Piezocatalytic Degradation of 2,4-dichlorophenol in Water Environment by a g-C_3N_4/CdS heterojunction catalyst: Interfacial Electric Field Boosting Mechanism

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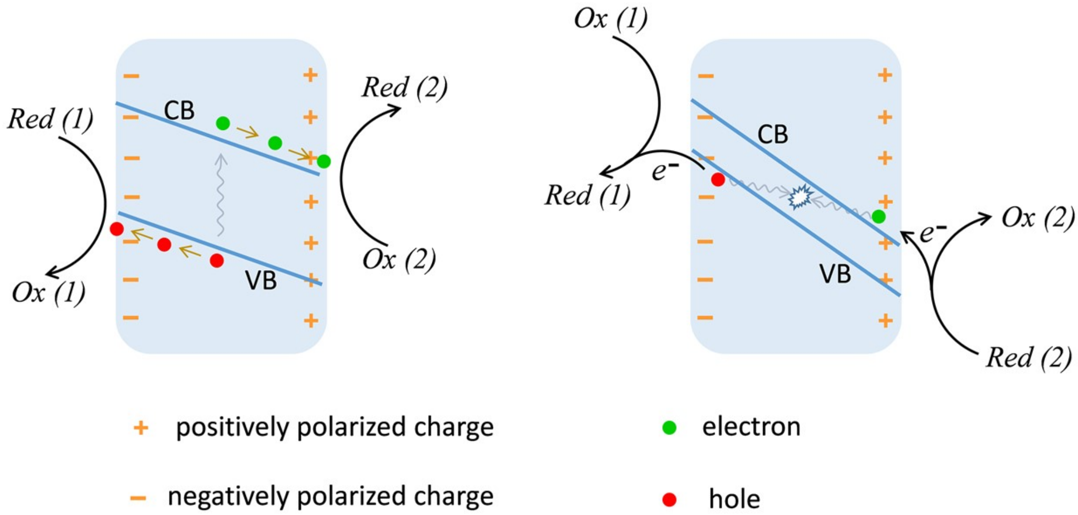

Fig. S1 Two main piezocatalysis mechanism: (a) the activated electron (e^-) and hole (h^+) mechanism and (b) the polarization potential mechanism.

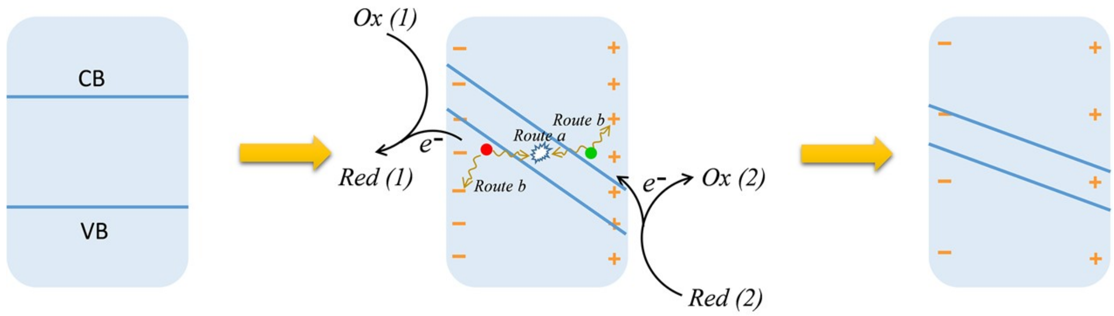

Fig. S2 The possible mechanism to explain the decline of piezocatalysis performance.

