

Supplementary Information

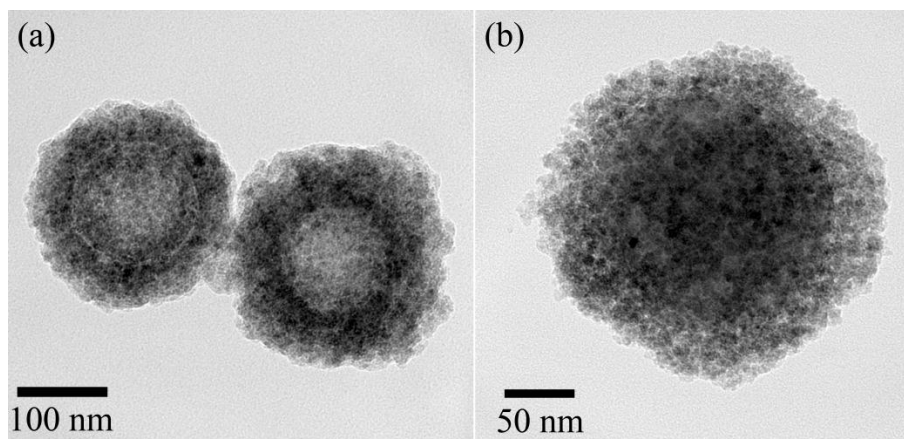


Fig. S1 TEM images showing the morphology of (a) $\text{SiO}_2/\text{TiO}_2/\text{C}$ prepared by hydrothermal reaction with the presence of glucose (b) $\text{SiO}_2/\text{TiO}_2\text{-C0}$ particle prepared by solvothermal treatment in the absence of glucose.

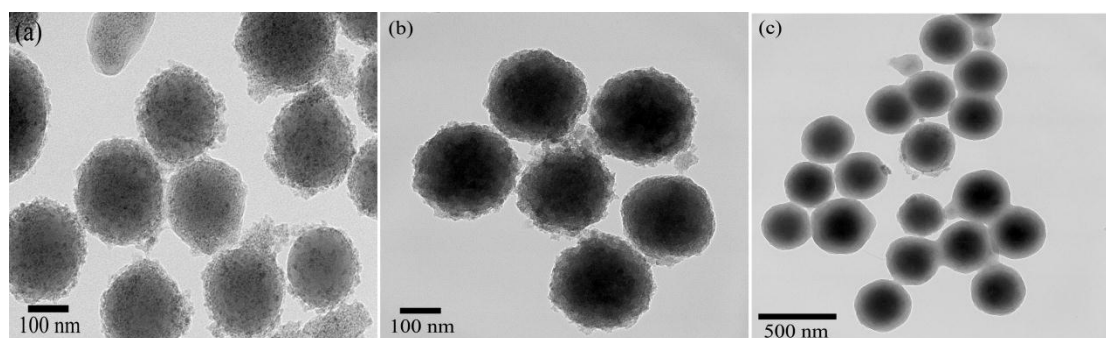


Fig. S2 TEM images showing the thickness evolution of the carbon layer for different concentration of glucose in the solution: (a) 0.1 mol/L, (b) 0.2 mol/L, and (c) 0.4 mol/L.

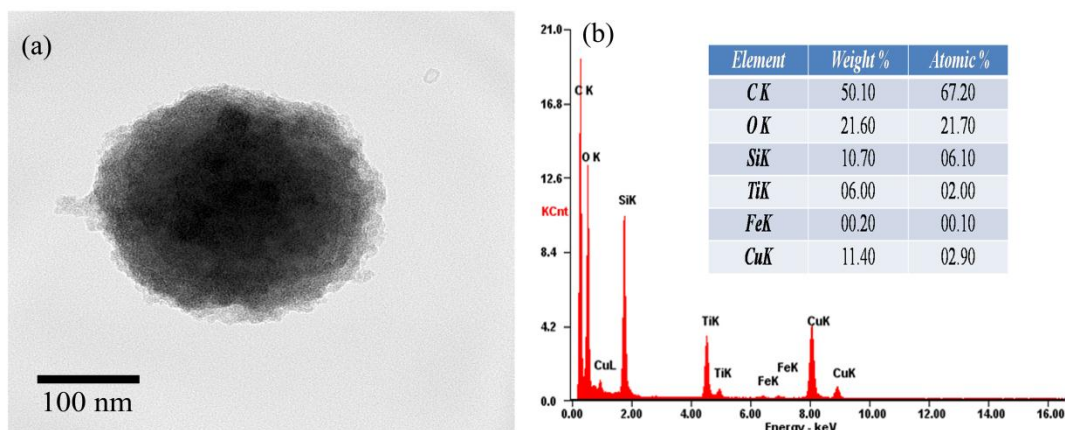


Fig. S3 (a) TEM image of a single SiO₂/TiO₂/C particle, and (b) The corresponding EDX profile of the SiO₂/TiO₂/C particle and the element content of the particle (inset). (the excessive content of C and O elements and the presence of Cu and Fe elements should be attributed to the TEM Cu grid)

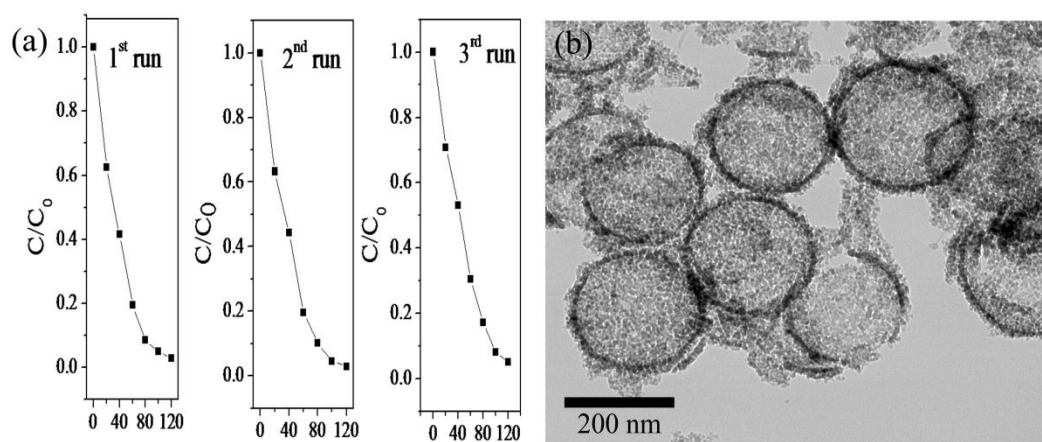


Fig. S4 (a) Recycled photodegradation of RhB under the irradiation of UV light over the sample of TiO₂-CS-650(12h), and (b) TEM image of the TiO₂-CS-650(12h) sample after the degradation reaction.