Supporting Information

Synthesis and Electrocatalytic Properties of PtBi Nanoplatelets and PdBi Nanowires

Hanbin Liao, Jinghan Zhu and Yanglong Hou*

Department of Materials Science and Engineering, College of Engineering, Peking University, Beijing 100871, China

Fig. S1 SEM image of PtBi NPLs.

Fig. S2 (a) TEM image of the synthesized PtBi square nanoplates using bismuth octoate instead of Bi(EC)₃; (b, c) TEM images of the synthesized PtBi nanorods, using H₂PtCl₆ instead of Pt(acac)₂.
Fig. S3 (a) The electron diffraction pattern of PtBi NPLs. (b) The atom configuration of PtBi (101) lattice plane (Pt: smaller, Bi: Bigger).

Fig. S4 EDS data of PtBi NPLs.
Fig. S5 TEM images of the synthesized PtBi NPLs using (a) NH$_4$F, (b) NH$_4$Cl and (c) NH$_4$I instead of NH$_4$Br.

Fig. S6 TEM images of the synthesized PtBi NPs using (a) 1-bromododecane, (b) benzyl bromide and (c) N-bromosuccinimide instead of NH$_4$Br.

Fig. S7 TEM image of the synthesized PtBi NPs without NH$_4$Br.
Fig. S8 CV curves of PdBi NWs/XC-72 (red solid) and commercial Pd/C (blue dash) in deaerated 0.5 M HClO₄.

Fig. S9 (a) CVs of formic acid oxidation on PdBi NWs/XC-72 (red solid) and commercial Pd/C (blue dash). Arrows indicate the potential scan direction. (b) Current-time curves measured by chronoamperometry at 0.1V for PdBi NWs/XC-72 (red) and commercial Pd/C (blue).

Fig. S10 Current-time curves measured by chronoamperometry at 0.1 V in 0.5 M HClO₄ containing 0.5 M HCOOH for PtBi NPLs/XC-72 and commercial Pt/C (a), PdBi NWs/XC-72 and commercial Pd/C (b), these measurements were normalized to the value relative to initial current in each catalyst.