Electronic Supplementary Information (ESI)

Synthesis of Ag@AgBr/AgCl heterostructured nanocashews with enhanced photocatalytic performance *via* anion-exchange

Changhua An,[*a] Jizhuang Wang,[a] Chuan Qin,[a] Wen Jiang,[a] Shutao Wang,[a] Yang Li,[b] and Qinhui Zhang[*b]

[a] *State Key Laboratory of Heavy Oil Processing and Department of Materials Physics and Chemistry, Key Laboratory of New Energy Physics & Materials Science in Universities of Shandong, College of Science, China University of Petroleum, Qingdao, Shandong 266580, P. R. China. Fax: (+) 86-532-86981787; E-mail: anchh@upc.edu.cn*
[b] *State Key Laboratory of Heavy Oil, College of Chemical Engineering, China University of Petroleum, Qingdao, 266580, P. R. China, Email: qhzhang@upc.edu.cn*

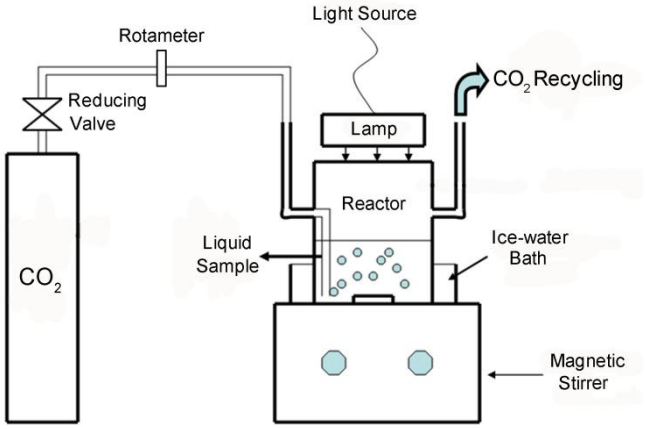

Figure S1. Schematic reaction system for photocatalytic reduction of CO_2.

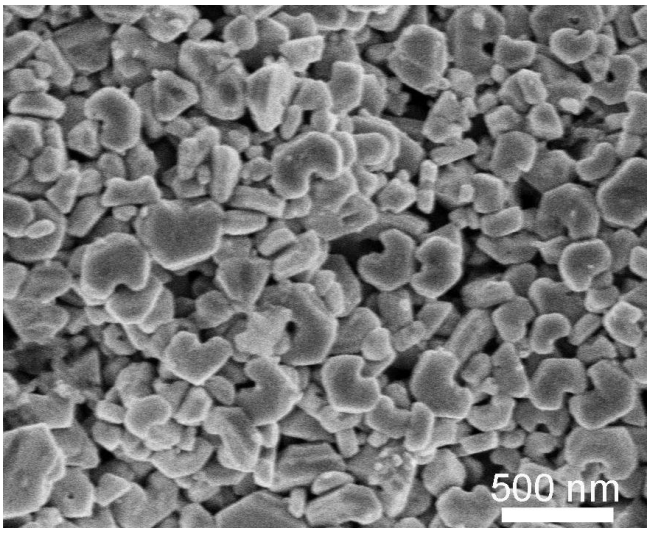

Figure S2. SEM image of the as-prepared AgBr/AgCl nanoparticles, clearly showing that the product is consisting of large amount of cashew-like nanoparticles.

