Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A
This journal is © The Royal Society of Chemistry 2014

Electronic Supplementary Information

γ-Fe_2O_3 nanoparticles encaptulated in polypyrrole for solid-state lithium batteries

Jae-Kwang Kim,*[a,b] Luis Aguilera,[b] Fausto Croce,[c] Jou-Hyeon Ahn*[d]

[a] *Interdisciplinary School of Green Energy, Ulsan National Institute of Science and Technology (UNIST), 689-798 Ulsan, Korea*

[b] *Department of Applied Physics, Chalmers University of Technology, 412 96 Göteborg, Sweden Fax: +46 31 772 2090; Tel: +46 31 772 33 52; E-mail: jaekwang@chalmers.se*

[c] *Dipartimento di Farmacia, Università "d'Annunzio" Chieti-Pescara, Via dei Vestini 31, 66100 Chieti, Italy*

[d] *Department of Chemical & Biological Engineering and Research Institute for Green Energy Convergence Technology, Gyeongsang National University, 900, Gajwa-dong, Jinju 660-701, Korea*

This journal is © The Royal Society of Chemistry 2014

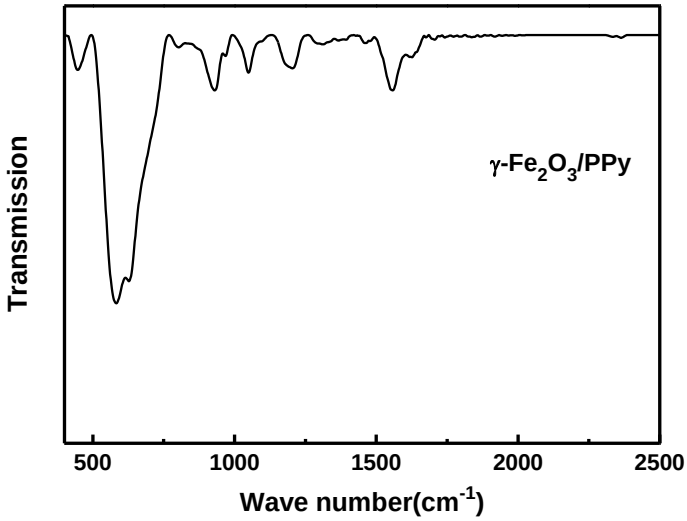

Figure S1. FT-IR pattern of γ-Fe_2O_3-PPy core-shell.

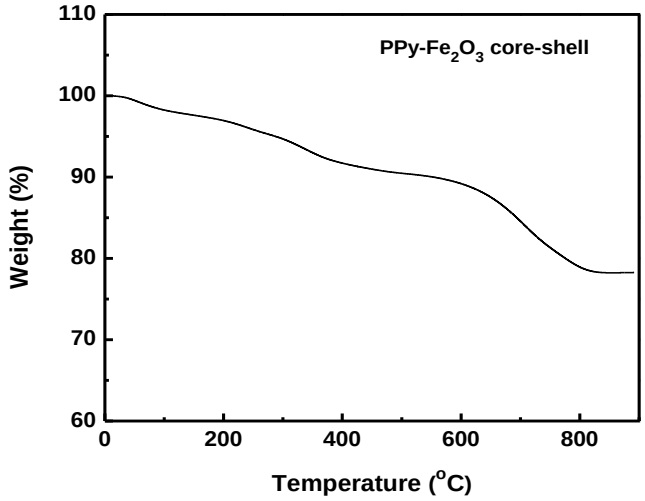

Figure S2. TGA curve of γ-Fe_2O_3-PPy core-shell.

This journal is © The Royal Society of Chemistry 2014

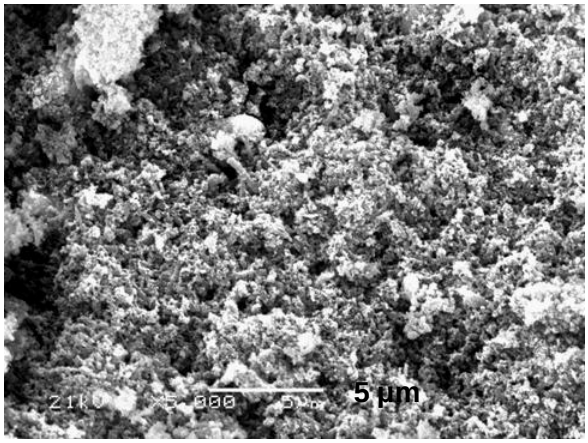

Figure S3. SEM image of γ-Fe_2O_3-PPy core-shell.

