

Electronic Supplementary Information (ESI)

The effect of Pt NPs crystallinity and distribution on the photocatalytic activity of Pt-g-C₃N₄

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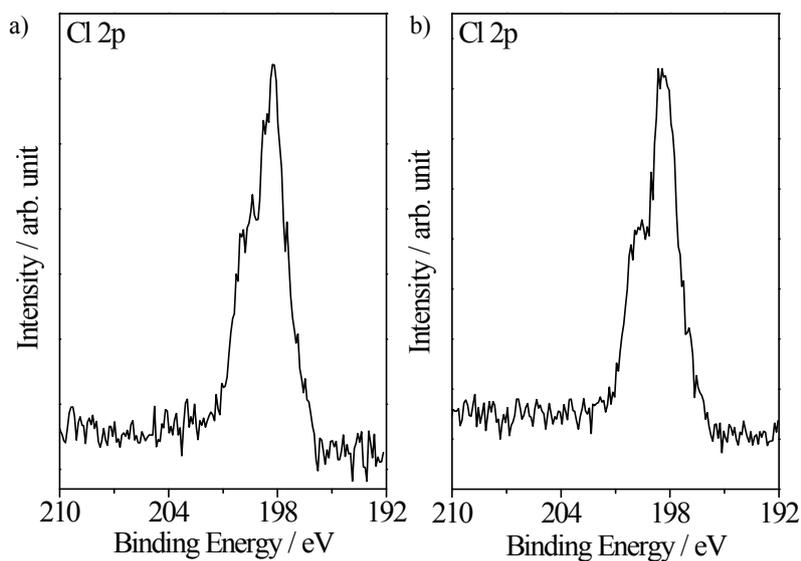


Fig.S1 XPS Cl 2p for Pt-g-C₃N₄ a) impregnated and b) impregnated followed by calcination before photocatalytic test.

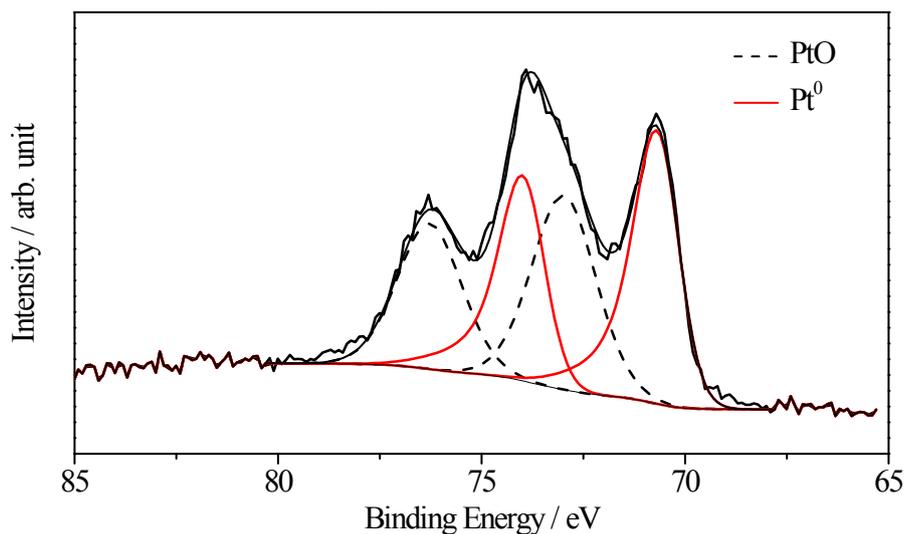


Fig.S2 XPS Pt 4f region for the calcined Pt-g-C₃N₄ after photocatalysis.

