Plasmon Au/K-doped defective graphitic carbon nitride for enhanced hydrogen production

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$$AQY = \frac{\text{Number of reacted electrons}}{\text{Number of incident photons}} \times 100\%$$

$$= \frac{2 \times C \times N_A}{S \times P \times t \times \frac{\lambda}{h \times c}} \times 100\%$$

Where, C is the H_2 production amount (mol) per hour; N_A is the Avogadro constant (6.02×10^{23} mol^{-1}); S is the irradiation area (18 cm^2); P is the monochromatic light intensity ($W\cdot cm^{-2}$); t is the light irradiation time (3600 s); λ is the wavelength of the monochromatic light (nm); h is the Plank constant (6.626×10^{-34} J·s); c is the speed of light (3×10^8 $m\cdot s^{-1}$).

Table S1 the AQY of Au/KCNx

λ (monochromatic light)	P ($W\cdot cm^{-2}$)	C (mmol$\times10^{-3}$)	AQY
420 nm	9.113	0.1333	12.8
450 nm	8.679	0.054	5.46
500 nm	4.758	0.00759	1.2
550 nm	17.28	0.01	0.4

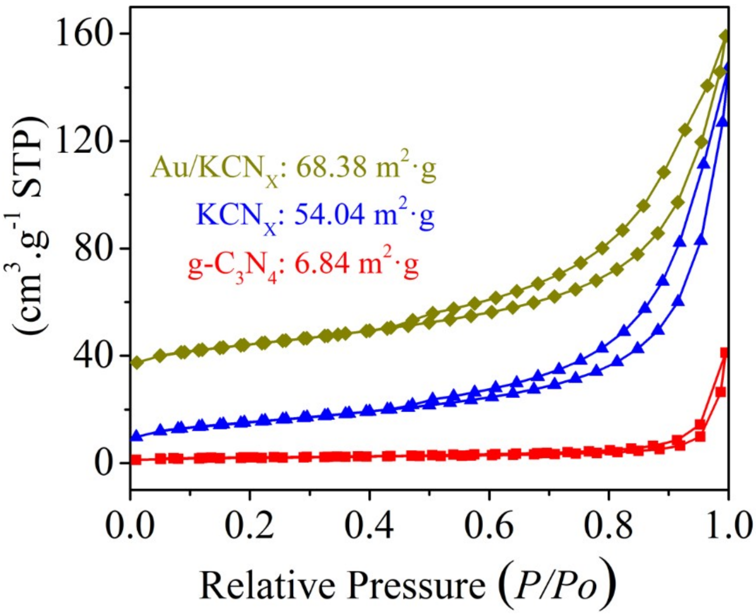

Fig S1: N_2 adsorption-desorption isotherms of pristine g-C_3N_4, KCNx and Au/KCNx samples

Table S2 Actual mass content of Au from ICP-OES analysis of the prepared sample

Sample	Theoretical proportion (%)	Actual proportion (%)
Au/KCNx	3	2.3

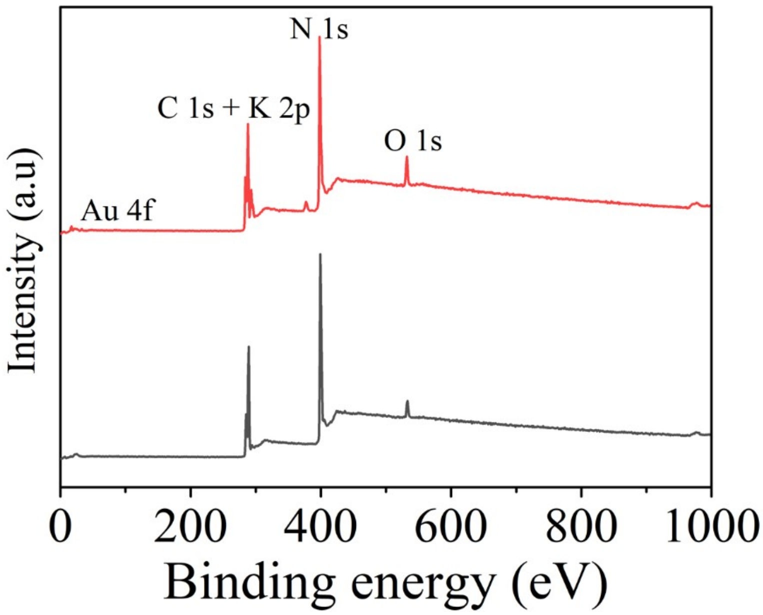

Fig. S2. XPS survey spectra of the as-prepared pristine g-C_3N_4 and Au/KCNx samples.

Fig. S3 Digital photographs of the pristine $g\text{-}C_3N_4$, KCNx and Au/KCNx samples