Hierachical Mesoporous Silica Wires by Confined Assembly

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Experimental Section

The sols were prepared by mixing 0.3-0.6 g Pluronic P123 surfactant, 0.76 g ethanol, 0.93 g tetraethyl orthosilicate (TEOS), and 0.4 g 0.1N hydrochloric acid at room temperature for 0.5 hr. Anodic alumina membranes (Whatman) with a pore diameter of 200 nm were soaked in 5 % phosphoric acid solution for 5-10 mins, rinsed with ethanol, and immersed in the sols for 2-4 hrs. The membranes were then taken out from the sols, rinsed with ethanol, aged for 12 hours at ambient condition, and calcined at 400 ^{o}C for 1hr. Mesoporous silica wires were then obtained by dissolving the alumina in 5 M HCl at 60 ^{o}C. The mesostructured silica wire were characterized with transmission electron microscope (JEOL 2011 FasTEM electron microscope at 120 kV), scanning electron microscope(Hitachi S-4300 field emission SEM at 15 kV), and X-ray diffraction techniques (XRD, Siemens D500, Cu kα irradiation).

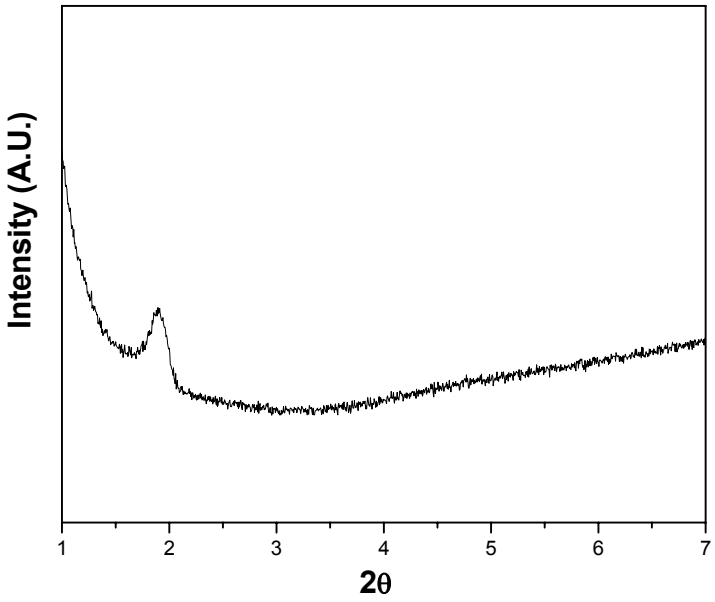

Figure S1. XRD pattern of the circular hexagonal mesostructured silica wires. The reflection peak with the *d*-spacing of 4.8 nm can be indexed as (110), which indicate a unit cell of 8 nm (*p6mm*).