

Fabrication of Mesoporous Co_3O_4 from LP-FDU-12 via Nanocasting Route and Effect of Wall/Pore Size on Their Magnetic Properties

Hongxiao Jin,[†] Xiaojian Gu,[†] Bo Hong,^{†} Langsheng Lin,[‡] Chiya Wang,[†] Dingfeng Jin,[†] Xiaoling*

Peng,[†] Xinqing Wang[‡] and Hongliang Ge[‡]

[†]Zhejiang Province Key Laboratory of Magnetism, College of Materials Science and Engineering,
China Jiliang University, Hangzhou 310018, P. R. China

[‡]High Magnetic Field Laboratory, Chinese Academy of Sciences, Hefei 230031, China

* To whom correspondence should be addressed. Tel: +86-571-8687-5600. Fax: +86-571-8687-5600.

E-mail: Bohong@cjl.u.edu.cn, hongbo@mail.ustc.edu.cn.

SUPPORT INFORMATION:

Figure S1. XRD patterns of calcined mesoporous silica LP-FDU-12 samples prepared with different synthesis temperature and treated with H_2SO_4 .

Figure S2. TEM images of LP-FDU-12-100 sample.

Figure S3. Nitrogen physisorption and pore size distributions for calcined mesoporous silica LP-FDU-12 samples. The isotherms of FDU-12-100, FDU-12-130 and FDU-12-130H were given with an offset of 100, 320 and 500 $\text{cm}^3 \text{g}^{-1}$, respectively.

Figure S4. Wide-angle powder XRD patterns for the mesoporous Co_3O_4 samples.

Figure S5. HR-TEM image of Co_3O_4 -80: the dash circles show the nanorods bridge connecting nanospheres.

Figure S6. Interconnectivity and mesoporous ordered domain size. TEM images of Co_3O_4 samples: a) Co_3O_4 -130; b) and c) Co_3O_4 -100; D), E) and F) Co_3O_4 -80.

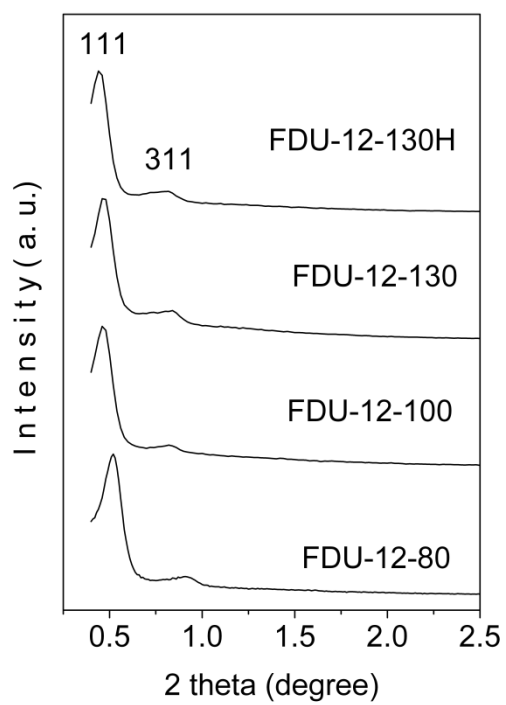


Figure S1. XRD patterns of calcined mesoporous silica LP-FDU-12 samples prepared with different synthesis temperature and treated with H_2SO_4 .

