Supporting Information: Experimental details.

All chemicals were analytical grade and used as received without further purification.

Synthesis of LZHs–Sal precursor. The LZHs-Sal precursor was prepared by a simple coprecipitation method. In a typical procedure, an aqueous solution (100 ml) of $Zn(NO_3)_2\cdot 6H_2O$ (0.02 mol) was added to an aqueous solution (150 ml) of NaHsal (0.04 mol) with continuous stirring. The pH was maintained at 8 by the simultaneous addition of 0.5 M NaOH solution. The mixture was aged at 80°C for 24 h. The resulting product was separated by centrifugation, washed repeatedly with distilled water, and dried at 40° C in air.

Synthesis of CNSs. A sample of the LZHs-Sal precursor was placed in a ceramic boat which was placed in a furnace and purged with N_2 gas for 2 min. Under continuous flow (60 mL/min) of N_2 gas, the furnace temperature was raised at a ramping rate of 5 °C/min and then kept at 600, 700, 800, 900 °C for 5 h, respectively. After slow cooling down naturally to room temperature, the samples obtained below 900°C were stirred in the HCl solution for 12h. The resulting products weres separated by centrifugation, washed repeatedly with distilled water, and dried at 40°C in air. The obtained nanoporous carbon nanosheets are denoted as CNSs–n, where n is the carbonization temperature.

Synthesis of Ag/CNSs. The Ag/CNSs composite nanosheets were prepared through in situ reducing of $AgNO_3$ by the hydroxylic groups in CNSs. Briefly, 10 mL of $AgNO_3$ solution (0.5 M) was dispersed in 50 mg of CNSs solution under vigorous stirring for 12 h at room temperature. The products were collected by centrifugation and washed several times with distilled water.

Characterization

The LZHs-Sal precursor, CNSs and Ag/CNSs nanocomposites were characterized by by X-ray diffraction (XRD, Shimadzu XRD-6000 diffractometer with Cu Kα1 radiation, λ = 0.1541 nm, 40 kV, 30 mA), Fourier transform IR (FTIR, Bruker Vector-22), thermogravimetry-differential thermogravimetry (TG–DTG, Perkin–Elmer Diamond TG apparatus), X-ray photoelectron spectroscopy (XPS, PHI Quantera SXM scanning X-ray microprobe 100 mm beam size, using an Al KαX -ray source operated at 2 kV and 20 mA.), scanning electron microscopy (SEM, Hitachi S-4700), Energy dispersive X-ray spectra (EDX Energy Dispersive X-ray Detector), transmission electron microscopy (HRTEM, JEOL JEM-2010 electron microscope) , and Elemental analysis (Elementar vario Micro cube instrument).

Catalytic Reaction Tests

The reduction reaction of p-nitrophenol by $NaBH_4$ was used as a model system to quantitatively evaluate the catalytic activity of the as-synthesized nanocomposites.[41] In a typical procedure, the aqueous solutions of p-nitrophenol (5 mM) and NaBH4 (1.5 M) were freshly prepared. 2 mL of $NaBH_4$ solution and a certain amount of catalysts were added to 100 mL of DI water. Then, 2 mL of p-nitrophenol solution was injected into the mixture to start the reaction. During the reaction process, 2 mL of the reaction solution was withdrawn from the reaction system at a regular time followed by measuring UV-vis spectra of the solution to monitor the concentration of p-nitrophenol through its absorption peak at 400 nm.

After the completion of the fresh reaction performed with the above typical procedre, the catalyst was easily separated from the liquid reaction mixture by centrifugation and could be reused for the nest run after addition of fresh reactants.

