## **Supplementary Materials**



**Figure S1.** (a) The transmission electron microscopy (TEM) images of nickel nanowires (NiNWs) synthesized with 2 w/v % poly(vinylpyrrolidone) (PVP). (b) The higher magnification shows more clearly that there was some PVP remaining on the NiNW surface.



Figure S2. Cont.



**Figure S2.** The energy-dispersive X-ray spectroscopy (EDS) spectrum of NiNWs (**a**) synthesized with PVP addition (**b**) under ambient condition for one month; (**c**) five months; and (**d**) with heating treatment at 70 °C for 30 h. The gold peak can be attributed to the gold layer coated to increase the resolution of the scanning electron microscopy (SEM) image.

Width (nm)

Bulk [1]

330

280

120

0.15

0.10

0.05

0.00

-0.05

-0.10

-0.15

-5000

Magnetization (emu/g)



**Table S1.** The vibrating sample magnetometer (VSM) comparison of magnetic properties from 3 different products with the bulk material.

Ms (emu/g)

55

50.8

49.7

39.9

0.10

0.05

-0.05

-400

-200

2500

0 Field(G) 200

400

5000

Magnetization (emu/g)

ò

Field(G)

330nm 280nm

120nm

-2500



Figure S3. Corresponding TEM images to (a) Step 3; (b) Step 4; and (c) Step 5.

## References

1. Hwang, J.H.; Dravid, V.P.; Teng, M.H.; Host, J.J.; Elliott, B.R.; Johnson, D.L.; Mason, T.O. Magnetic properties of graphitically encapsulated nickel nanocrystals. *J. Mater. Res.* **1997**, *12*, 1076–1082.



© 2016 by the authors; licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons by Attribution (CC-BY) license (http://creativecommons.org/licenses/by/4.0/).