Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

In-situ fabrication Z-Scheme $C_3N_4/Ti_3C_2/CdS$ for enhanced photocatalytic hydrogen peroxide production

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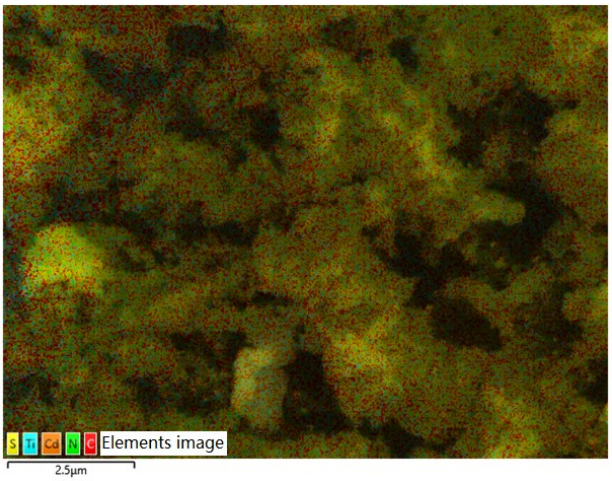
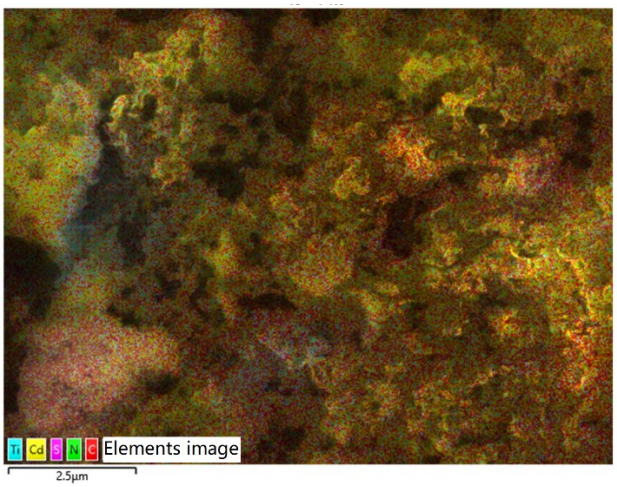
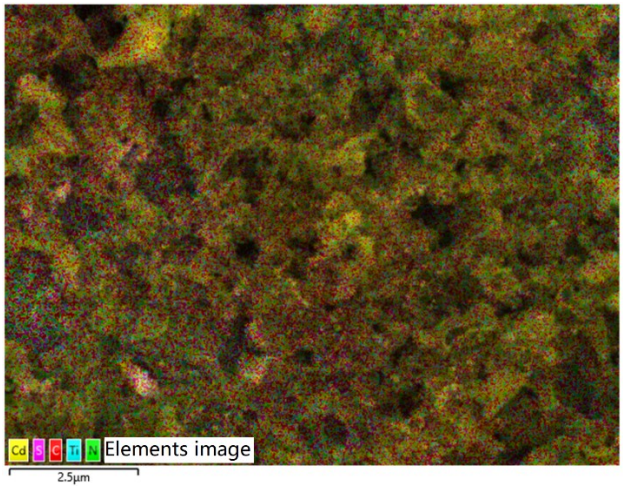


