

Supporting Information

Ordered mesoporous C/TiO₂ composites as advanced sonocatalysts

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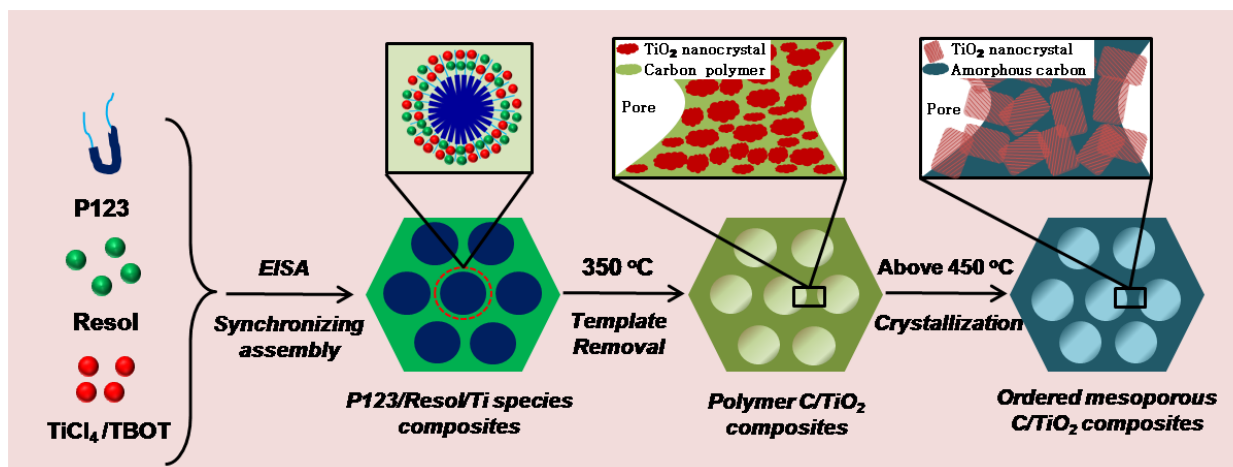


Fig. S1. Schematic illustration for the synthesis of ordered mesoporous C/TiO₂ composites.

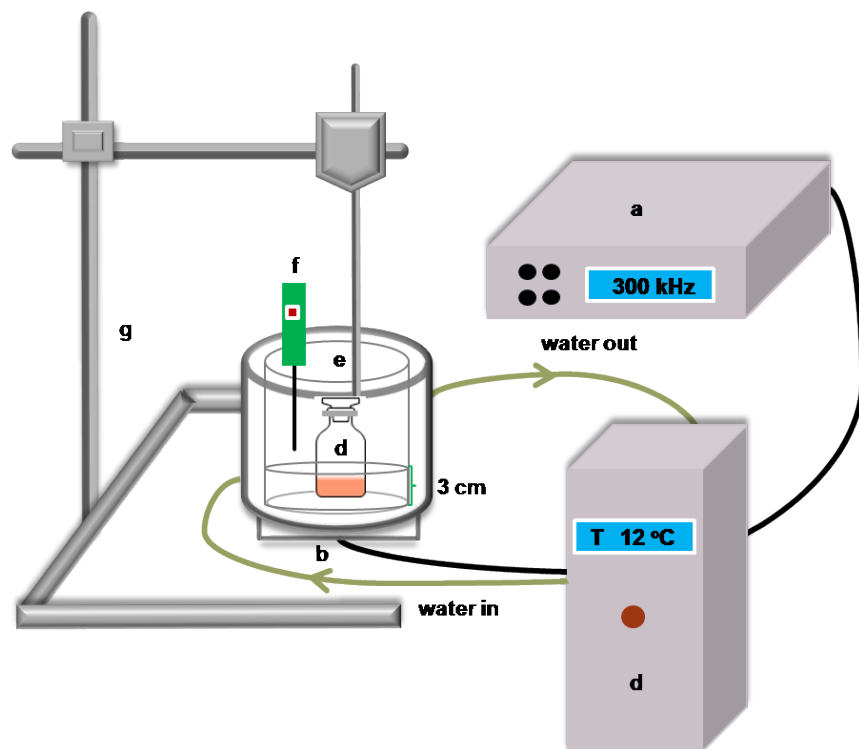


Fig. S2. Sonocatalytic degradation experimental setup. (a) amplifier, (b) transducer, (c) water jacket, (d) reactor, (e) container, (f) thermometer, (g) retort stand .

