

Supplementary Information

Synthesis and photocatalytic hydrogen production of a novel photocatalyst LaCO_3OH

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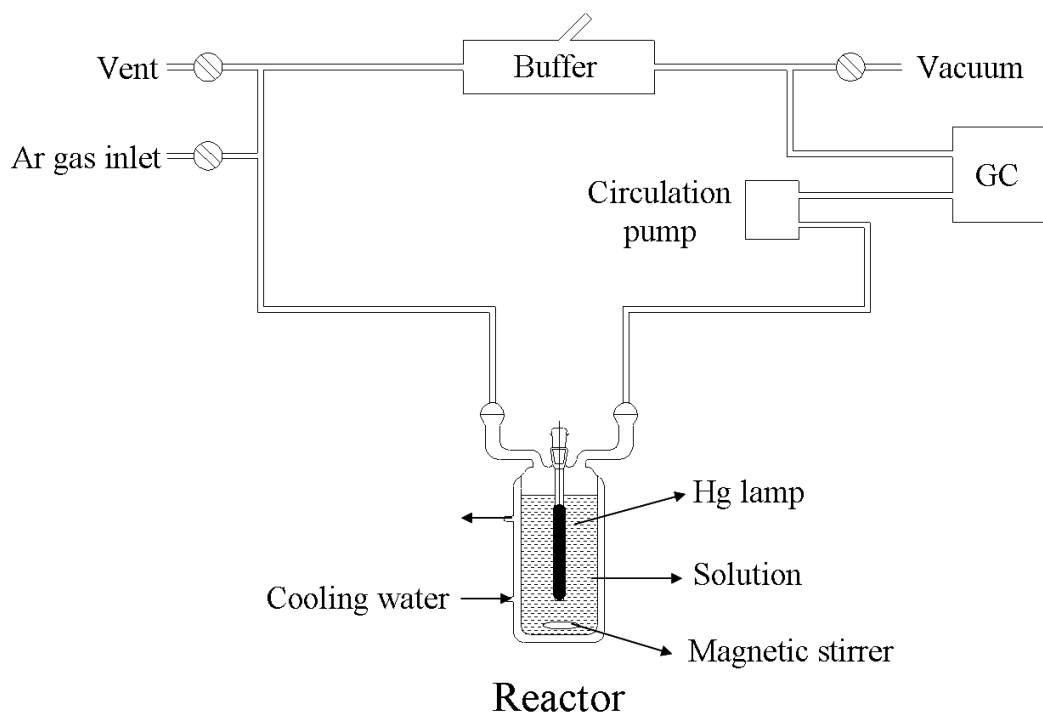


Figure S1 Schematic diagram of the photocatalytic reaction system for H₂ evolution