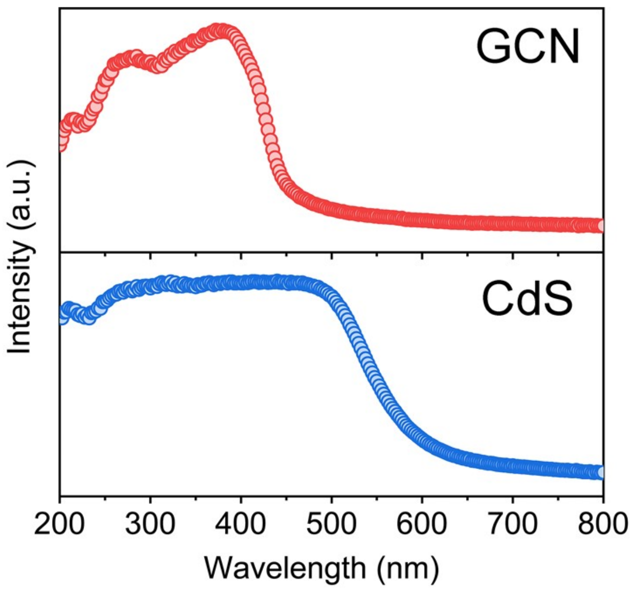

Fig. S3 DRS of GCN and CdS.

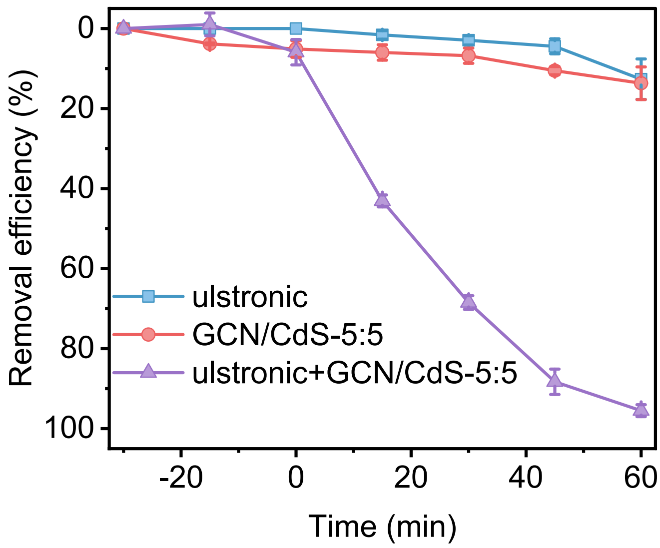

Fig. S4 Degration of 2,4-DCPs with different reaction conditions.