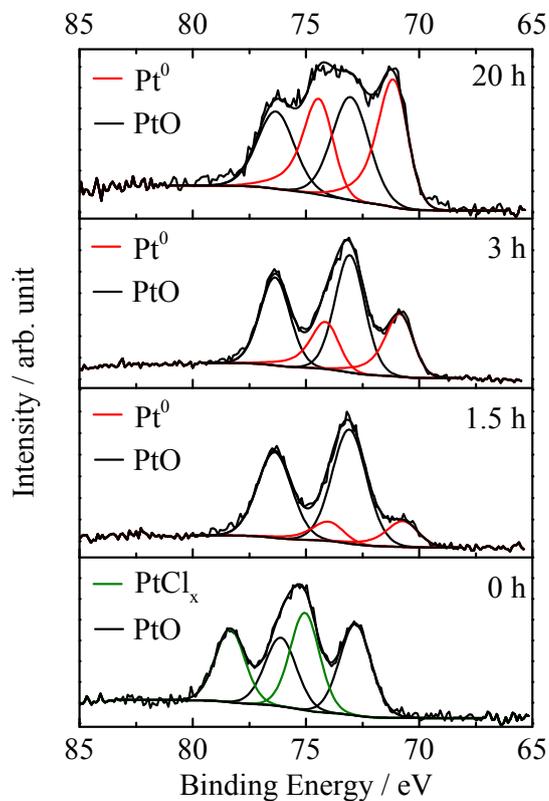


Fig.S3 XPS Pt 4f region of the impregnated Pt-g-C₃N₄ showing the evolution of the platinum peak after photocatalytic test for different lengths of time.

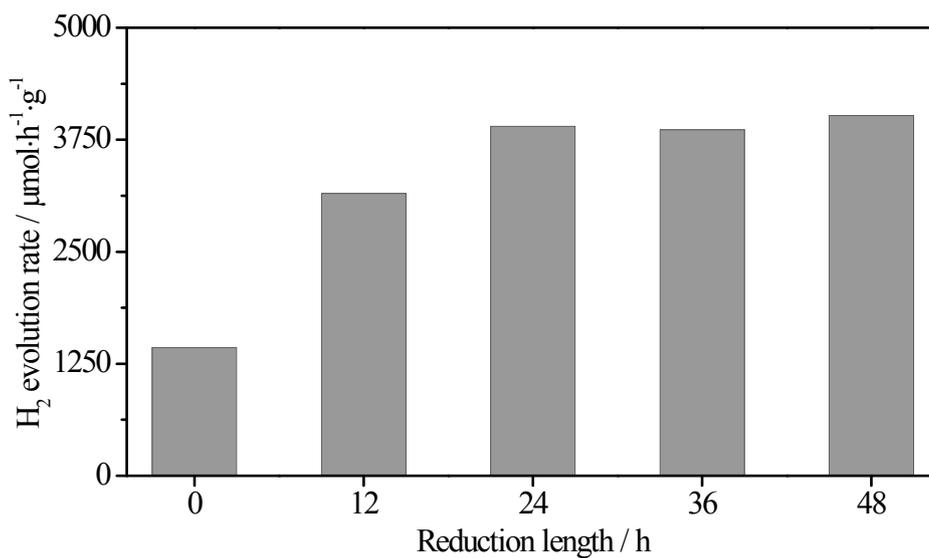


Fig.S4 Steady state H₂ evolution rate for impregnated Pt-g-C₃N₄ reduced under 5 % H₂/Ar for different lengths of time (12 h, 24 h, 36 h and 48 h). Test conditions: 0.1 g of catalyst in 0.1 L of 0.05 M aqueous solution of oxalic acid, visible light ($\lambda \geq 420$ nm).

Table S1 Platinum species relative amounts and Pt:N ratio for Pt-g-C₃N₄ reduced in 5 % H₂/Ar for 24 h and 48 h.