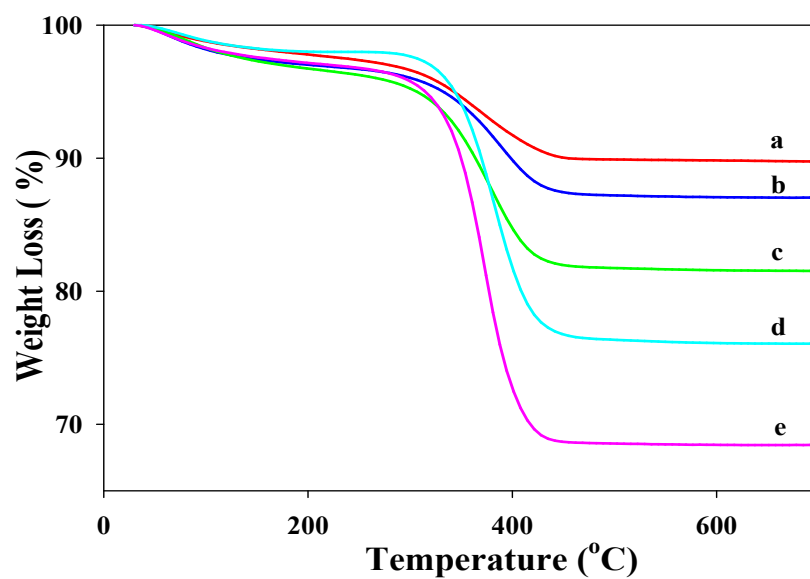


Fig. S3. TGA profiles of the ordered mesoporous C/TiO₂ composites with varied carbon content (5, 10, 15, 20, and 30 %). (a) 5C-95TiO₂-450, (b) 10C-90TiO₂-450, (c) 15C-85TiO₂-450, (d) 20C-80TiO₂-450, (e) 30C-70TiO₂-450.

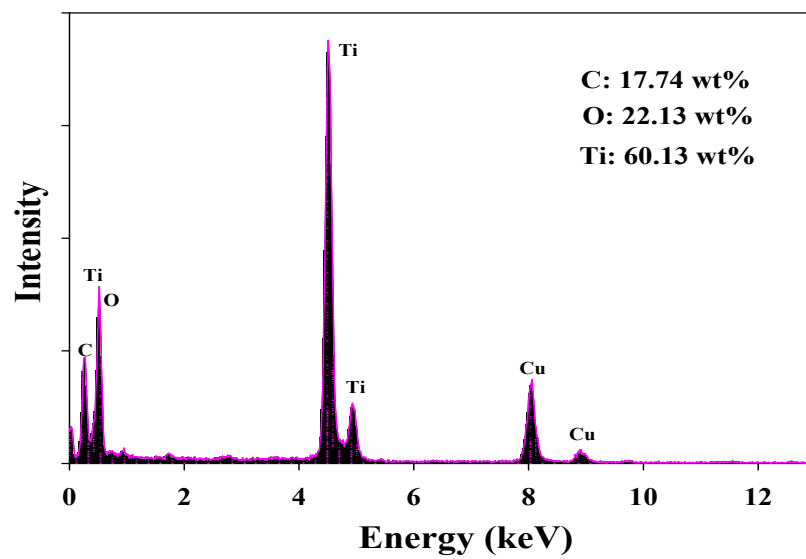


Fig. S4. EDX analysis of 15C-85TiO₂-450 composites taken at Fig. 3B.