Supporting Information: Figures

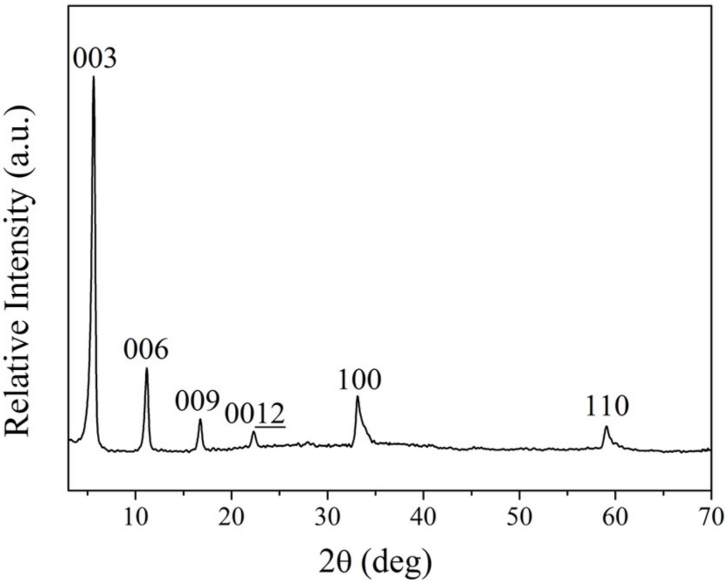

Figure.S1, XRD pattern of the LZHs−Sal precursor.

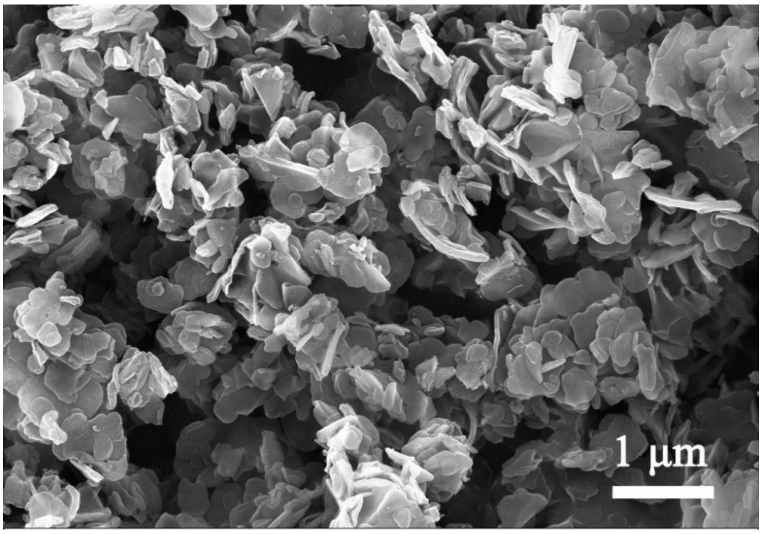

Figure S2, SEM image of the LZHs−Sal precursor.

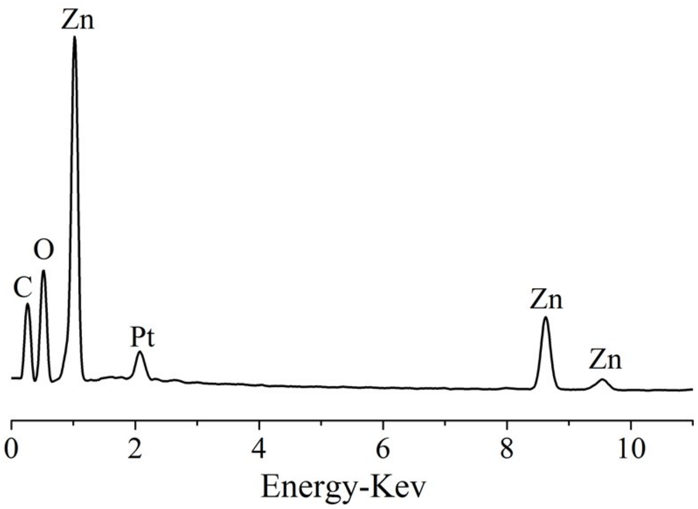

Figure S3, EDX spectra of the LZHs−Sal precursor.

