## Supplemental Information

## Controlling Core/Shell Au/FePt Nanoparticle Electrocatalysis via Core Size and Shell Thickness

Xiaolian Sun<sup>†,‡,\*</sup>, Dongguo Li<sup>†</sup>, Shaojun Guo<sup>†,#</sup>, Wenlei Zhu<sup>†</sup>, Shouheng Sun<sup>†,\*</sup>

<sup>†</sup>Department of Chemistry, Brown University, Providence, Rhode Island 02912, USA.

Email: ssun@brown.edu

<sup>‡</sup> State Key Laboratory of Molecular Vaccinology and Molecular Diagnostics & Center for Molecular Imaging and Translational Medicine, School of Public Health, Xiamen University, Xiamen 261005, China. Email: <u>xiaolian-sun@xmu.edu.cn</u>

<sup>#</sup>Department of Materials Science & Engineering, & Department of Energy and Resources Engineering, College of Engineering, Peking University, Beijing 100871, China

\* Corresponding authors



Figure S1. TEM images of (A) 7/0.5 nm (B) 7/2 nm, (C) 9/0.5 and (D) 9/2 nm Au/FePt NPs.



**Figure. S2.** HAADF-STEM image and line profile of a single 7/1 nm Au/FePt NP that reveals the shell thickens and its concentration profile.<sup>1</sup>



**Figure S3** (A-B) Specific area normalized CVs displaying the catalyzed oxidation of methanol using (A) 7/1 nm Au/FePt, FePt, commercial Pt NPs (B) Au NPs as catalyst

C Wang, D. Vliet, K. L. More, N. J. Zaluzec, S. Peng, S. Sun, H. Daimon, G. Wang, J. Greeley, J. Pearson, A. P. Paulikas, G. Karapetrov, D. Strmcnik, N. M. Markoic, *Nano Lett*, 2011, 11, 919-926.