

General Electrochemical Assembling to Porous Nanowires with High Adaptability in Water Treatment

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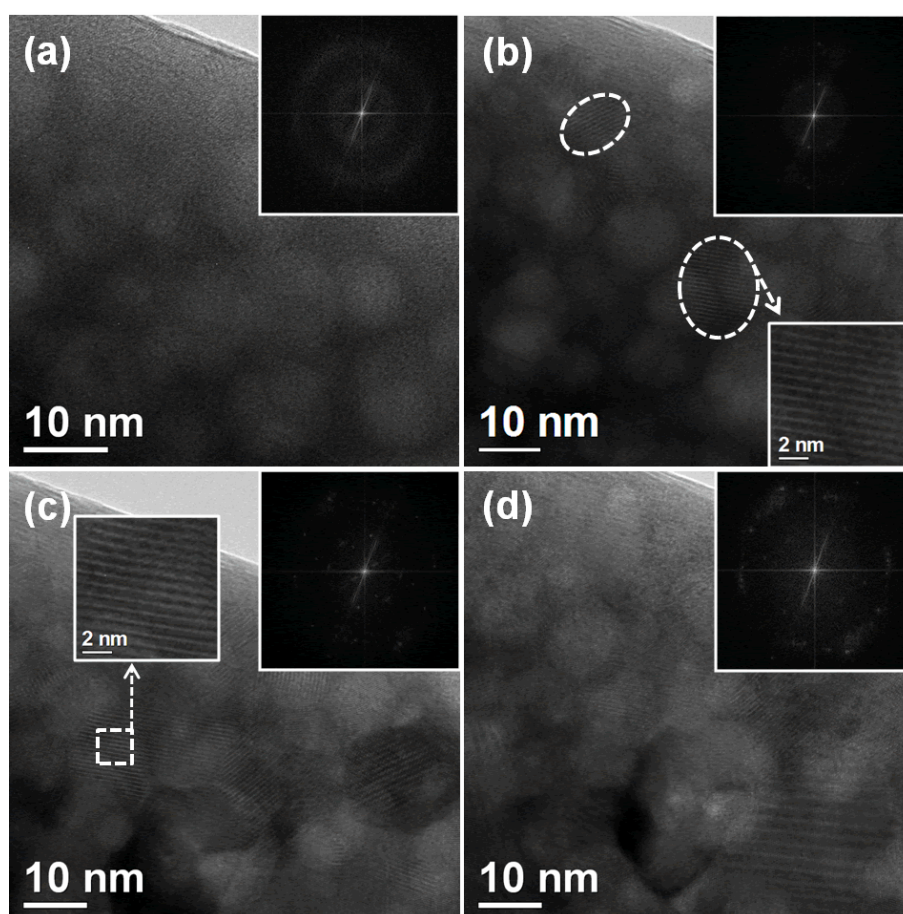


Fig. S1 Time evolution of the HRTEM images of porous CeO₂ NWs under electron beam irradiation. (a) 0 min, (b) 1 min, (c) 3 min, and (d) 6 min. The porous La(OH)₃ NWs exhibit a crystal phase transformation under electron beam irradiation during the in-situ TEM observations. Despite the kinetic energy of the electron beam is relatively low (1.7×10^{22} electrons cm⁻² s⁻¹ with a kinetic energy of 200 keV, JEM2010-HR), small crystalline grains were rapidly generated in parts of porous La(OH)₃ NWs under electron beam irradiation for 1 min, as illustrated in Fig.3b. The corresponding fast Fourier transmission (FFT) pattern (inset in Fig.3b) also demonstrates the induced crystallization. When the irradiation prolonged to 3 min, many crystalline grains are clearly observed on the whole La(OH)₃ NWs, as shown in Fig.3c. The corresponding FFT pattern shows a distinctly diffused diffracton ring, indicating the better crystallization. When further prolonging the irradiation time, no single but high crystalline La(OH)₃ NWs were obtained. This might be attributed to the kinetic energy of the electron beam, which is too low to induce the single crystalline phase transition.