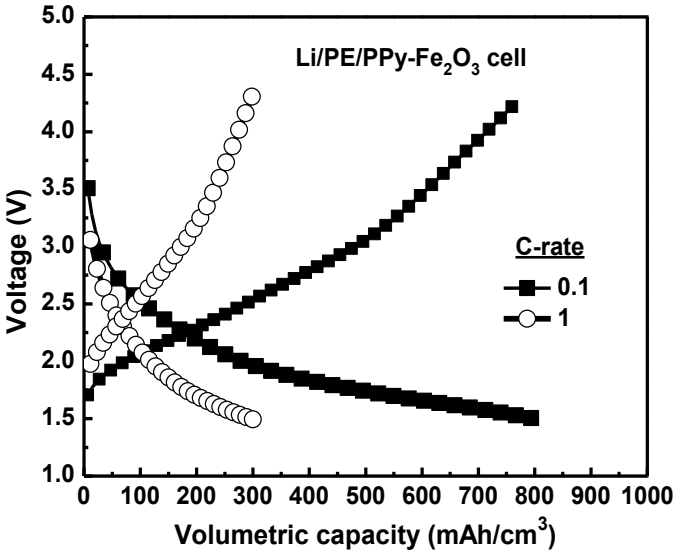

Figure S4. Initial charge-discharge volumetric capacities of Li/GPE/PPy-Fe_2O_3 cells at different current densities (0.1 and 1 C-rate, RT).

This journal is © The Royal Society of Chemistry 2014

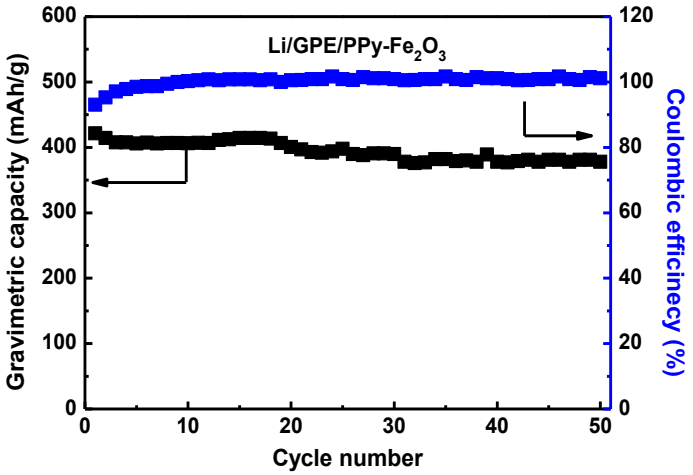

Figure S5. Cycle performance and columbic efficiency of Li/GPE/PPy-Fe_2O_3 cells at 0.1C-rate (Room temperature).

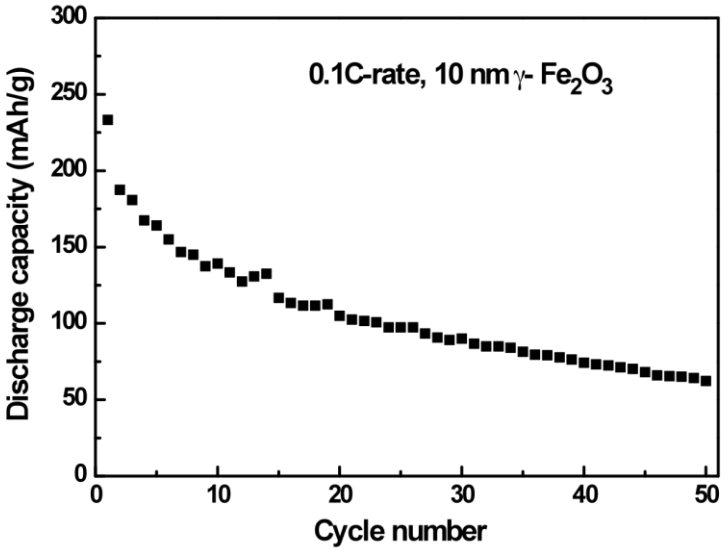

Figure S6. Cycle performance of nano sized γ-Fe_2O_3 cell at 0.1C-rate (Room temperature).

This journal is © The Royal Society of Chemistry 2014

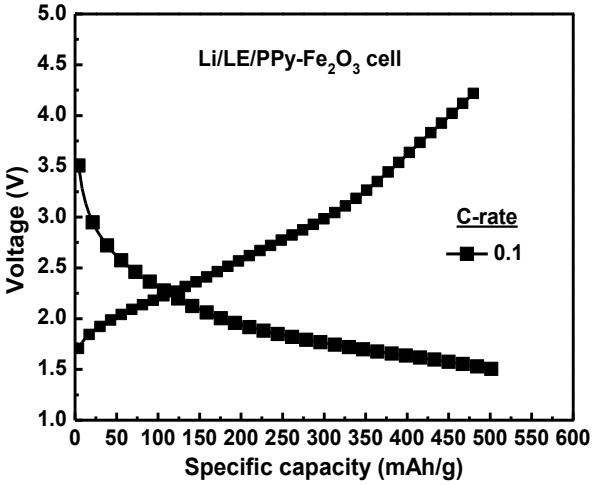

Figure S7. Initial charge-discharge capacity of Li /PPy-Fe_2O_3 cells with liquid electrolyte (0.1 C-rate, RT).