

Description of Video S1

The materials used in Video S1, i.e., CB[6]-MNPs, were prepared according to the general procedure described in the manuscript. Detailed synthesis is as follows:

FeCl₃ (0.65 g, 4.0 mmol) and CB[6] (0.20 g, 0.2 mmol) were first dissolved in ethylene glycol (20 mL), and NaAc (1.20 g, 14.6 mmol) was added with stirring. The mixture was stirred vigorously for 30 min and then sealed in a Teflon-lined stainless-steel autoclave (50 mL capacity). The autoclave was heated at 200 °C, maintained for 10 h, and then allowed to cool to room temperature. The black product was washed with ethanol and deionized water for several times to result in CB[6]-MNPs after dryness.

As seen from Video S1, the black materials of CB[6]-MNPs can be rapidly separated from their dispersion in water within only 15 s, when a magnet (4000 Oe) is applied. In addition, by adjusting the position of the magnet, the typical macroscopic chain-like structure related to the superparamagnetic behavior of the magnetic nanoparticles can be observed. Once the magnet is withdrawn, the nanoparticles can be re-dispersed into the solution immediately by slight shaking.