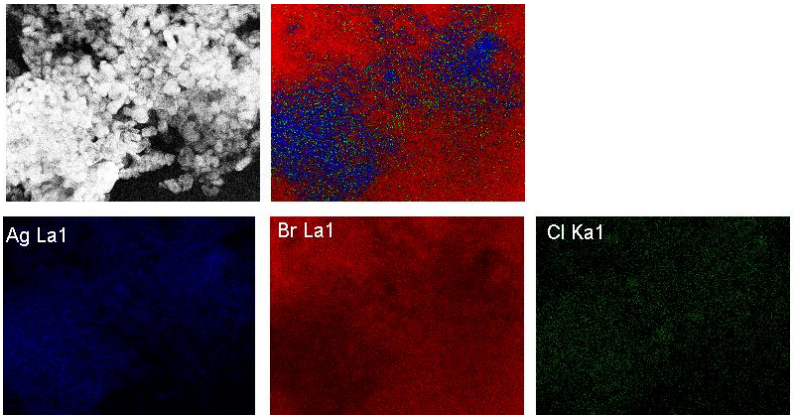

Figure S3. SEM-EDAX elemental mapping of the as-obtained AgBr/AgCl nanocashews. It is clearly showing that the sample is composed of AgBr and AgCl with cashew-like heterostructured nanoparticles.

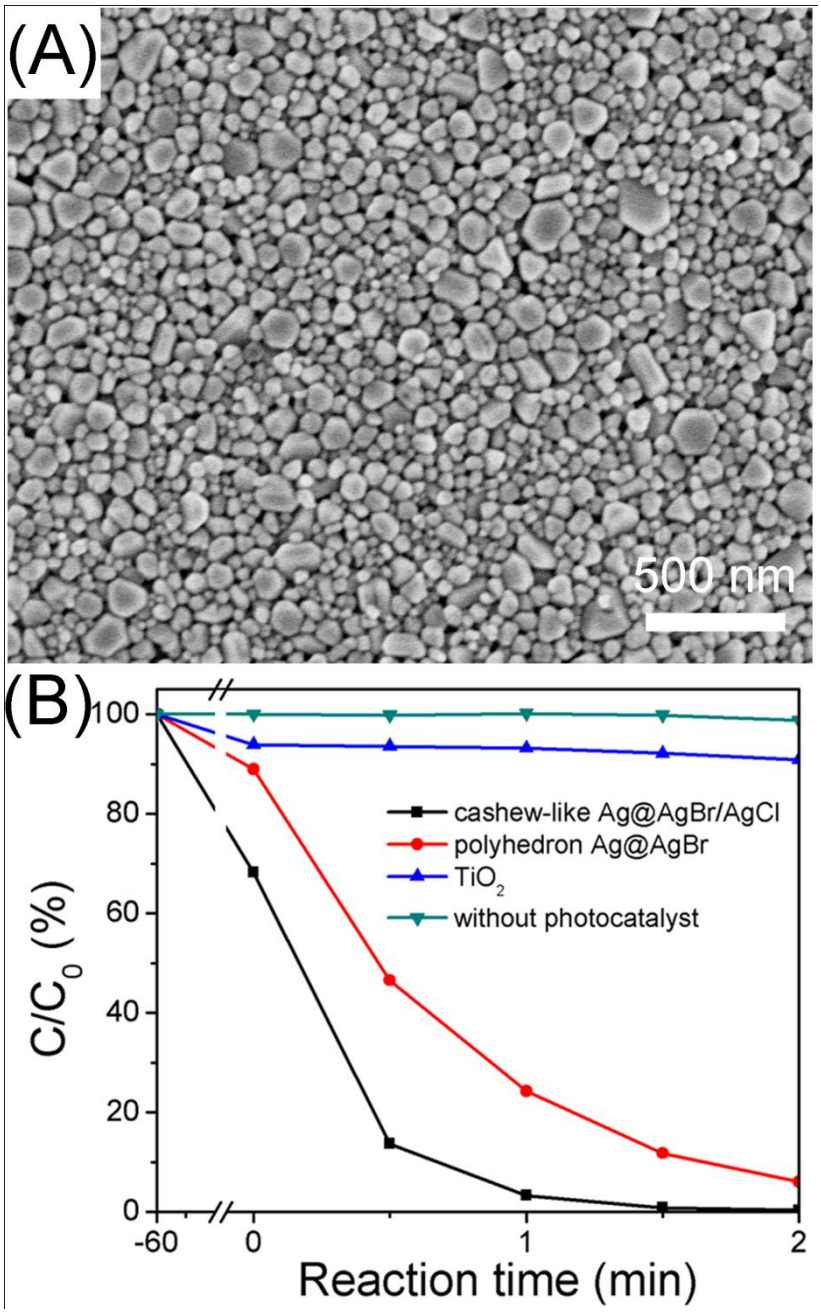

Figure S4. (A) SEM images of polyhedral Ag@AgBr; (B) The degradation curves of RhB solution with cashew-like Ag@AgBr/AgCl, polyhedral Ag@AgBr, TiO_2 and without any photocatalyst under visible light irradiation.