Reduction length (h)	PtO %	Pt ⁰ %	Pt:N
24	44.2	55.8	0.051
48	37.7	62.36	0.052

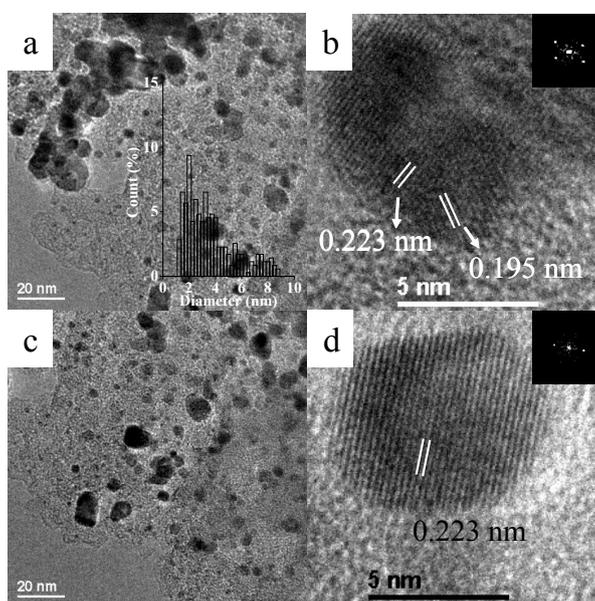


Fig.S5 TEM and HRTEM of Pt-g-C₃N₄ reduced in 5 % H₂/Ar for 24 h. Inset-a) Particle size distribution.

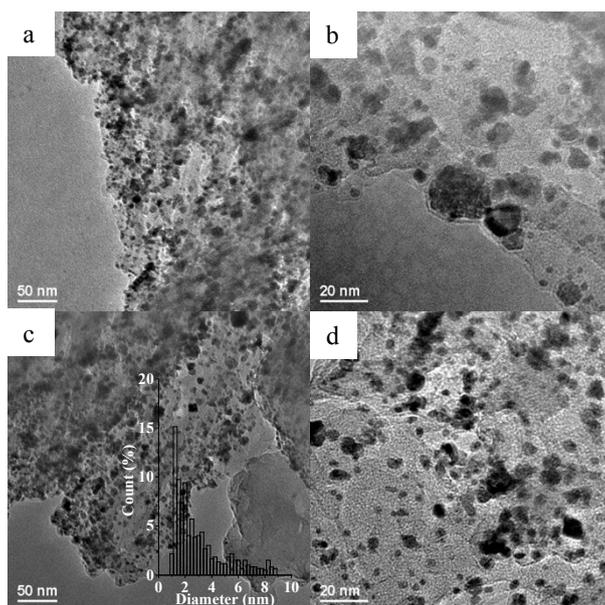


Fig.S6 TEM and HRTEM of Pt-g-C₃N₄ reduced with NaBH₄. Inset-c) Particle size distribution.

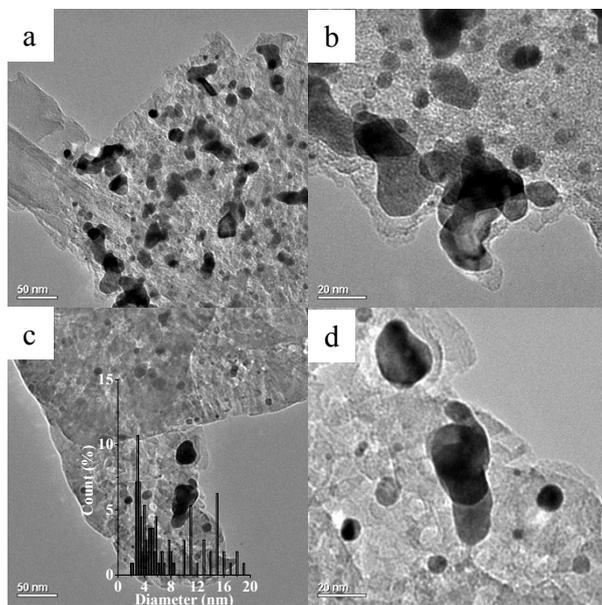


Fig.S7 TEM and HRTEM of Pt-g-C₃N₄ double reduced with NaBH₄ and 5 % H₂/Ar. Inset-c) Particle size distribution.