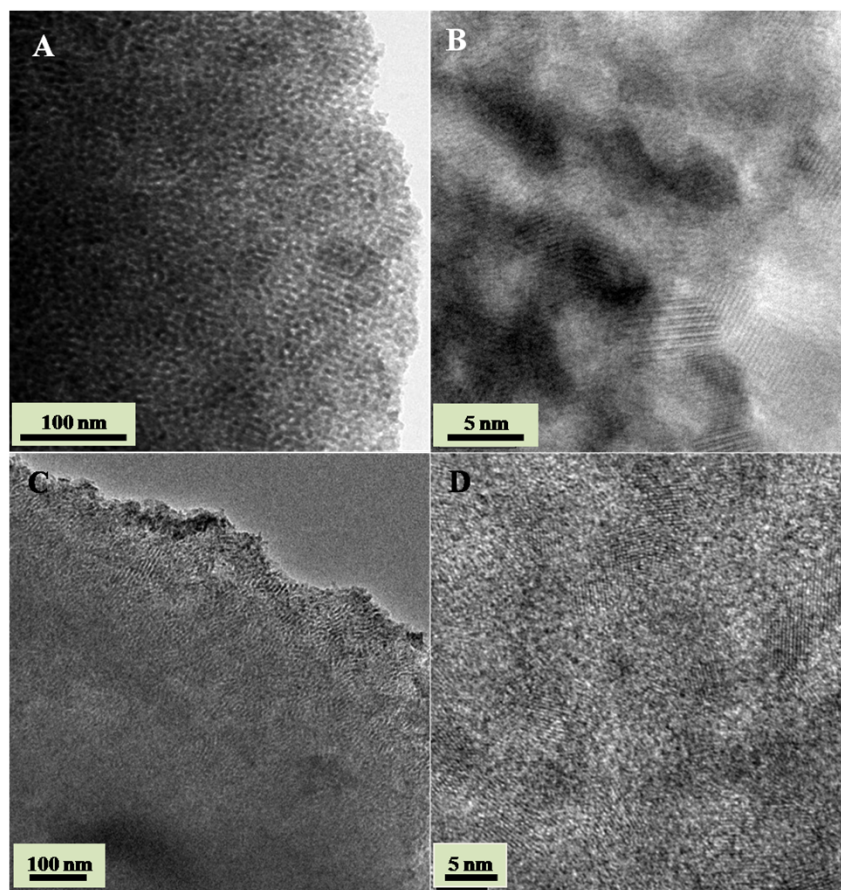


Fig. S5. TEM images (A) and HRTEM images (B) of the ordered mesoporous 10C-90TiO₂-450 composites. TEM image (C) and HRTEM images (D) of the ordered mesoporous 15C-85TiO₂-650 composites

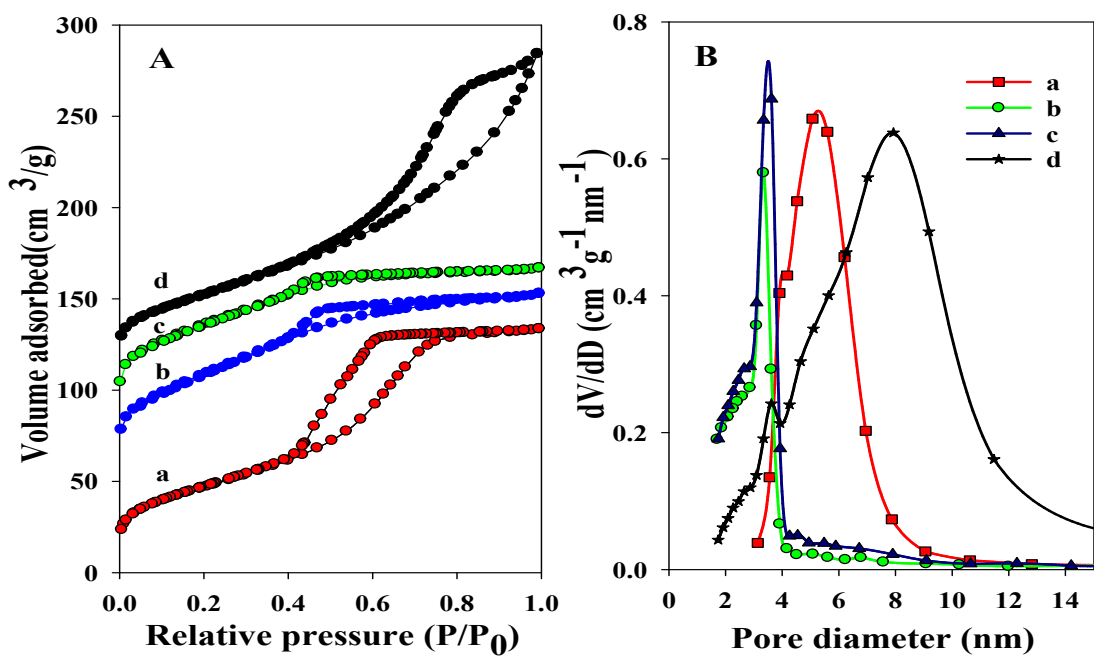


Fig. S6. (A) N₂ sorption isotherms and (B) pore-size distributions of the mesoporous C/TiO₂ composite 15C-85TiO₂ calcined at various temperatures (450, 550, 650, and 750 °C) in N₂, (a) 15C-85TiO₂-450, (b) 15C-85TiO₂-550, (c) 15C-85TiO₂-650, (d) 15C-85TiO₂-750. For clear observation, 15C-85TiO₂-550, 15C-85TiO₂-650, and 15C-85TiO₂-750 are shifted vertically by 40, 60, and 100 cm³/g, respectively.

