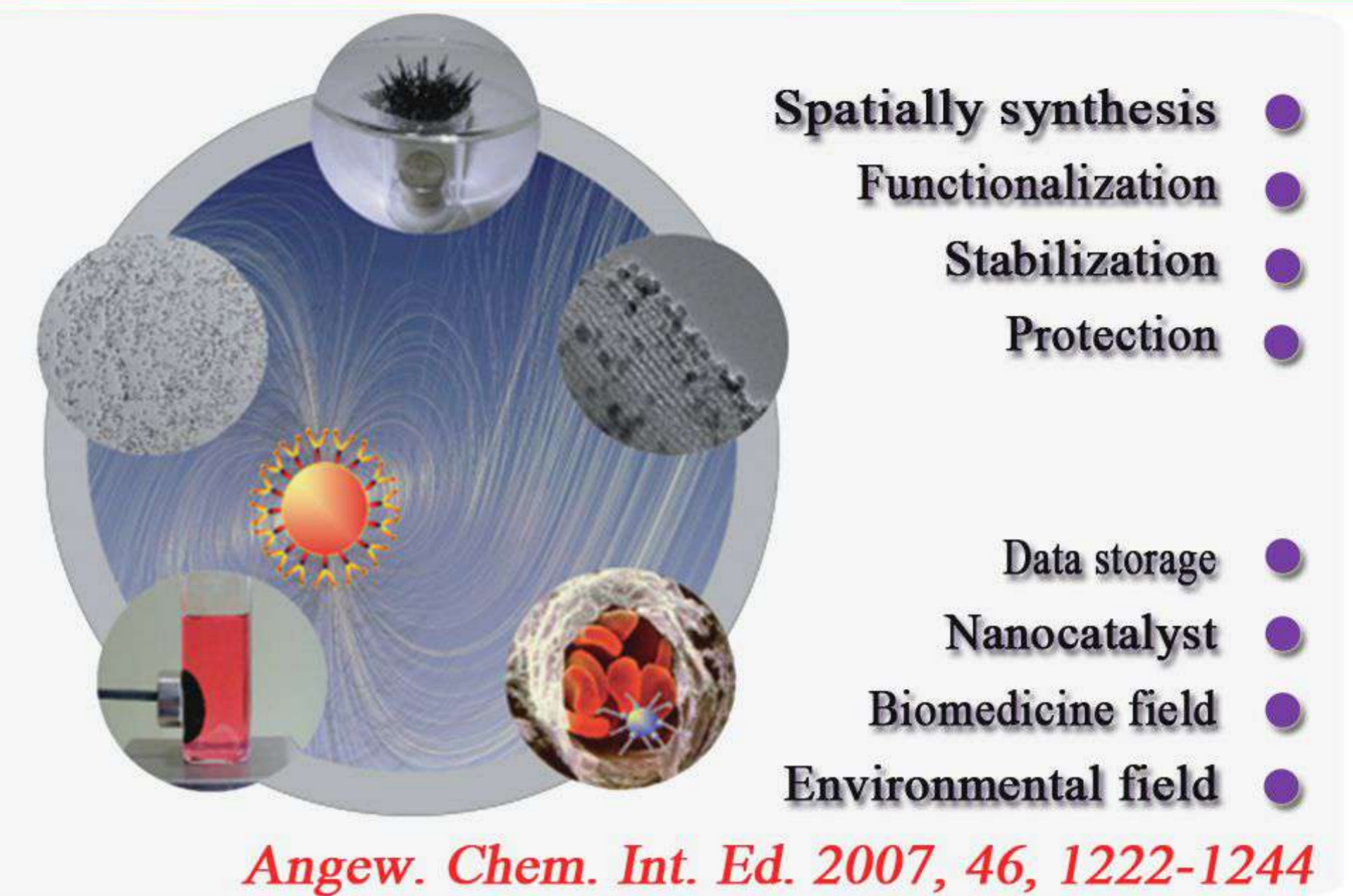


# 磁质功能纳米粒子的合成及应用

## Functional Magnetic Hybrids: Synthesis and Application

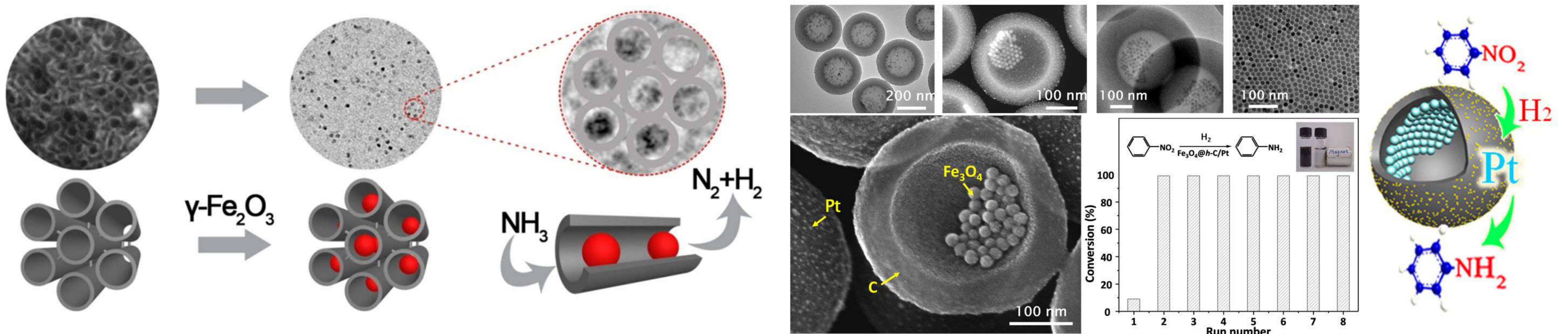


Discrete, carbon-protected magnetic nanoparticles exhibit long-term stability in acid or alkaline medium, good biocompatibility and high saturation magnetization. They are of great interest for researchers from a wide range of disciplines, including data storage, biotechnology/biomedicine, catalysis, magnetic fluids, magnetic resonance imaging and