

Supporting Information:

Synthesis and application of a MOF-Derived Ni@C catalyst by the guidance from an *in situ* hot stage in TEM

Dan Xu, Ying Pan, Mingyi Chen, Qinying Pan, Liangkui Zhu, Ming Xue, Daliang Zhang,*
Qianrong Fang, and Shilun Qiu*

State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, Jilin University,
Changchun, 130012, China

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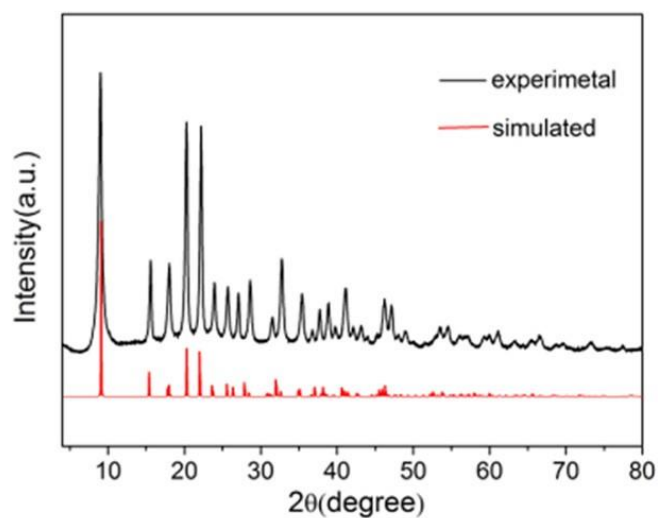


Fig. S1 Experimental (black) and simulated (red) PXRD patterns of Ni-ntca.

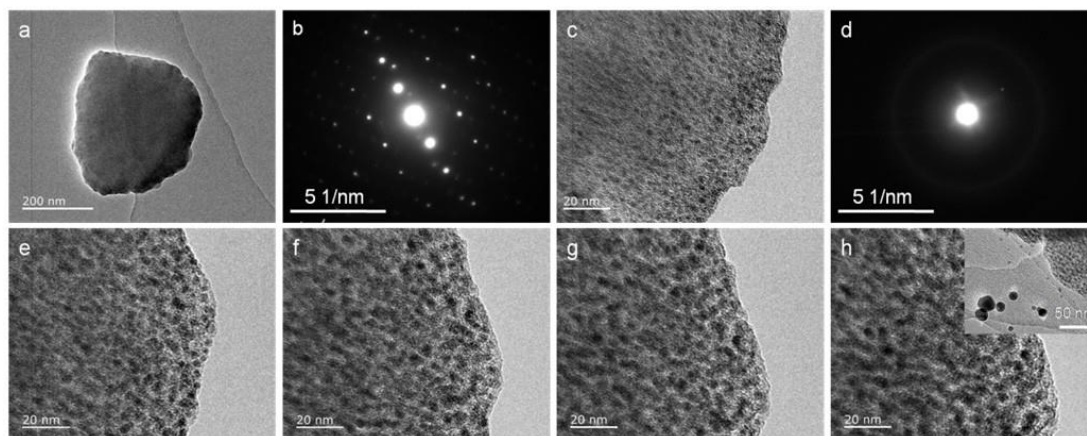


Fig. S2 The hot stage TEM images at (a) room temperature, (b) Selected Area Electron Diffraction (SAED) pattern of (a), (c) 300 °C, (d) SAED pattern of (c), (e) 400 °C, (f) 500 °C, (g) 600 °C, and (h) 700 °C.

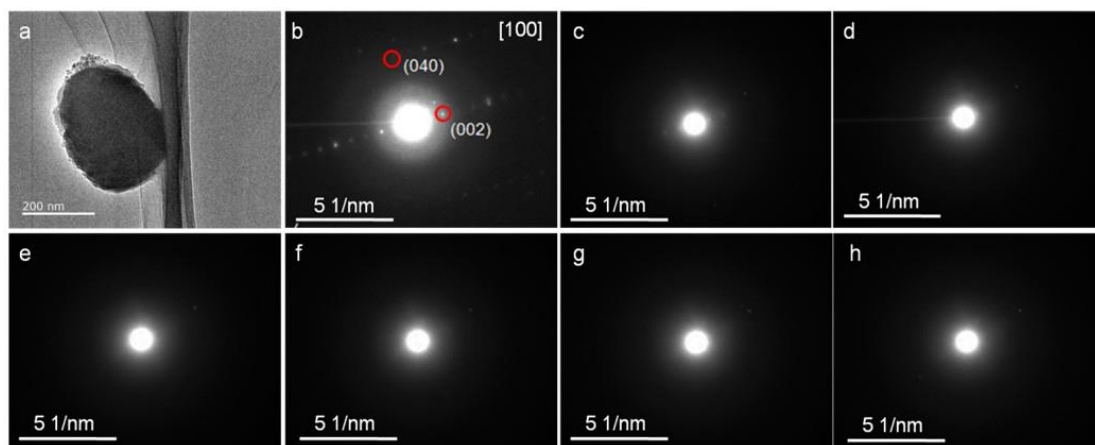


Fig. S3 TEM images (a) 0 min and the corresponding Selected Area Electron Diffraction (SAED) patterns in [100] zone axis (b) 0 min; (c) 5 min; (d) 10 min; (e) 15 min; (f) 30 min; (g) 60 min; (h) 120 min of Ni-ntca under beam irradiating.