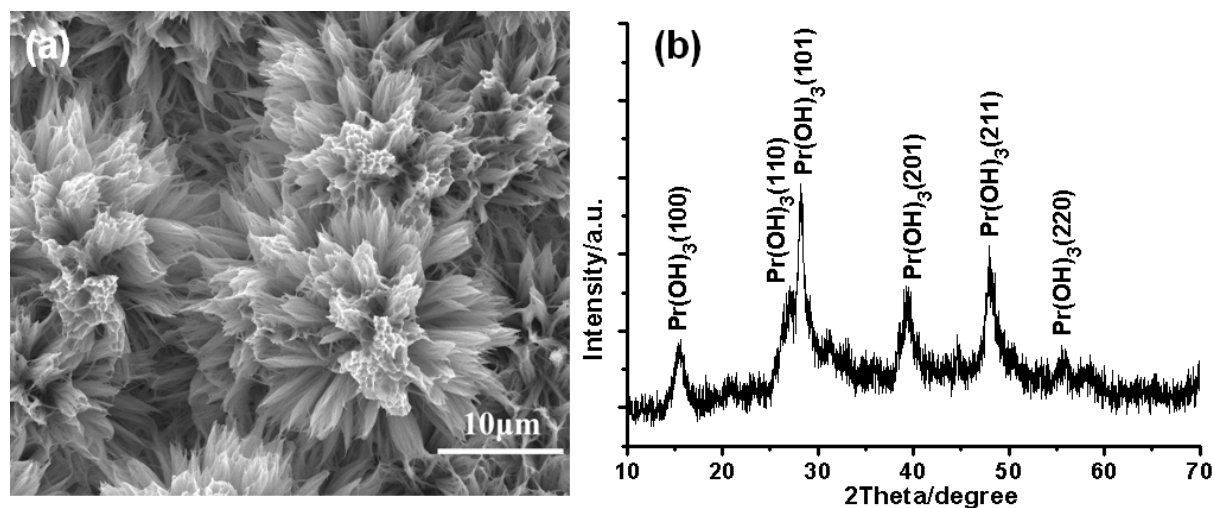


Fig. S2 (a) SEM image and (b) XRD pattern of the Pr(OH)₃ NWs prepared in solution of 0.01M Pr(NO₃)₃ + 0.02 M CH₃COONH₄ + 0.05 M KCl with a potential of -0.7 V (vs SCE) for 60 min at 70 °C.

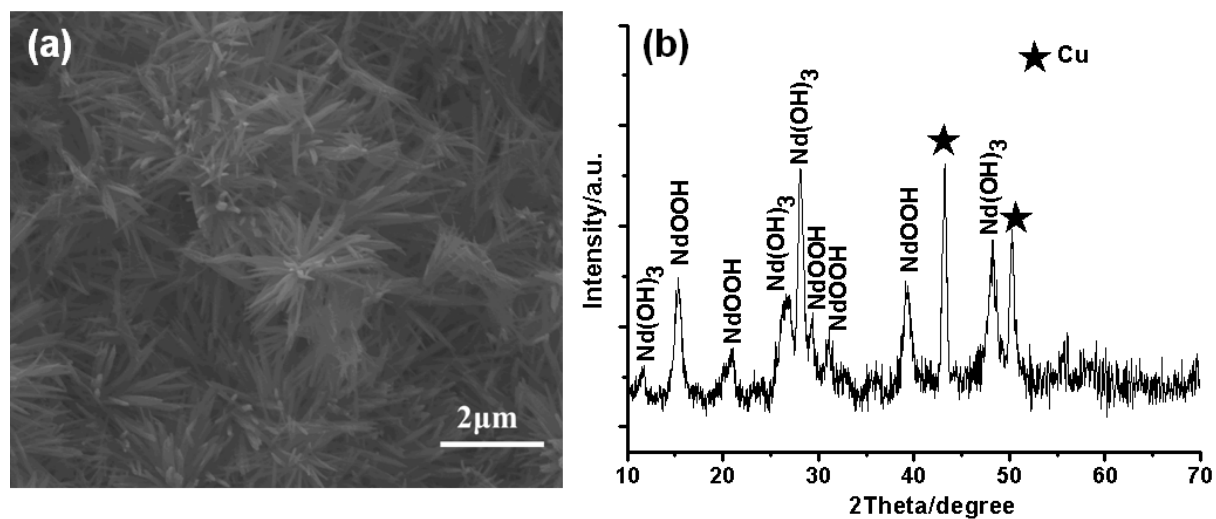


Fig. S3 SEM image and XRD pattern of the Nd(OH)₃ NWs prepared in solution of 0.01M Nd(NO₃)₃ + 0.02 M CH₃COONH₄ + 0.05 M KCl with a potential of -0.7 V (vs SCE) for 60 min at 70 °C.

