
3		2-nitrophenol	99.3	2
4		3-nitroamine	99.5	3
5		2,4-Dinitroamine	89.3	3
6		4-nitrodiamine	98.6	2
7		4-nitroamine	98.8	6

Table S2. Comparison of the apparent rate constant of 4-NP reduction with various catalysts using the Langmuir-Hinshelwood equation.

Catalysts	**4-NP**	**$NaBH_4$**	**k (min^{-1})**	**Time (min)**	**References**
PANI/ZnO/MnO_2	0.2 mM	0.1 M	219	10	1
CuO nanoparticles	0.36	30	0.022	15	2
GO/Au	0.1 mM	0.1 M	-	2100	3
TiO2/rGO NCs	10 mg/L of 4-NP + H_2O_2 (1 Mm)	-	0.0216	32	4
PANI Nanofibers	0.2 mM	0.002 M	48.8	40	5
Ca^{2+}-doped $AgInS_2$	15 mg/L	-	-	120	6
Ag_3PO_4/g-C_3N_4	30 mg/L	20mM	0.01277	5	7
ZnO/Ag_2O	1.0 mM	0.01 M	229.65	21	8
Bi_2O_3	0.5 mM	0.2 M	91.42	50	9
CuS/s-g-C_3N_4	**20 mg L^{-1}**	**0.1 M**	**2.357**	**3**	**Present work**

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