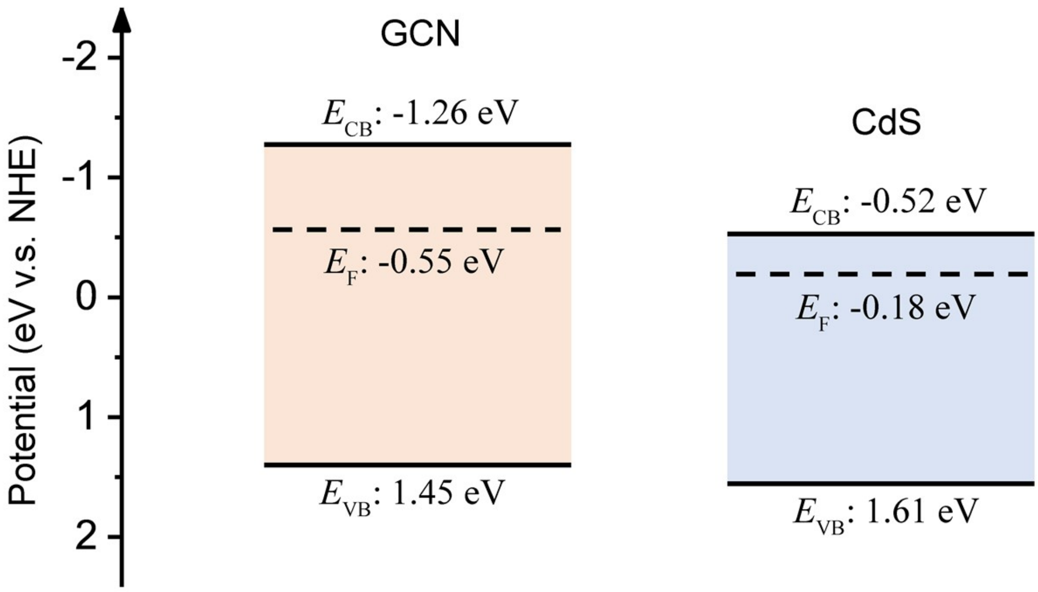

Fig. S5 Band structures of GCN and CdS

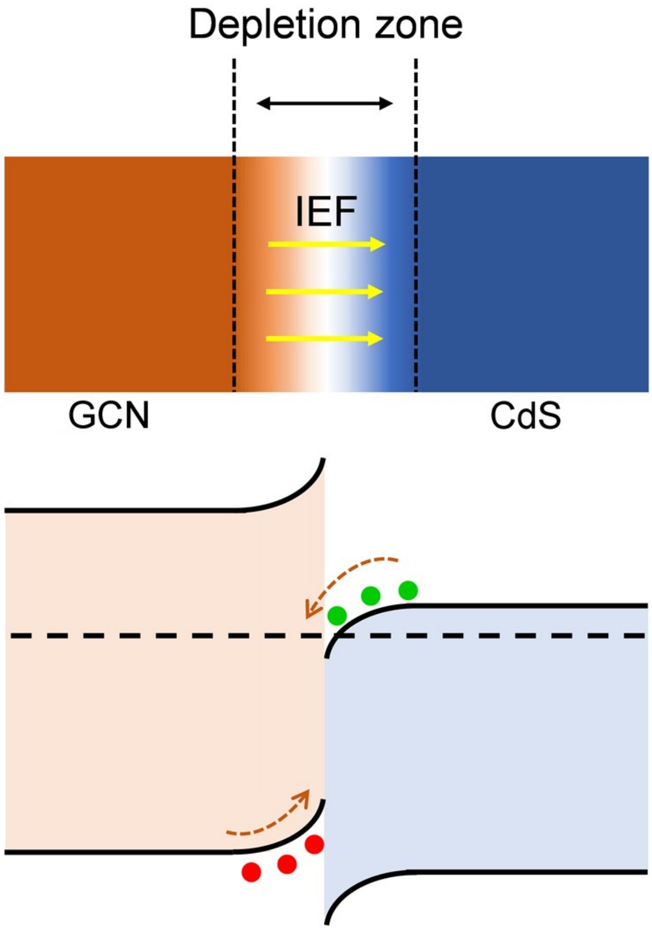

Fig. S6 S-scheme heterojunction of GCN/CdS

Table S1 Comparison of piezoelectric catalytic properties of different catalysts.

Piezocatalysts	Reaction condition	Degrading substance	Degradation efficiency	Catalysis time Volume	Pollutants concentration/ Catalyst dosage	Ref.
GCN/CdS-5:5	ultrasonic (40 kHz, 120 W)	2,4-DCP	97%	60 min 50 mL	20 mg L^{-1} /50 mg	This work
2D g-C_3N_4	ultrasonic (40 kHz, 120 W)	2,4-DCP	98.5%	150 min 25 mL	20 mg L^{-1} /50 mg	[1]
g- C_3N_4	Xe lamp (300 W) and ultrasonic (40 kHz, 120 W)	2,4-DCP	100%	60 min 25 mL	20 mg L^{-1} /50 mg	[2]
$Bi_{3.25}La_{0.75}Ti_3O_{12}$	Xe lamp (300 W) and ultrasonic (45 kHz, 100 W)	2,4-DCP	93.04 %	60 min 80 mL	15 mg L^{-1} /70 mg	[3]
Au/$BiVO_4$	ultrasonic (40 kHz, 300 W)	4-CP	100 %	120 min 50 mL	0.1 mM /25 mg	[4]
$BaTiO_3$	ultrasonic (40 kHz, 110 W)	4-CP	71.1 %	120 min 25 mL	25 mg L^{-1} /50 mg	[5]
$Bi_{25}FeO_{40}$/$Bi_2O_2CO_3$	ultrasonic (40 kHz, 120 W)	4-CP	>90 %	120 min 50 mL	10 mg L^{-1} /50 mg	[6]
$Bi_5Ti_3FeO_{15}$	ultrasonic (40 kHz, 120 W)	Phenol	79.3 %	30 min 50 mL	5 mg L^{-1} /50 mg	[7]
$Na_{0.5}Bi_{0.5}TiO_3$	ultrasonic (40 kHz, 80 W)	Phenol	58.5 %	80 min 100 mL	5 mg L^{-1} /100 mg	[8]
MoS_2NFs/PMS	ultrasonic (40 kHz, 300 W)	Phenol	95 %	180 min 100 mL	10 mg L^{-1} /30 mg	[9]

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