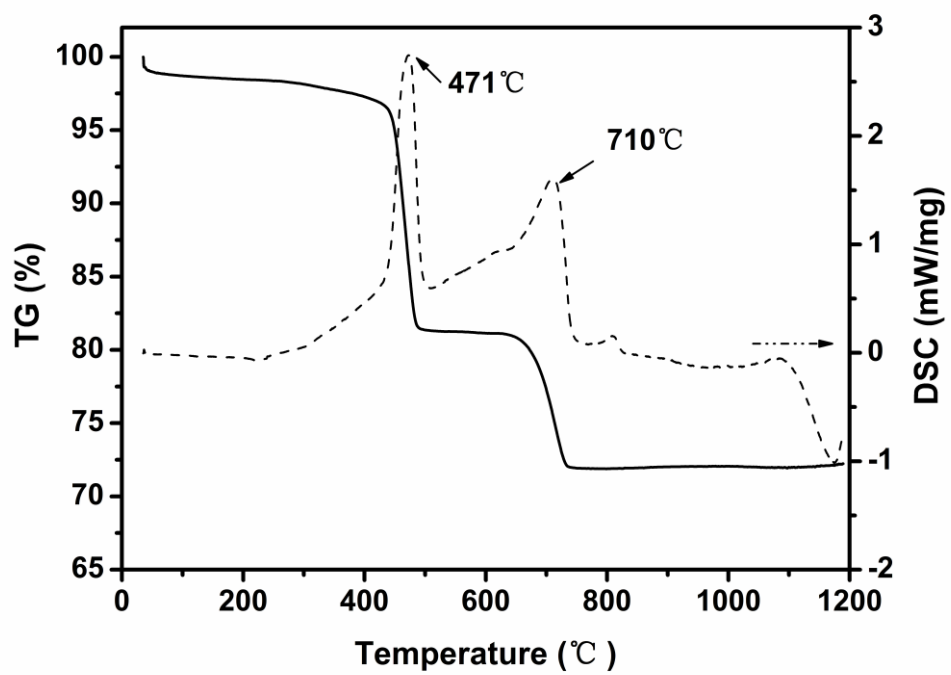


Figure S2 The TG-DSC curves of LaCO_3OH

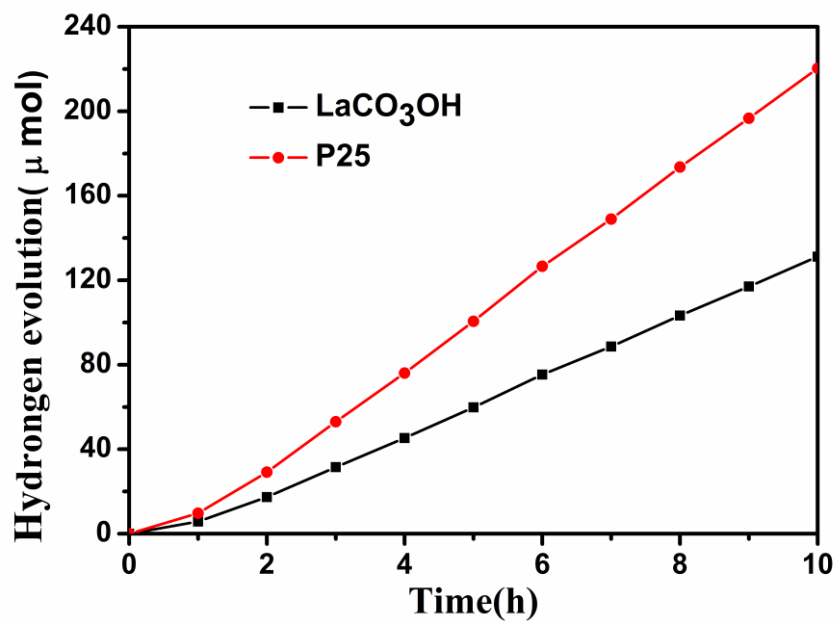


Figure S3 Time course of photocatalytic hydrogen evolution over LaCO₃OH and P25 from methanol aqueous solution

