

## Supporting Information

# A New Insight into Ordered Cage-Type Mesostructures and Their Pore Size Determination by Electron Tomography

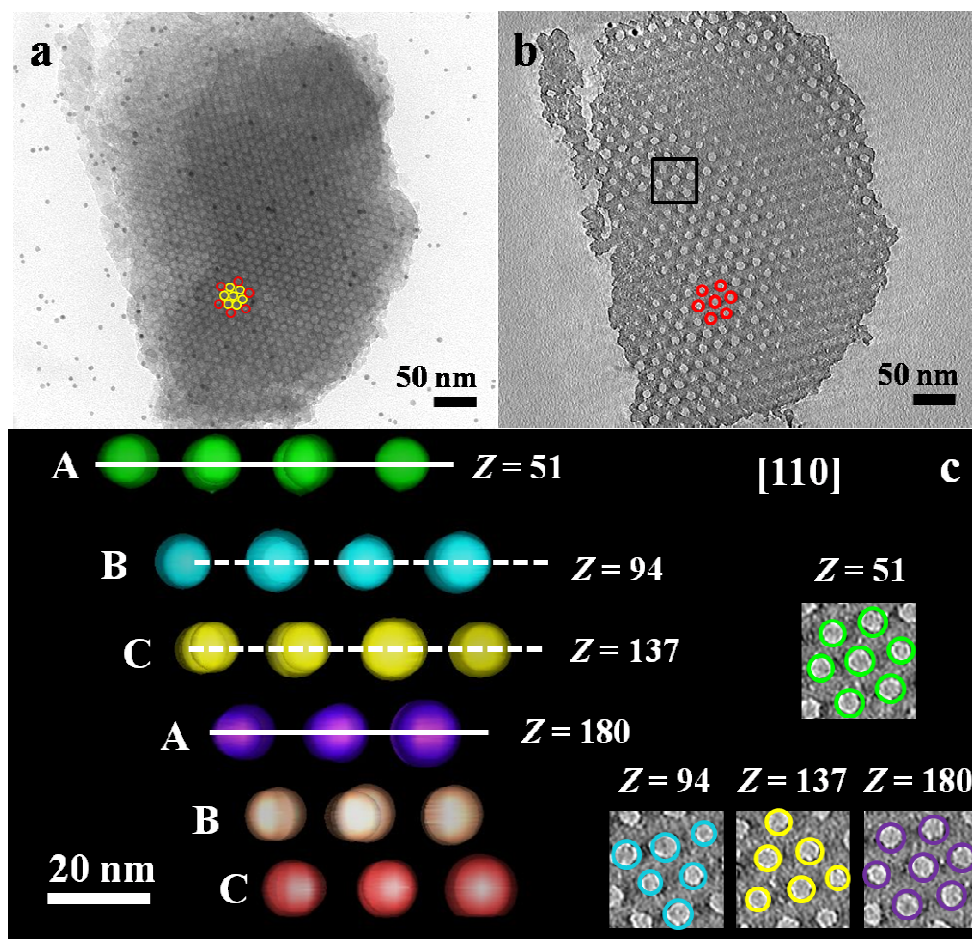
*Pei Yuan,<sup>[a, b]‡</sup> Jie Yang,<sup>[b]‡</sup> Hongwei Zhang,<sup>[b]</sup> Hao Song,<sup>[b]</sup> Xiaodan Huang,<sup>[b]</sup> Xiaojun  
Bao,<sup>[a]</sup> Jin Zou<sup>[c]</sup> and Chengzhong Yu<sup>[b]\*</sup>*

[a]State Key Laboratory of Heavy Oil Processing, China University of Petroleum, No. 18  
Fuxue Road, Beijing 102249, P. R. China

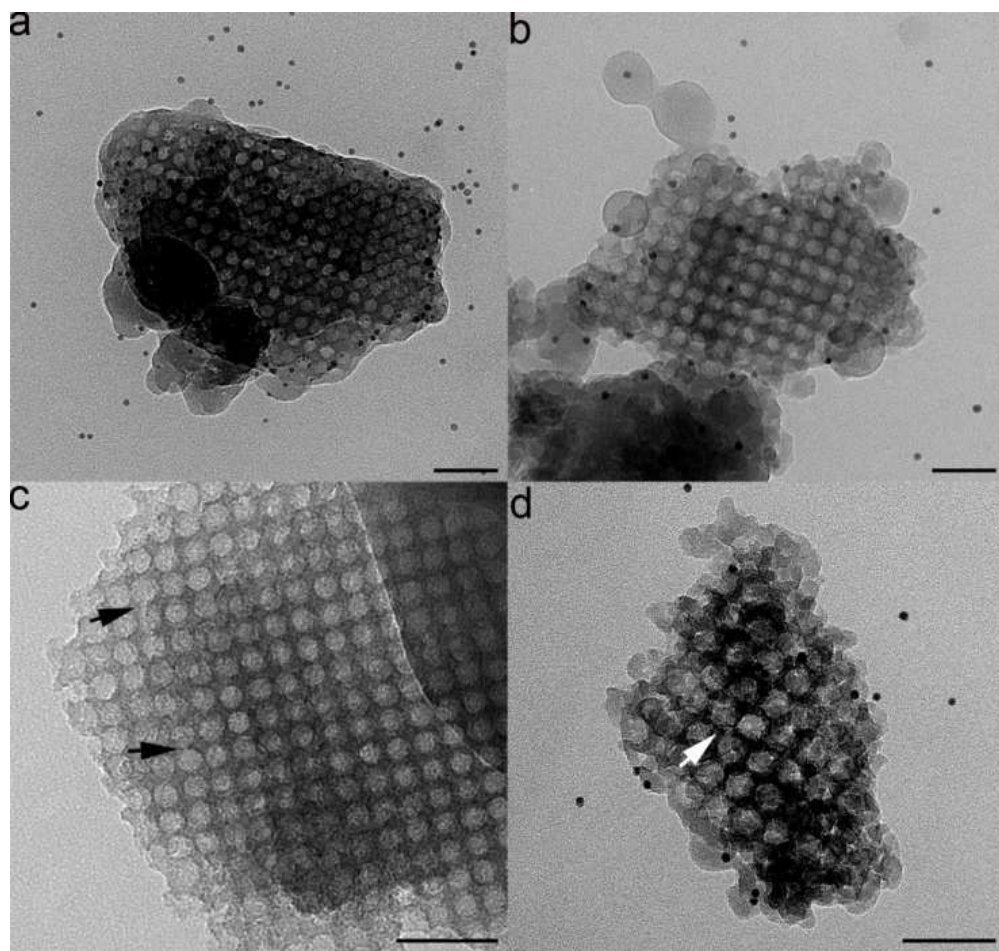
[b]Australian Institute for Bioengineering and Nanotechnology, The University of  
Queensland, Brisbane, QLD 4072, Australia