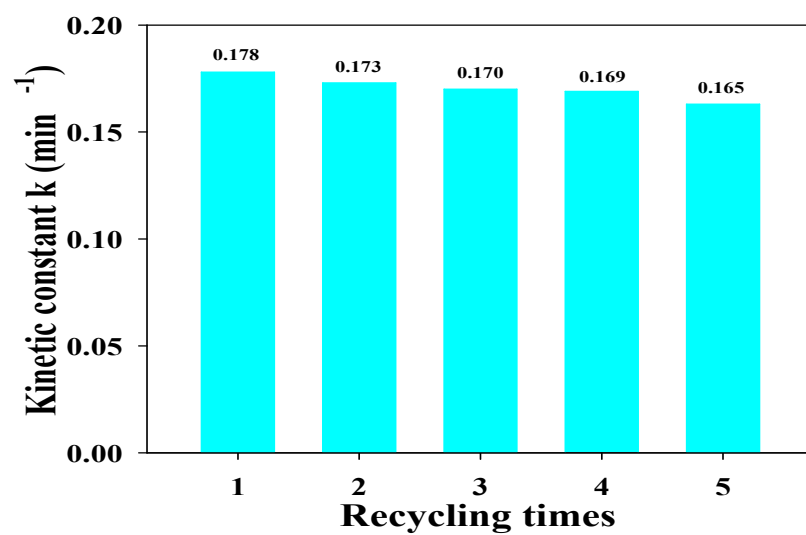


Fig. S7. Sonocatalytic reaction kinetic constant of the re-cycled 15C-85TiO₂-450 at each cycle.

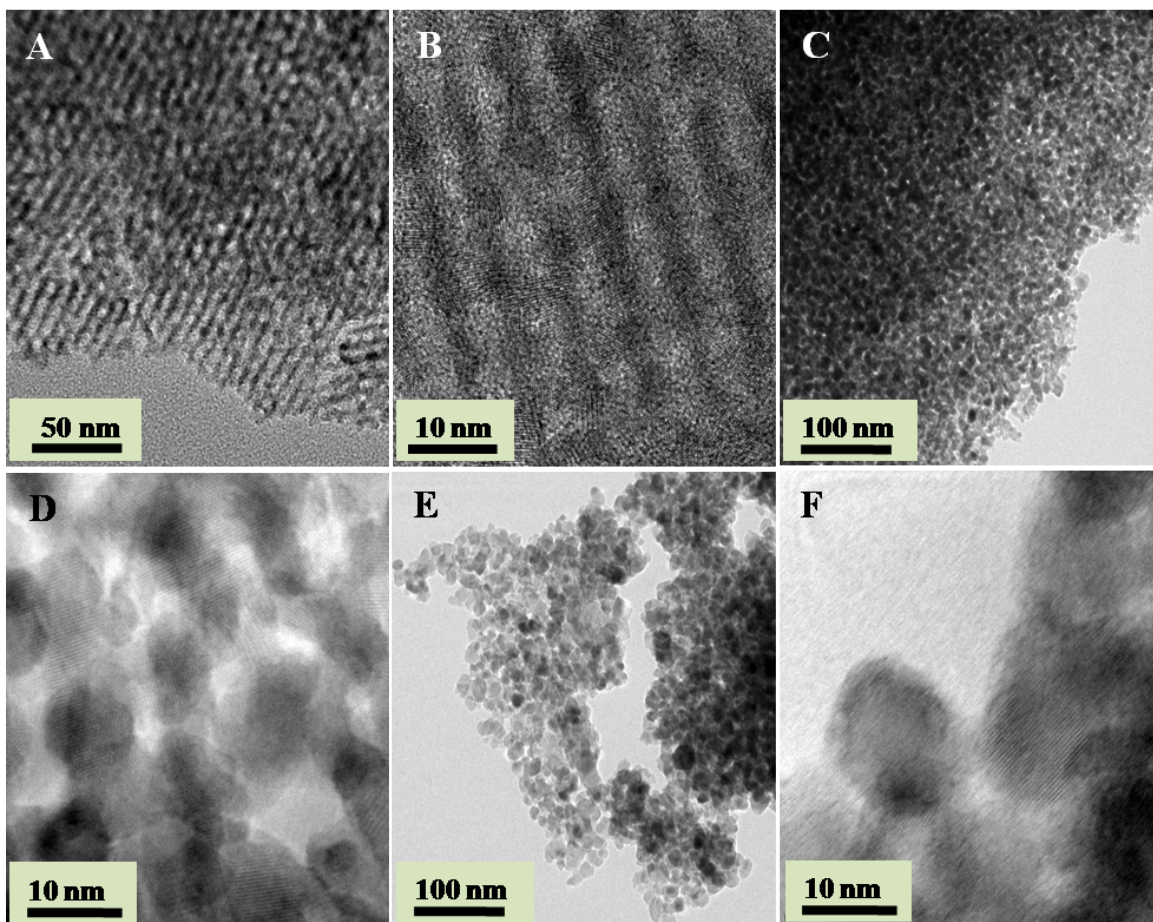


Fig. S8. TEM images (A) and HRTEM images (B) of the mesoporous C/TiO₂ composites 15C-85TiO₂-450 after sonocatalytic reaction for 5 h. TEM images (C) and HRTEM images (D) of mesoporous titania before sonocatalytic reaction. TEM images (E) and HRTEM images (F) of mesoporous titania after sonocatalytic reaction for 5 h.