Supplementary material (ESI) for Journal of Materials Chemistry

Supplementary Information

A facile route to carbon-coated nickel-based metal nanoparticles

Guo-Xing Zhu, Xian-Wen Wei*, Shan Jiang

College of Chemistry and Materials Science, Anhui Key Laboratory of Functional Molecular Solids, Anhui Normal University, Wuhu 241000, P. R. China, E-mail: xwwei@mail.ahnu.edu.cn

Raman, IR and XPS spectra of Ni/C, FeNi/C core/shell structures; and TEM images of the samples obtained in various conditions

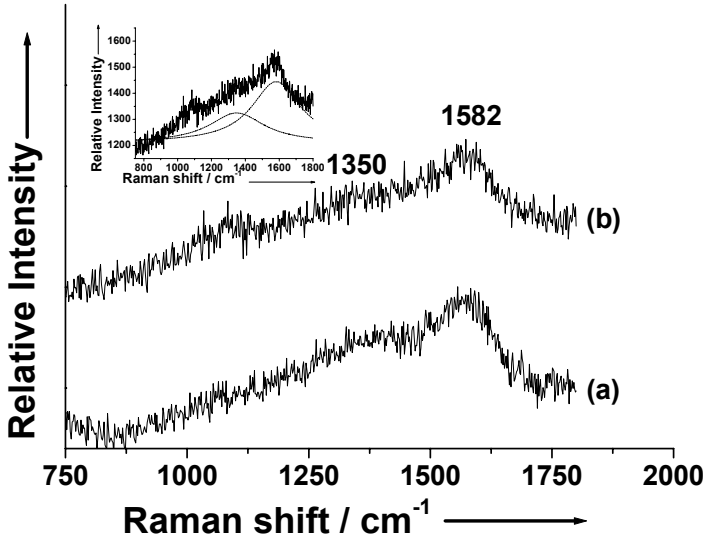

Figure S1 Raman spectra of Ni/C (a) and FeNi/C (b) core/shell structures.

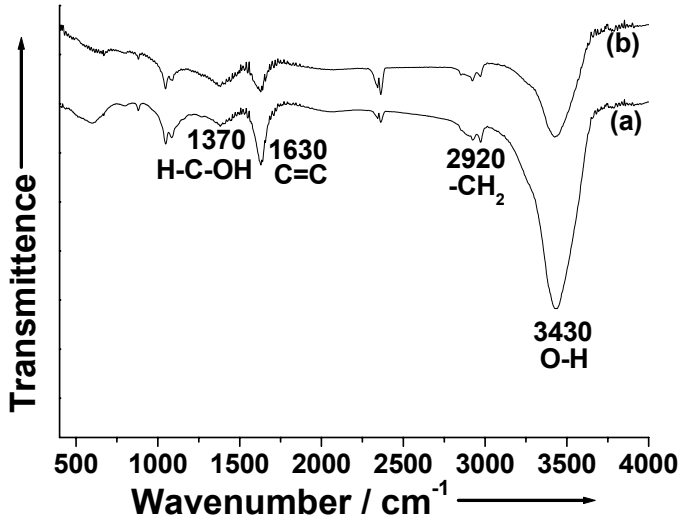

Figure S2 FTIR spectra of Ni/C (a) and FeNi/C (b) core/shell structures.