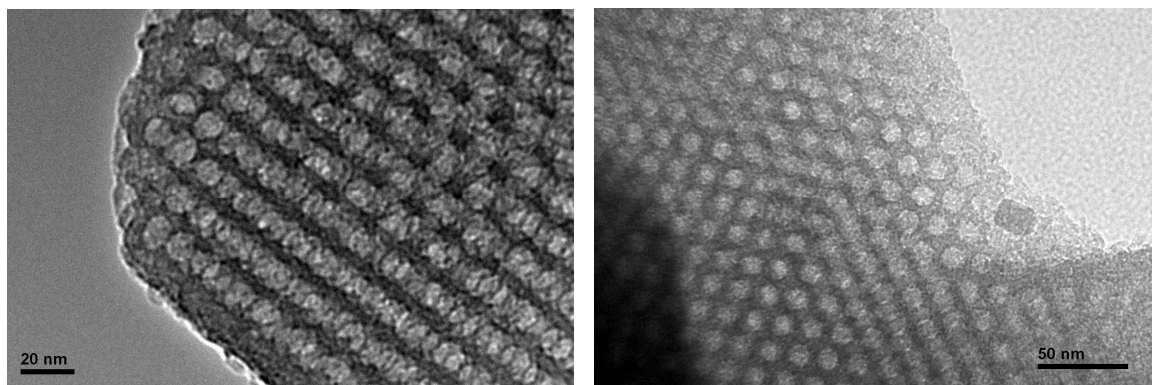


Figure S2. TEM images of LP-FDU-12-100 sample.

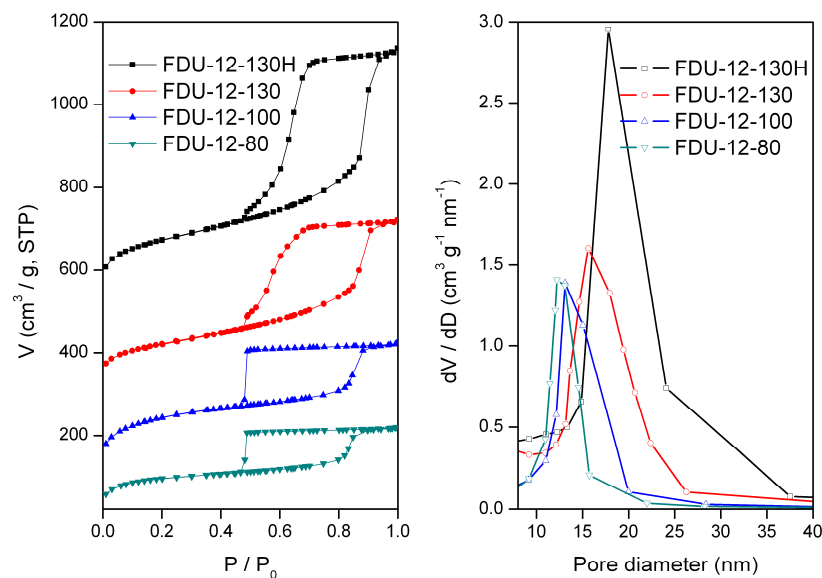


Figure S3. Nitrogen physisorption and pore size distributions for calcined mesoporous silica LP-FDU-12 samples. The isotherms of FDU-12-100, FDU-12-130 and FDU-12-130H were given with an offset of 100, 320 and 500 $\text{cm}^3 \text{g}^{-1}$, respectively.

