Supporting Information for

Photocatalytic H_2 evolution for α-, β-, γ-Ga_2O_3 and the suppression to hydrolysis of γ-Ga_2O_3 by adjusting pH, adding sacrificial agent or loading cocatalyst

*Liangju Li, Biao Ma, Huan Xie, Mufei Yue, Rihong Cong, Wenliang Gao, Tao Yang**

College of Chemistry and Chemical Engineering, Chongqing University, Chongqing 400044, People's Republic of China

*Corresponding author, e-mail: taoyang@cqu.edu.cn.

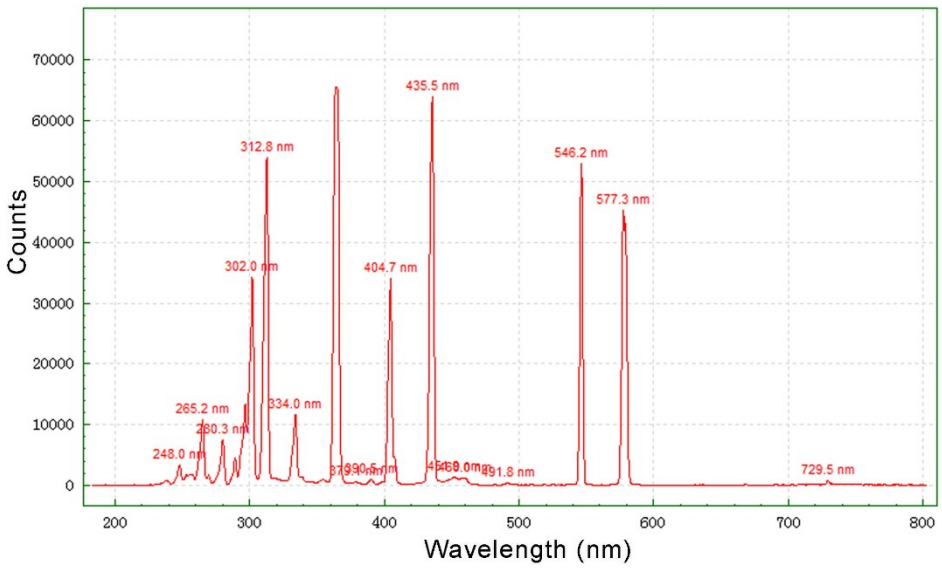

Figure S1 Emission spectrum from the Hg-lamp used in our study.

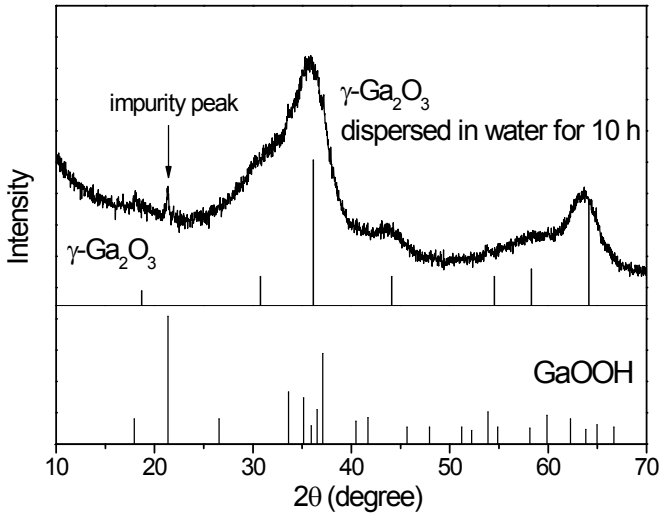

Figure S2 XRD pattern for γ-Ga_2O_3 dispersed in the water for 10 h. A small impurity peak emerges which belongs to GaOOH.

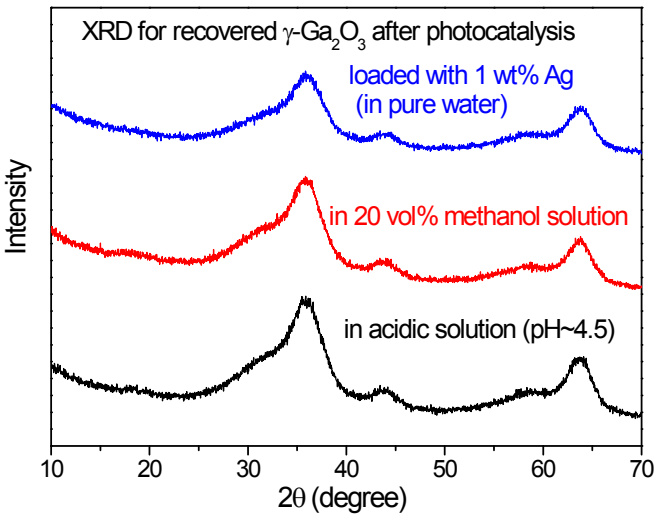

Figure S3 XRD patterns for recovered γ-Ga_2O_3 powder samples after photocatalysis reactions in different conditions. Black, in acidic aqueous solution (pH~4.5, adjusted by adding H_2SO_4); red, in 20 vol % methanol aqueous solution; blue, γ-Ga_2O_3 was loaded with 1 wt% Ag and the photocatalysis reaction was performed in pure water. Photocatalytic conditions: 50 mg of photocatalyst, 40 mL of aqueous solution, a 500 W high-pressure Hg lamp.

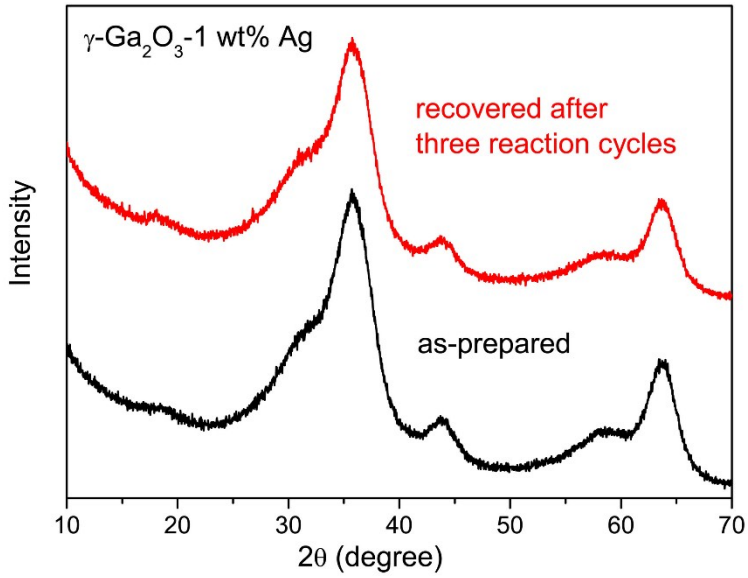

Figure S4 powder XRD patterns for γ-Ga_2O_3-1 wt% Ag before and after the photocatalysis reaction.