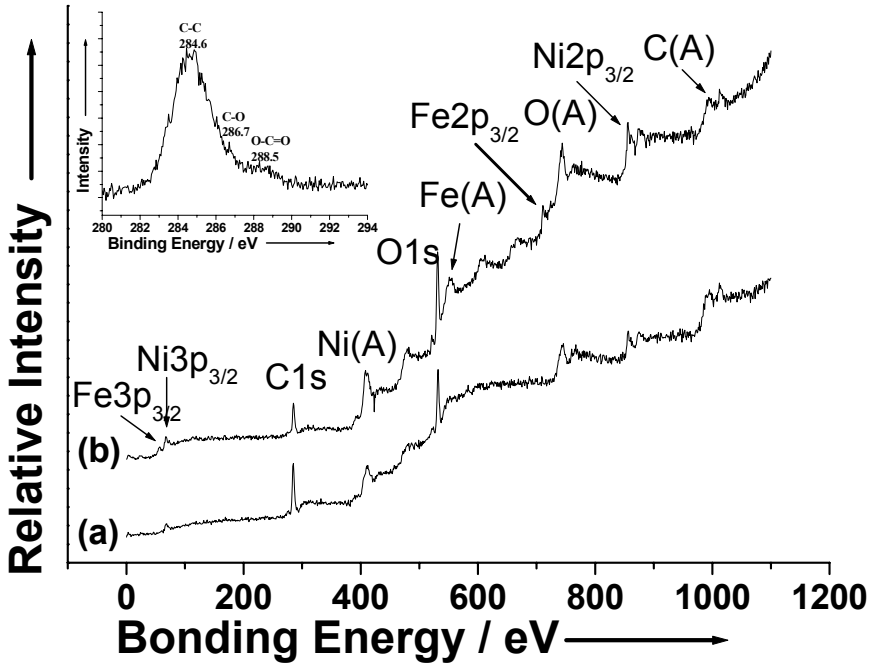

Figure S3 XPS spectra of Ni/C (a) and FeNi/C (b) core/shell nanostructures, inset is high-resolution XPS spectrum showing the C 1s peaks for Ni/C.

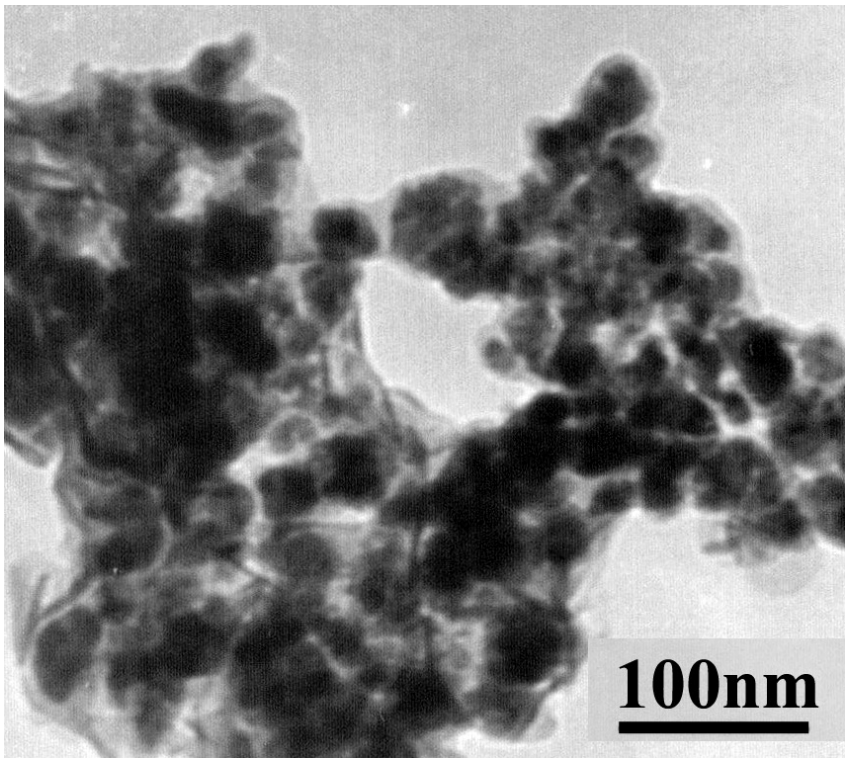

Figure S4 TEM image of FeNi/C nanostructures obtained with the carbonization process carried out under ultrasonic radiation while keeping other conditions.