environmental remediation. Successful application of such magnetic nanoparticles in the areas listed above is highly dependent on the stability of the particles under a range of different conditions.



*Angew. Chem. Int. Ed.* 2007, 46, 1222-1244

### Magnetic nanoparticles for catalytic applications



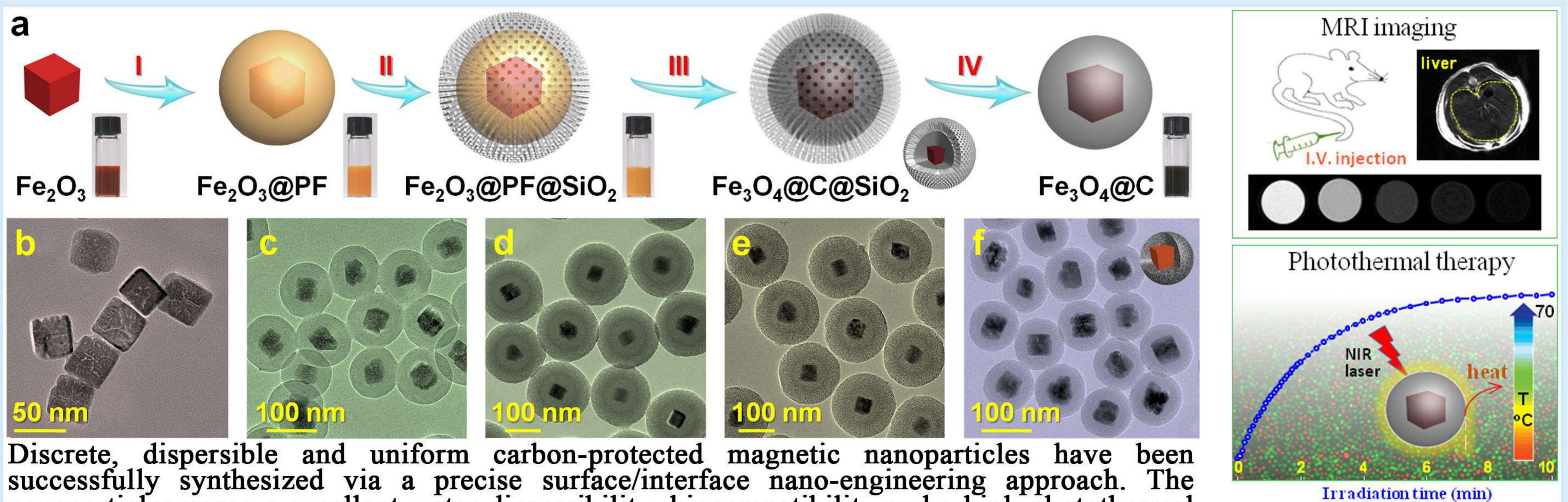
Fe-Based nanoparticles on ordered mesoporous supports have been spatially and size selectively synthesized as highly active and stable catalysts for ammonia decomposition.