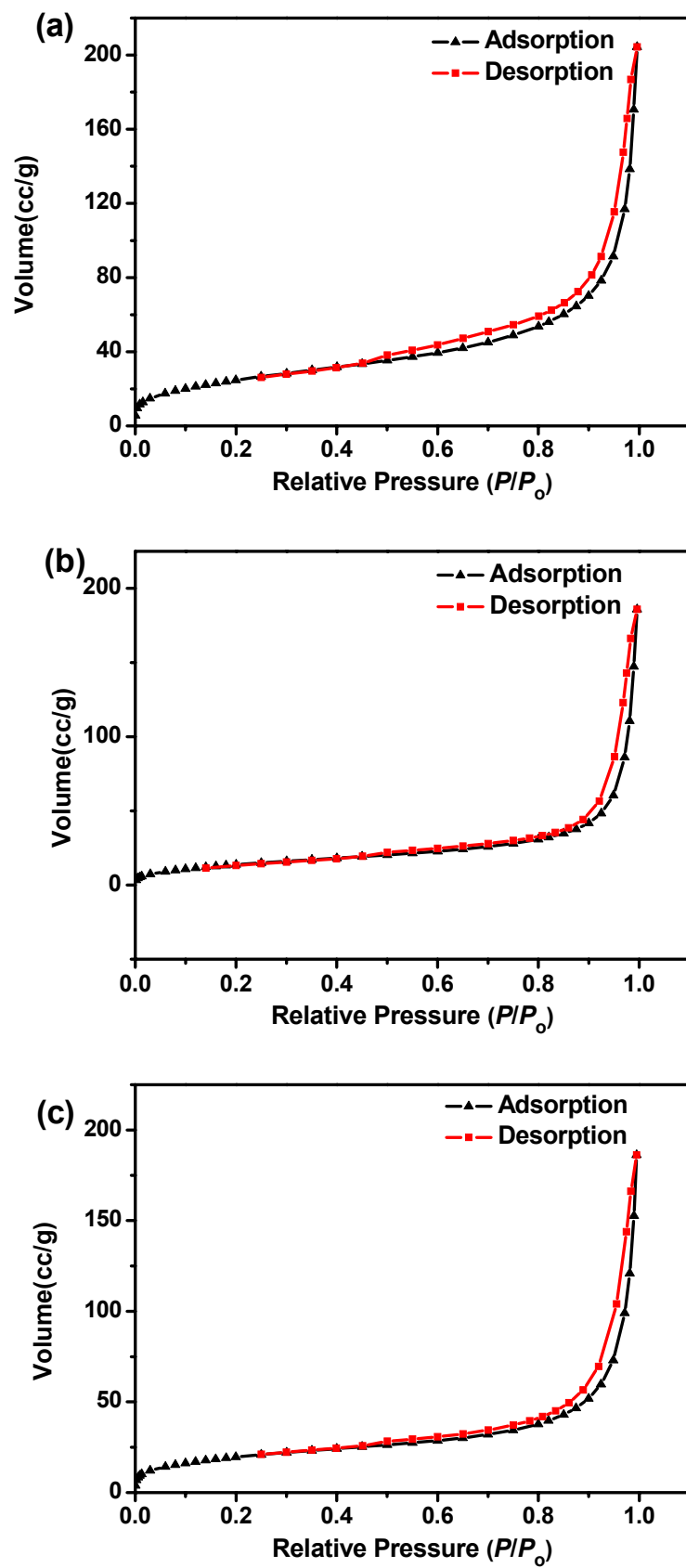


Fig. S4 Nitrogen adsorption-desorption isotherms of porous NWs prepared at -0.7 V. (a) La(OH)_3 , (b) Pr(OH)_3 , and (c) Nd(OH)_3 .