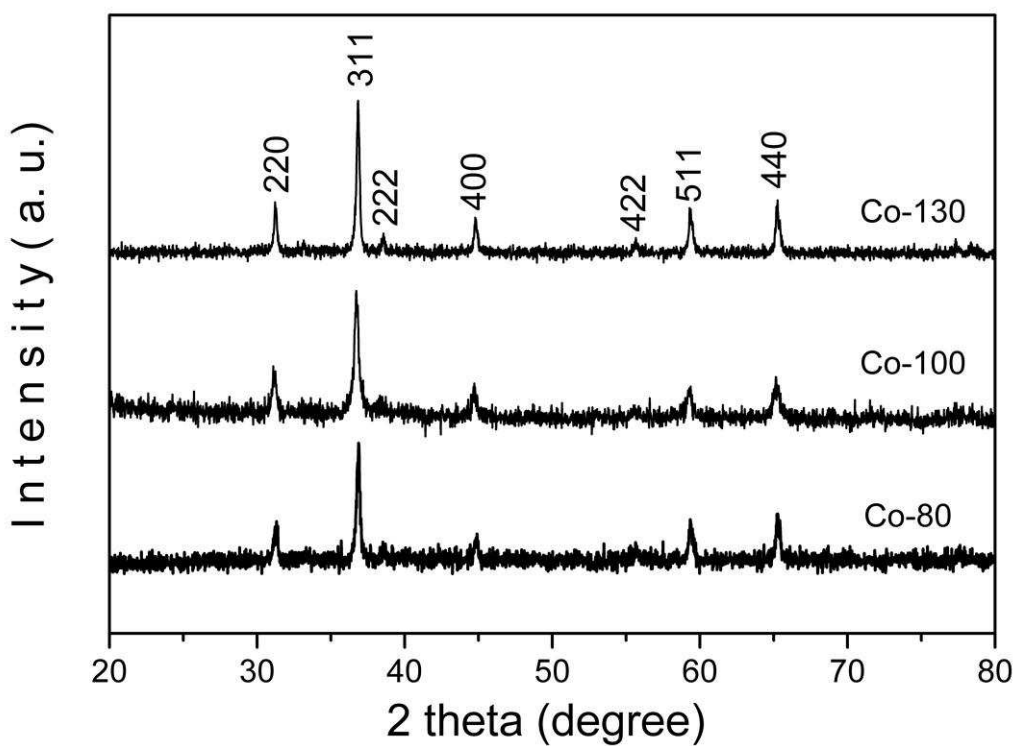


Figure S4. Wide-angle powder XRD patterns for the mesoporous Co_3O_4 samples.

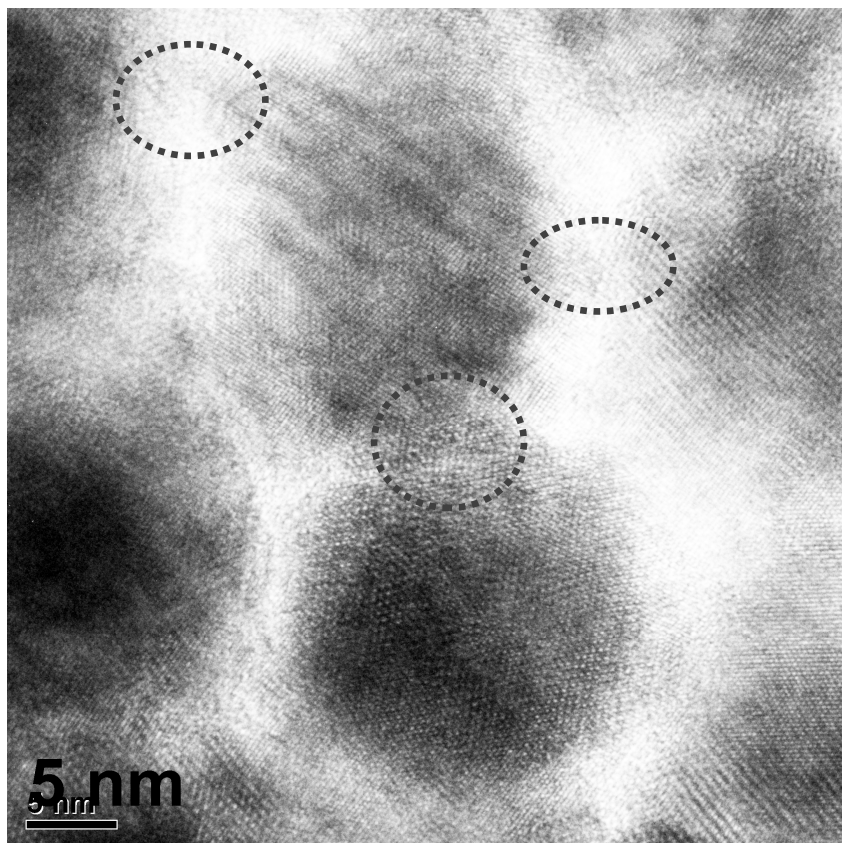


Figure S5. HR-TEM image of Co₃O₄-80: the dot circles show the nanorods bridge connecting nanospheres.