[c]Materials Engineering and Centre for Microscopy and Microanalysis, The University of  
Queensland, Brisbane, QLD 4072, Australia

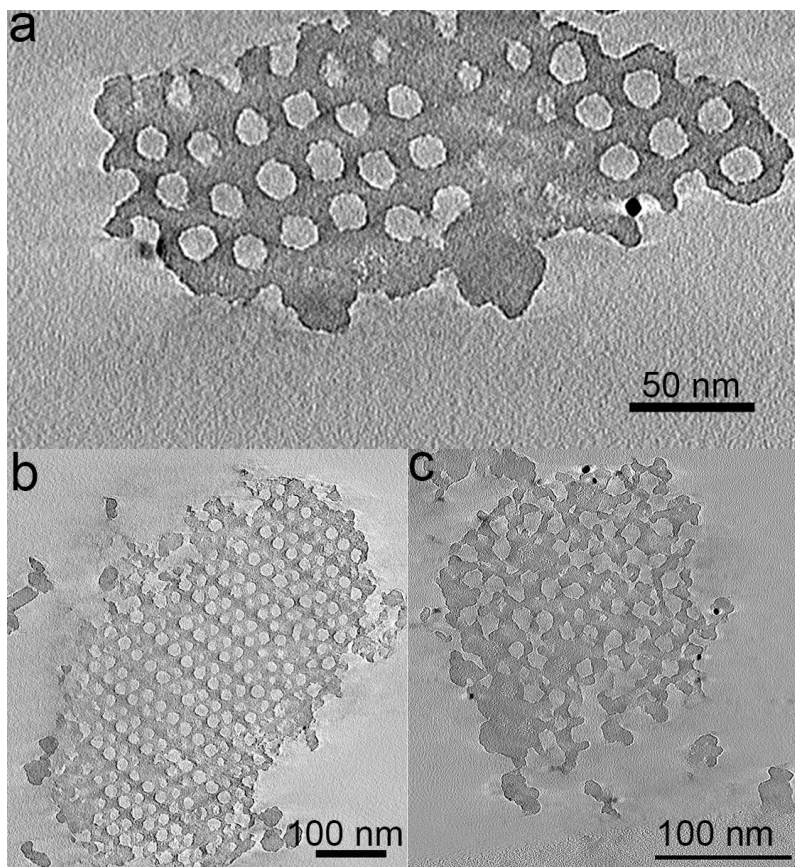
‡These authors contribute equally to this work. \*Email: c.yu@uq.edu.au



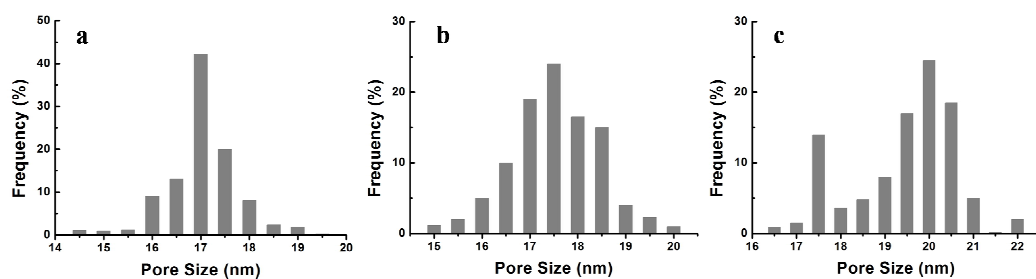
**Figure S1.** (a) A typical TEM image for a selected area of FDU-12-100 taken along  $[111]$  zone axis; (b) a corresponding thin tomographic slice with a thickness of 0.38 nm; (c) a 3D reconstruction from the area indicated by black square in (b) viewing along  $[110]$  direction. The lines indicate different slices of  $(111)$  planes and the images of the black square area at different Z heights are also shown inside.



**Figure S2.** TEM images of calcined FDU-12 samples treated under different hydrothermal temperatures: (a) 100, (b) 120, (c) 160 and (d) 180 °C. Scale bar is 50 nm.



**Figure S3.** ET slices in large area of (a) FDU-12-120, (b) FDU-12-160 and (c) FDU-12-180.



**Figure S4.** Histograms (a-c) showing the pore size distribution measured by the method demonstrated in Figure 2 for FDU-12 samples hydrothermally treated at 120, 160 and 180 °C, respectively.