$C_3N_4/Ti_3C_2/CdS$-1

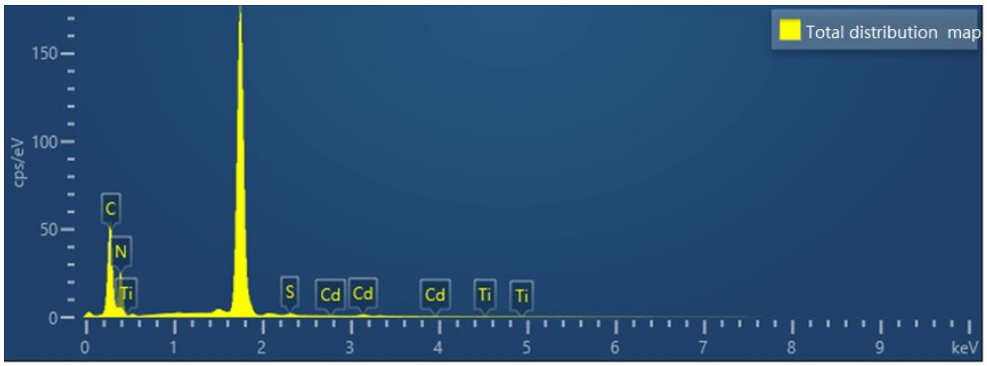


$C_3N_4/Ti_3C_2/CdS$-2

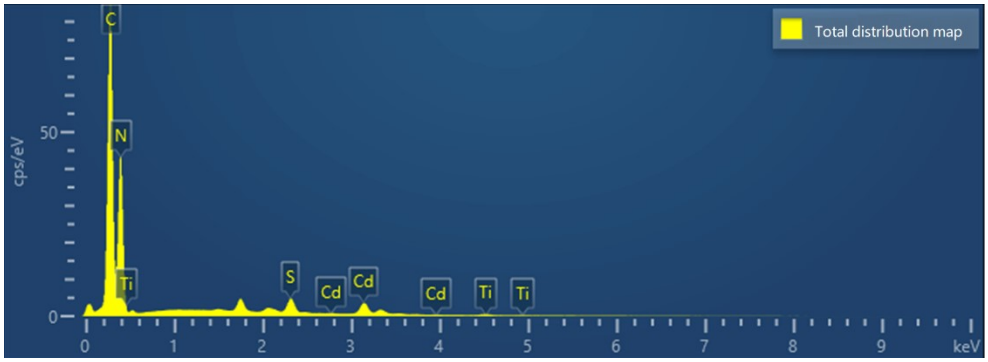


$C_3N_4/Ti_3C_2/CdS$-3

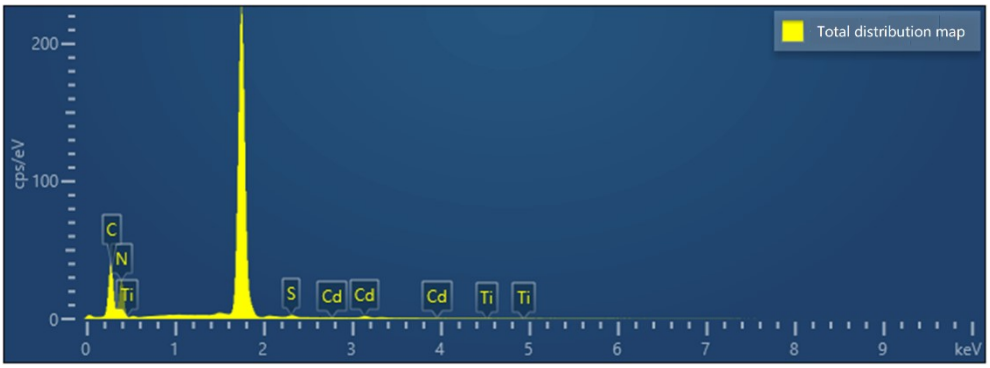
Figure S1. EDS elements images



$C_3N_4/Ti_3C_2/CdS$-1



$C_3N_4/Ti_3C_2/CdS$-2



$C_3N_4/Ti_3C_2/CdS$-3

Figure S2 Total distribution map

Table S1. EDS analysis $C_3N_4/Ti_3C_2/CdS$-1

Elements	Line type	Weight percentage	Atomic percentage
C	K lines	36.95	42.26
N	K lines	57.82	56.70
Ti	K lines	0.28	0.08
S	K lines	1.15	0.49
Cd	L lines	3.80	0.46
Total		100.00	100.00

Table S2. EDS analysis $C_3N_4/ Ti_3C_2/CdS$-2

Elements	Line type	Weight percentage	Atomic percentage
C	K lines	35.35	42.37
N	K lines	53.94	55.44
Ti	K lines	0.71	0.21
S	K lines	2.17	0.97
Cd	L lines	7.84	1.00
Total		100.00	100.00