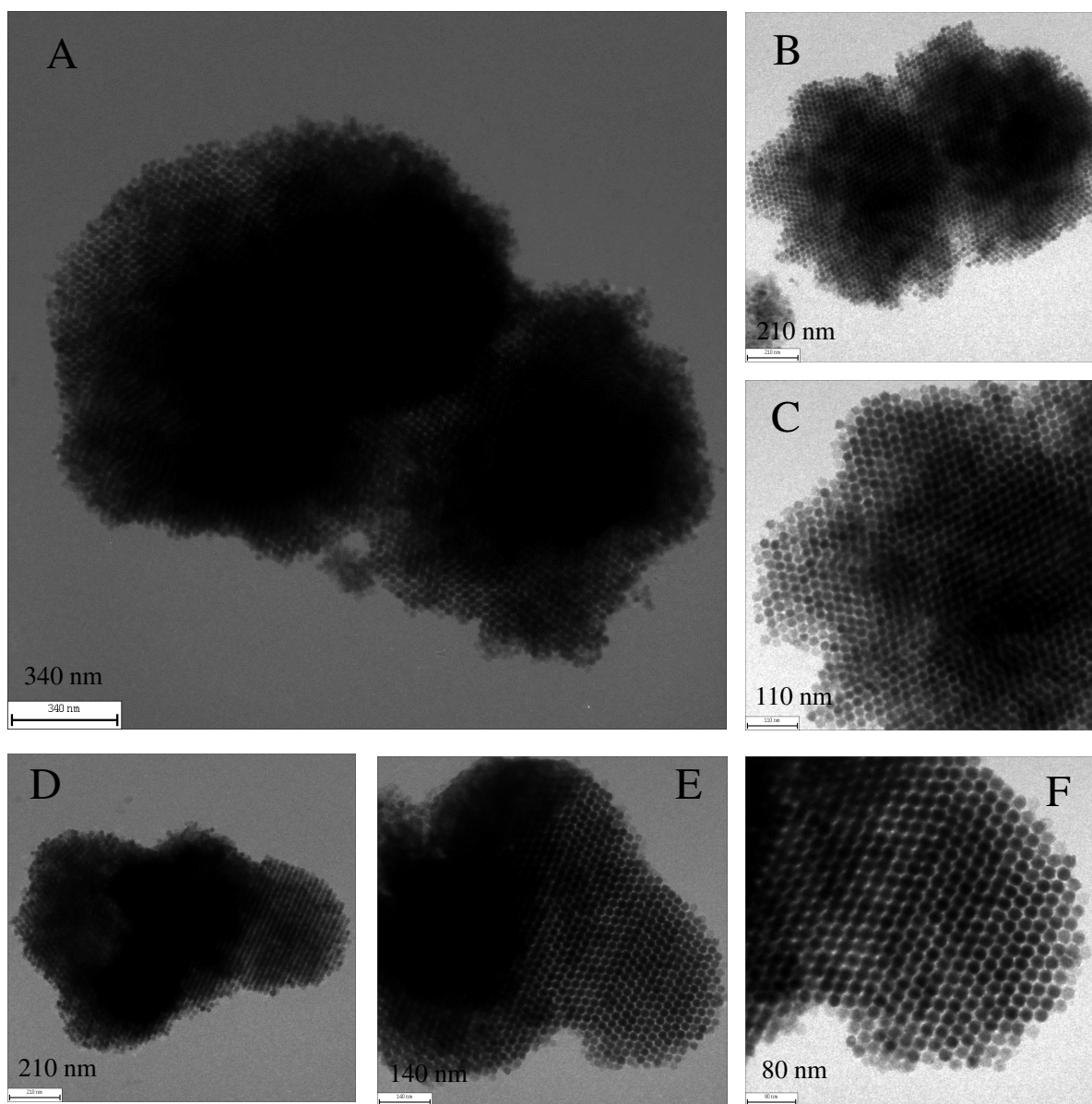


Figure S6. Interconnectivity and mesoporous ordered domain size. TEM images of Co_3O_4 samples: a) Co_3O_4 -130; b) and c) Co_3O_4 -100; D), E) and F) Co_3O_4 -80.