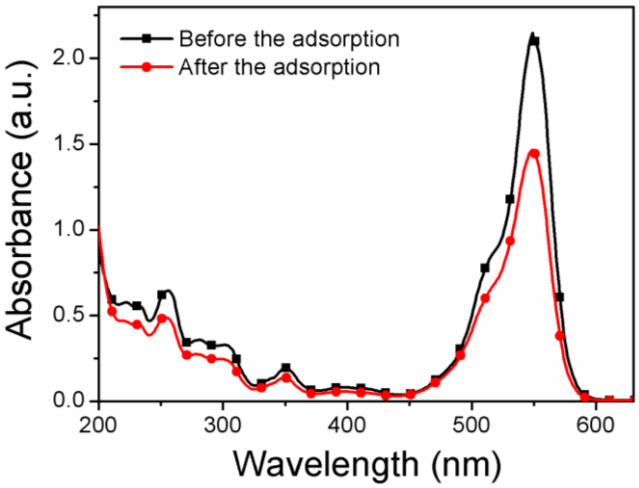

Figure S5. UV-vis spectra of RhB solution before and after adsorption on the as-prepared Ag@AgBr/AgCl nanophotocatalyst.

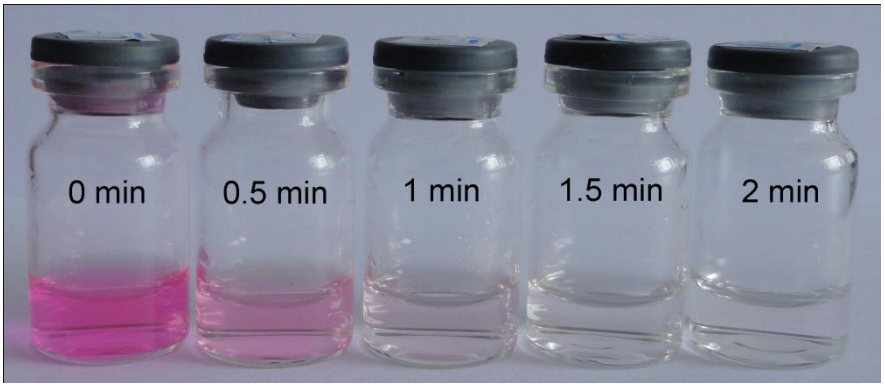

Figure S6. The color change of RhB solution with the reaction proceeds.

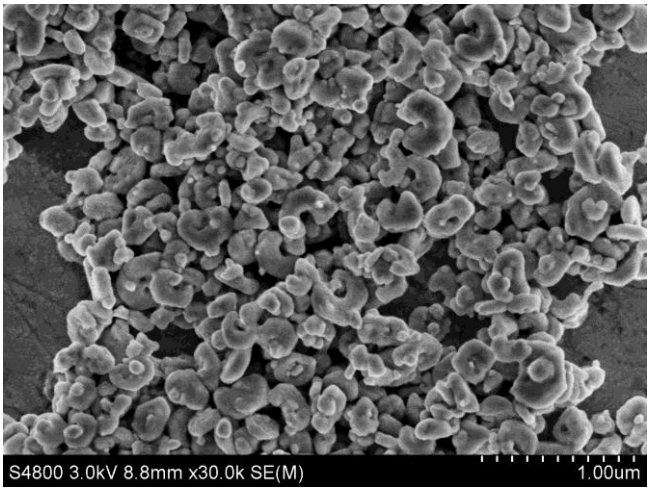

Figure S7. SEM image of Ag@AgBr/AgCl after recycling reactions.