Table S3. EDS analysis $C_3N_4/ Ti_3C_2/CdS$-3

lements	Line type	Weight percentage	Atomic percentage
C	K lines	31.21	36.78
N	K lines	61.09	61.72
Ti	K lines	0.09	0.03
S	K lines	1.64	0.73
Cd	L lines	5.96	0.75
Total		100.00	100.00

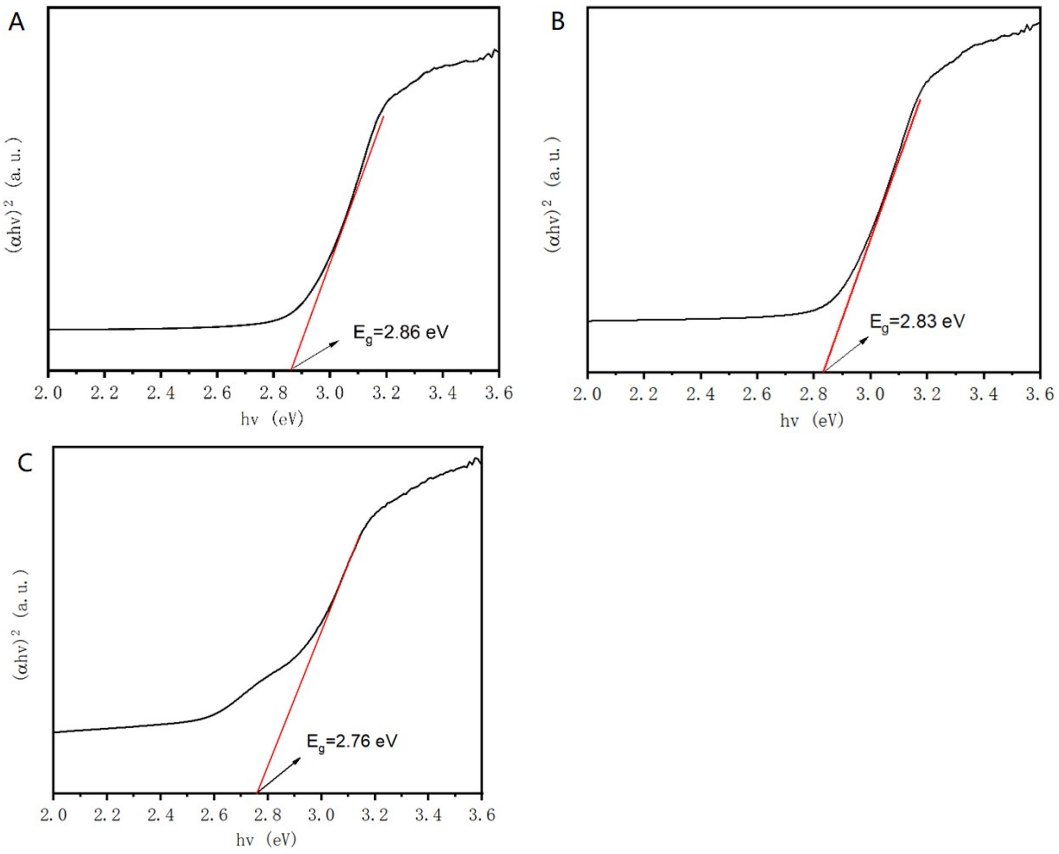


Figure S3. Band gap energies of C_3N_4 (A), C_3N_4/ Ti_3C_2 (B) and C_3N_4/Ti_3C_2/CdS-2 (C)