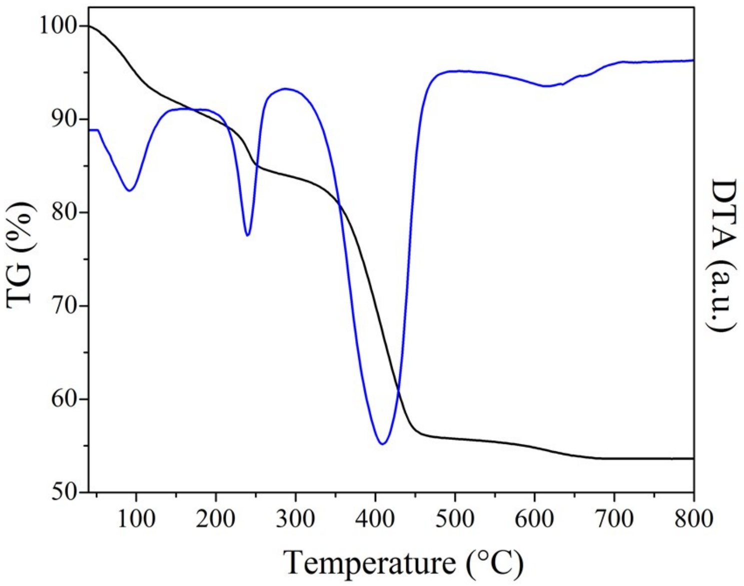

Figure S4 TG−DTA of the LZHs−Sal precursor under N_2.

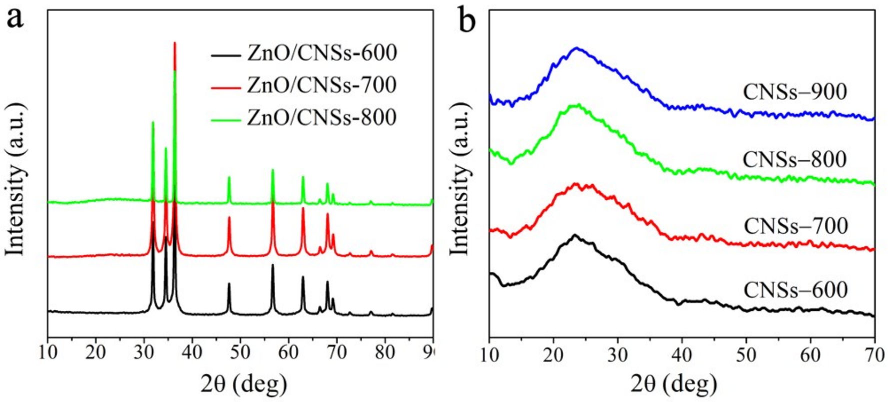

Figure S5 Powder XRD patterns of (a) ZnO/CNSs-600, ZnO/CNSs-700, ZnO/CNSs-800 and (b) CNSs-600, CNSs-700, CNSs-800, and CNSs-900.

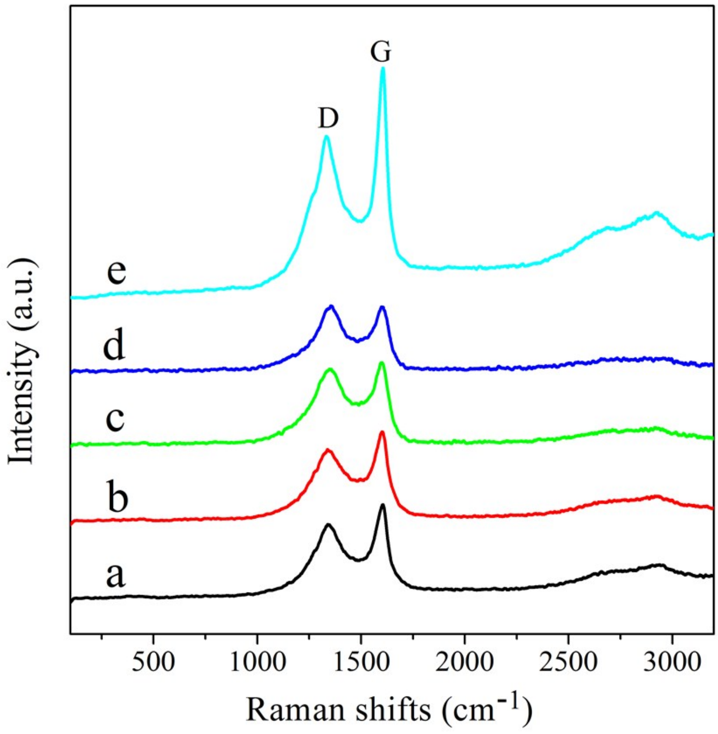

Figure S6 Raman spectra of (a) CNSs-600, (b) CNSs -700, (C) CNSs -800, (d) CNSs -900, and (e) Ag/CNSs nanocomposites.

Table S1 Pore characteristics of the obtained nanoporous CNSs.