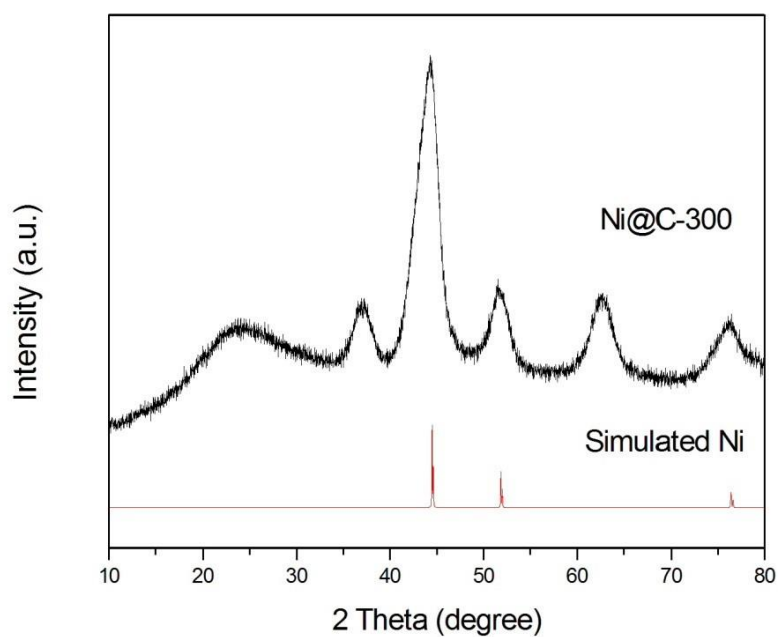


Fig. S4 PXRD patterns of Ni@C-300 (black) and the simulated data of cubic phased Ni (red, JCPDS no. 04-0850).

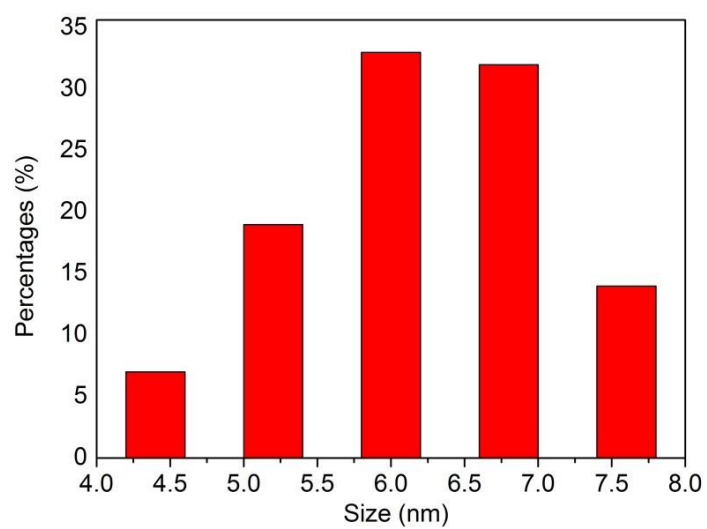


Fig. S5 The distribution of particle size for Ni@C-600.

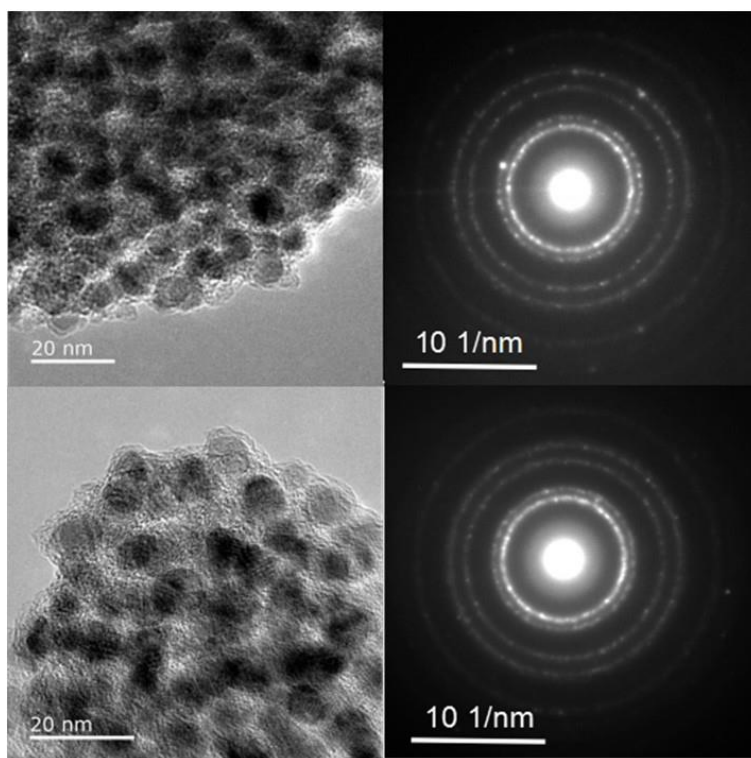


Fig. S6 TEM images and Selected Area Electron Diffraction (SAED) patterns of Ni@C-400 (top) and Ni@C-500 (bottom).