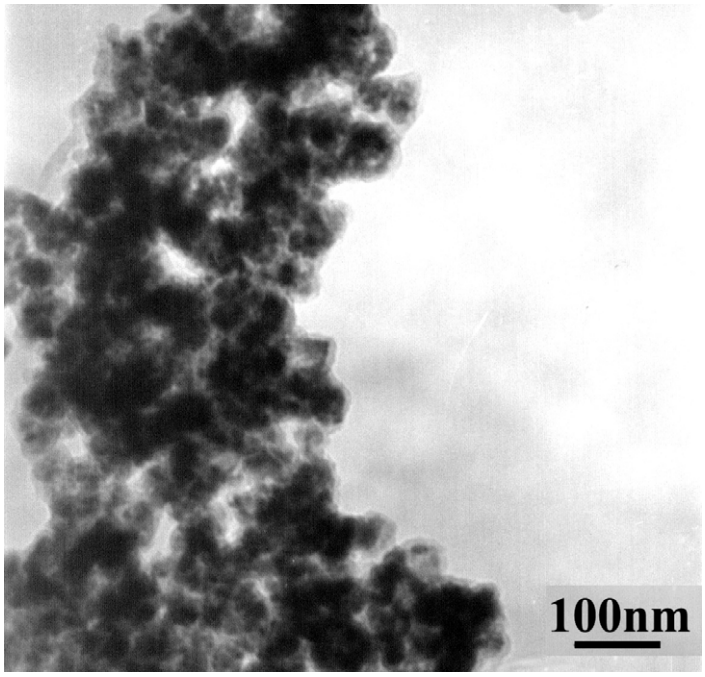

Figure S5 TEM image of FeNi/C nanostructures obtained with the carbonization in the presence of 0.6 mL water while keeping other conditions.

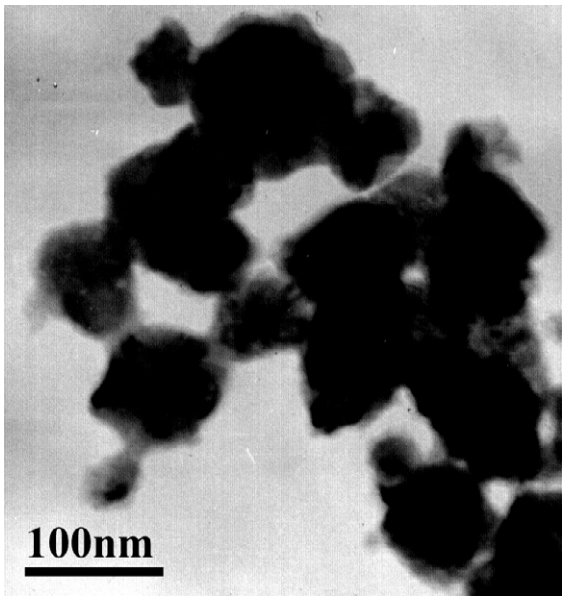

Figure S6 TEM image of Ni/C nanostructures obtained with the carbonization in the presence of 0.6 mL water while keeping other conditions.