Samples	Surface area / m^2 g^{-1}		Volume / cm^3 g^{-1}		D^c (nm)
	BET	Langmuir	Total pore volume^a	Micropore volume^b	
CNSs-600	1920	3012	2.69	0.96	
CNSs-700	2402	3830	2.75	1.18	
CNSs-800	1469	2323	2.41	0.73	
CNSs-900	678	1078	1.25	034	

a The pore vlume is calculated at a relative pressure of 0.99.

b The micropore volume is determined by the *t*-Plot method.

c The pore dimater is refrred to the pore size corresponding to thepeak position in Fig. 1e.

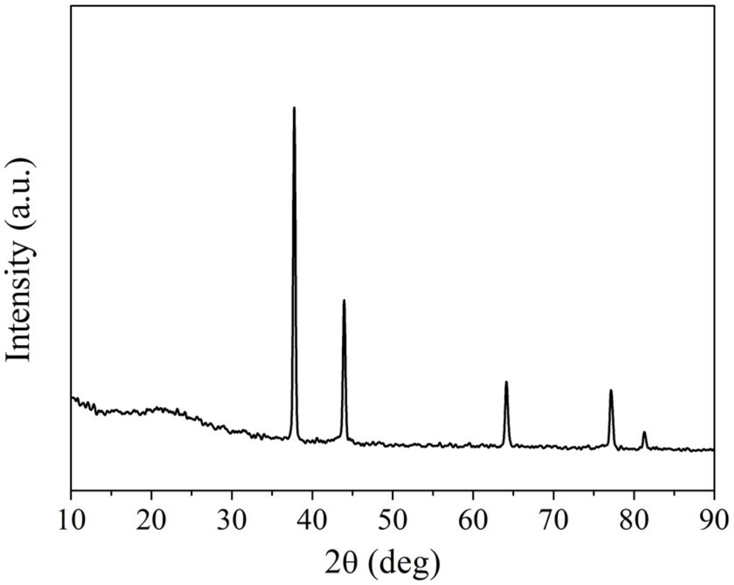

Figure S7 XRD pattern of the Ag/CNSs.

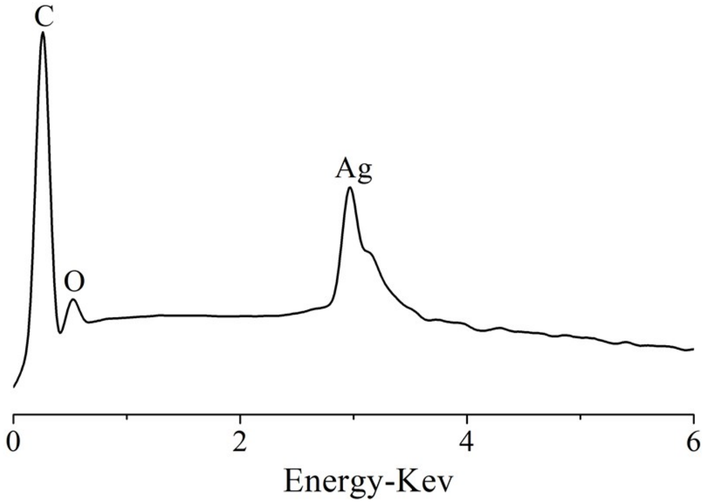

Figure S8 EDX spectra of the Ag/CNSs nanocomposites.