*J. Am. Chem. Soc.* 2010, 132, 14152-14162

Fabrication of magnetic yolk-shell nanocatalysts with spatially resolved functionalities and high activity for nitrobenzene hydrogenation.

*Chem. Eur. J.* 2013, 19, 6217-6220

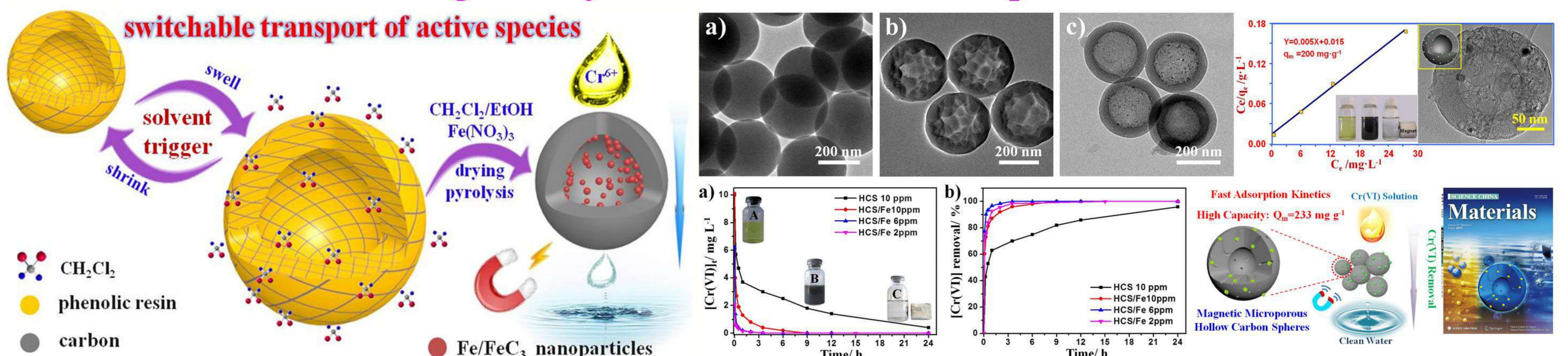
### Discrete, carbon-protected magnetic nanoparticles for biomedical applications



Discrete, dispersible and uniform carbon-protected magnetic nanoparticles have been successfully synthesized via a precise surface/interface nano-engineering approach. The nanoparticles possess excellent water-dispersibility, biocompatibility and a high photothermal heating effect.

*Nano Research* DOI 10.1007/s12274-016-1042-9

### Magnetic hybrids for environmental protection



Magnetically functionalized carbon materials as adsorbents have shown outstanding adsorption capacity for Cr(VI) removal. Magnetic iron-based nanoparticles have been synthesized for fast separation of the magnetic hollow carbon nanospheres (MHCSs) from liquid suspension. Thus, the MHCSs may serve as an ideal candidate for chromium removal in water treatment.

*Small.* 2013, 9, 3852-3857; *J. Mater. Chem. A.* 2013, 1, 9477-9483; *Sci. China. Mater.* 2015, 58, 611-620

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