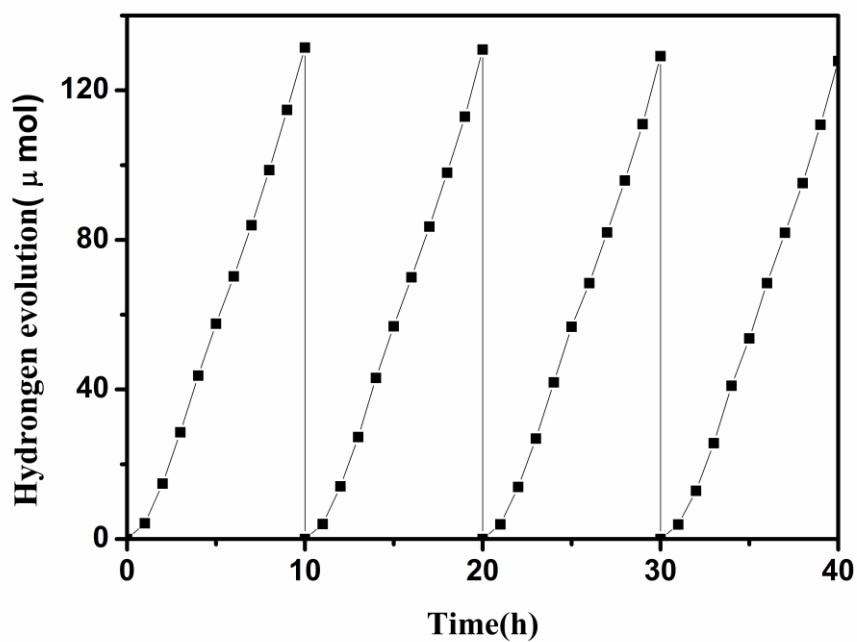


Figure S4 Time course of photocatalytic hydrogen evolution over LaCO_3OH from methanol aqueous solution under UV light irradiation, four runs of repeated reaction.

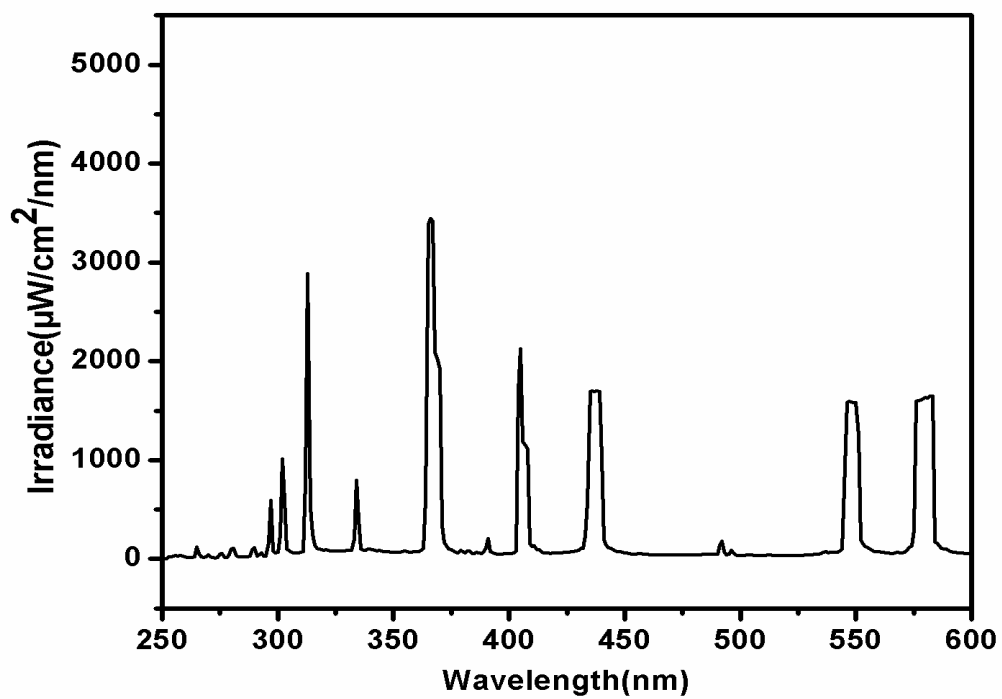


Figure S5 Irradiance spectra of High pressure mercury lamp

Table S1 dates about the A.Q.E of samples

| | number of incident photons | number of reacted electrons | AQY (%) | S _{BET} (m ² /g) |
|----------------------|---------------------------------------|--------------------------------|---------|--------------------------------------|
| LaCO ₃ OH | 2.076×10 ¹⁷ (250-308nm) | 4.572×10 ¹⁵ | 2.20 | 5 |
| a-TiO ₂ | 1.685×10 ¹⁸ (250-387nm) | 1.602×10 ¹⁵ | 0.095 | 122 |