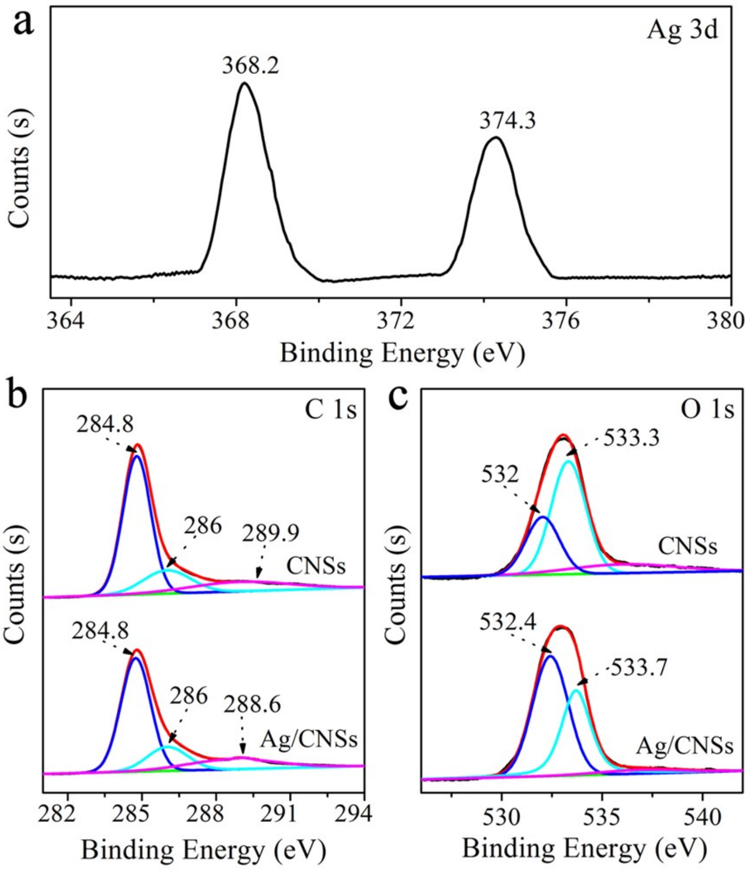

Figure S9 XPS spectra of the CNSs before and after loading Ag: (a) Ag 3d, (b) C 1s, (c) O1s.

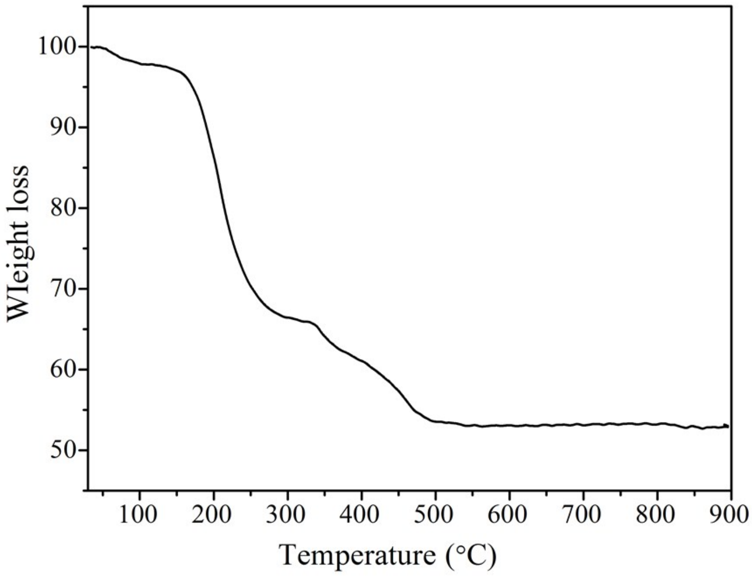

Figure S10 TG curve of the Ag/CNSs nanocomposites in air.

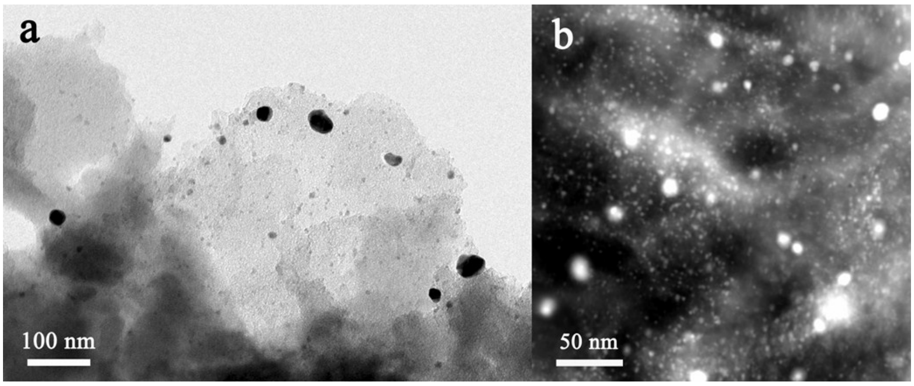

Figure S11 (a) TEM image and STEM image of the Ag/CNSs nanocomposites after seven successive recycling reduction of 4-NP.