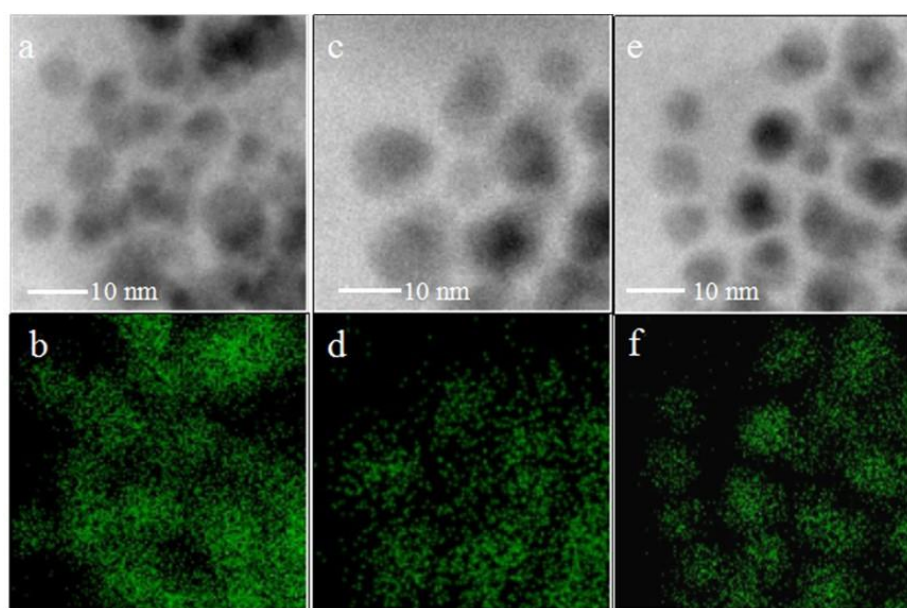


Fig. S7 The image of scanning transmission electron microscope (STEM) and Ni mapping data of Ni@C-400 (a, b), Ni@C-500 (c, d) and Ni@C-600 (e, f).

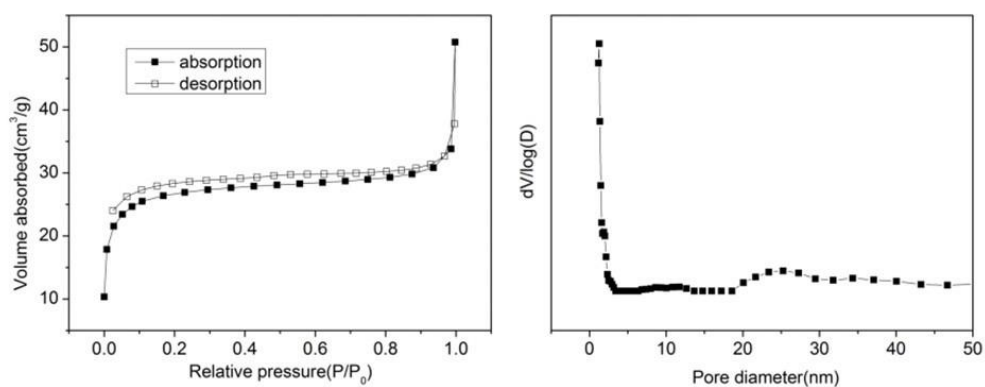


Fig. S8 N₂ absorption-desorption isotherm (left) and its corresponding pore size distribution (right) of Ni-ntca.

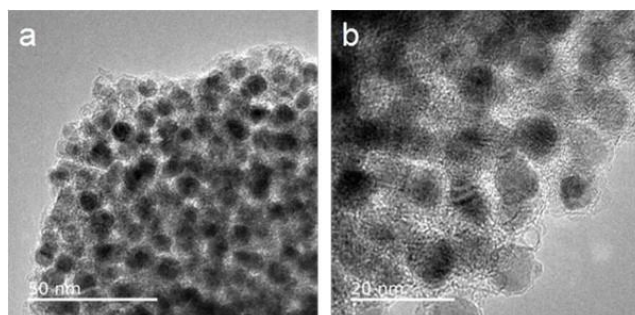


Fig. S9 TEM images of Ni@C-600 after 8 cycles.