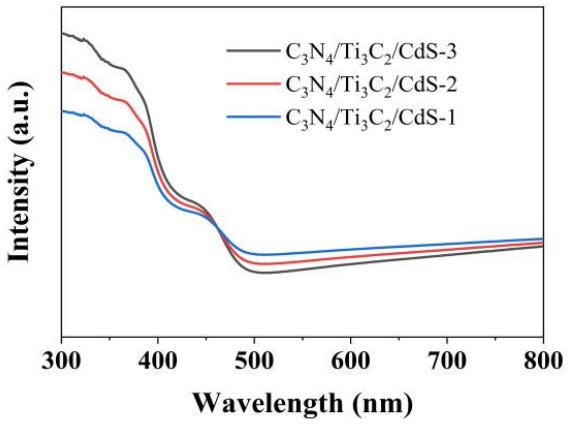


Figure S4. UV-vis DRS of ternary composite at different ratios of CdS

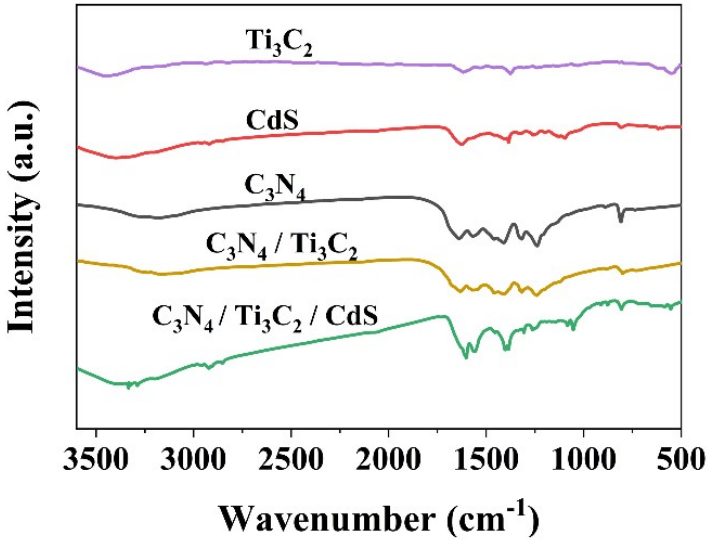


Figure S5. FT-IR spectra of Ti_3C2, CdS, C_3N_4, C_3N_4/Ti_3C2 and $C_3N_4/Ti_3C_2/CdS$.

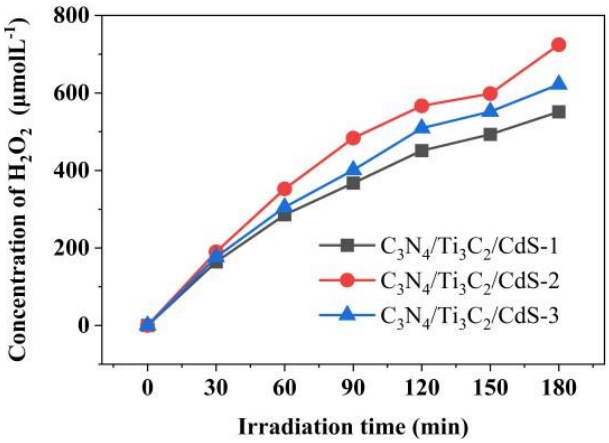


Figure S6. The photocatalytic production of hydrogen peroxide of ternary composite with different ratio of CdS.

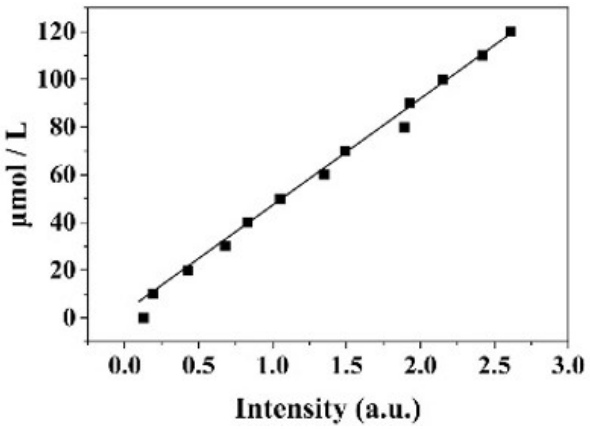


Figure S7.The calibration fitting curve of hydrogen peroxide content by iodometry.