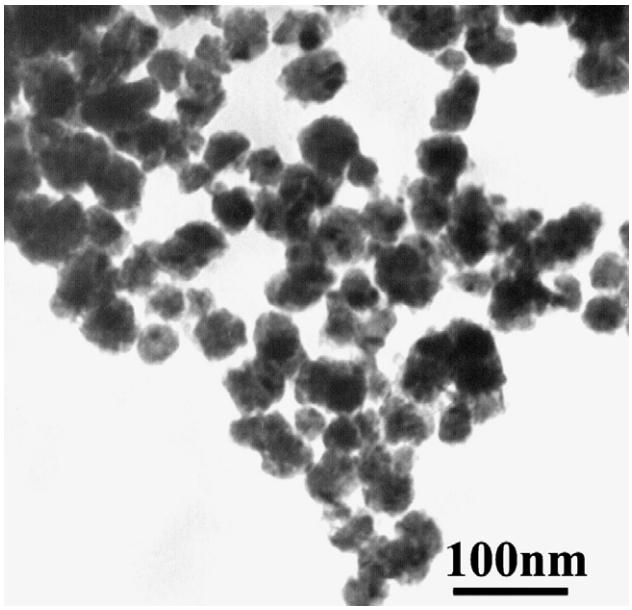

Figure S7 TEM image of sample obtained by addition of concentrated H_2SO_4 (98%) in the aqueous FeNi NPs at -5 ˚C followed by keeping it at 40 ˚C for 2 hours.

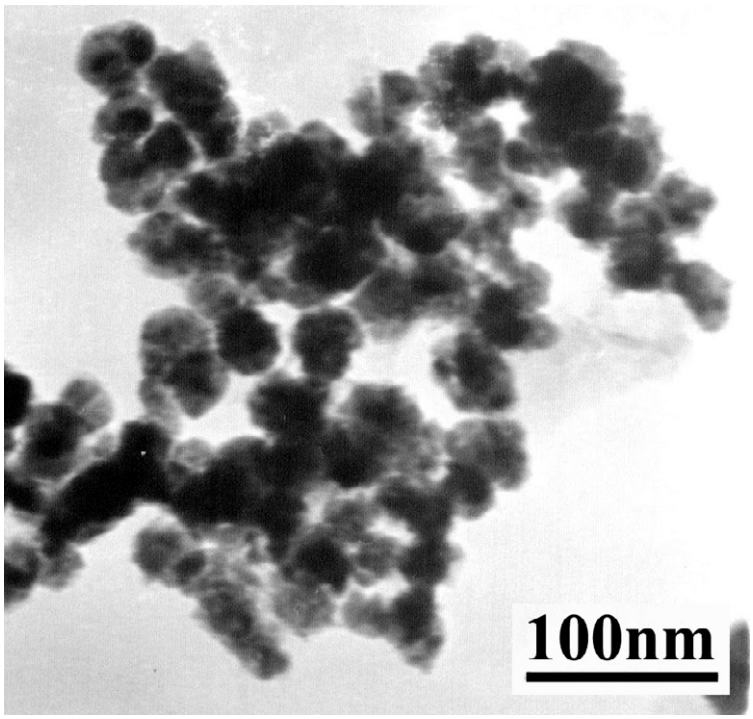

Figure S8 TEM image of sample obtained by the carbonization of FeNi NPs with concentrated H_2SO_4 (98%) in the presence of sucrose using ethanol as a solvent.

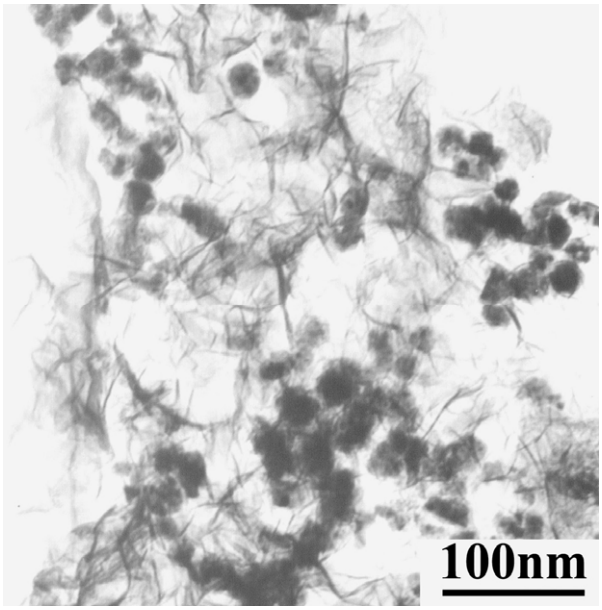

Figure S9 TEM image of FeNi/C sample obtained using 0.4 mL acetaldehyde as carbon source while keeping other conditions.