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Ag-ZnO heterostructure nanoparticles for highly-efficient catalytic degradation of conge red under visible light

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Figure S1

XRD pattern of as-prepared 4% Ag-ZnO heterostructure nanoparticles.



Figure S2

Four photocatalytic degradation cycles of 25 mg/L CR solution using 3% Ag-ZnO heterostructure nanoparticles under visible irradiation.



Figure S3

(a) Degradation rates for 15 mg/L CR solution at different time intervals for asprepared samples; UV-vis absorption spectra of CR solutions (25 mg/L) before and after photodegradation treatment with as-prepared (b) ZnO nanoparticles, (c) 2%Ag-ZnO nanoparticles, (d) 3%Ag-ZnO nanoparticles, (e) 4%Ag-ZnO nanopartcles, (f) 5%Ag-ZnO nanoparticles; insets are the photographs of CR solutions before and after photodegradation treatment with corresponding samples at different time intervals respectively.



Figure S4

(a) Degradation rates for 50 mg/L CR solution at different time intervals for asprepared samples; UV-vis absorption spectra of CR solutions (25 mg/L) before and after photodegradation treatment with as-prepared (b) ZnO nanoparticles, (c) 2%Ag-ZnO nanoparticles, (d) 3%Ag-ZnO nanoparticles, (e) 4%Ag-ZnO nanopartcles, (f) 5%Ag-ZnO nanoparticles; insets are the photographs of CR solutions before and after photodegradation treatment with corresponding samples at different time intervals respectively.



Figure S5

Kinetics of the as-prepared Ag-ZnO heterostrucutre nanoparticles toward (a) 15 mg/L,
(b) 25 mg/L and (c) 50 mg/L Congo red solutions with visible irradiation. And the catalysts used in (a), (b) and (c) are 3% Ag-ZnO, 3% Ag-ZnO and 4% Ag-ZnO heterostructrue nanoparticles