Supplementary Material

Facile Surfactant-Free Synthesis of Composition-Tunable Bimetallic PtCu Alloy Nanopores for Direct Methanol Fuel Cell Applications

Yanna Hu,¹ Taiyang Liu,¹ Chaozhong Li,¹,² and Qiang Yuan¹,²,³
¹College of Chemistry and Chemical Engineering, Guizhou University, Guiyang, Guizhou 550025, China.
²Department of Chemistry, Tsinghua University, Beijing 100084, China.
³Corresponding author. Email: qyuan@gzu.edu.cn
Fig. S1 TEM images of the as-prepared nanosponge PtCu alloy nanosponges (a; Pt$_3$Cu), (b; Pt$_2$Cu), (c; PtCu), (d; PtCu$_2$), (e; PtCu$_3$) and pure Pt nanosponges (f).
Fig. S2 HRTEM images of as-prepared PtCu₂ alloy nanosponges.
Fig. S3  TEM images of the samples after 3600 s i-t test. (a; Pt₅Cu), (b; Pt₂Cu), (c; PtCu), (d; PtCu₂), (e; PtCu₃) and pure Pt nanosponges (f).
The cyclic voltammetric curves (CVs) of Commercial PtRu/C (Pt: 20 wt%, Ru: 10 wt%) in 0.1 M H₂SO₄ solution (a), Commercial PtRu/C and PtCu₂ nanosponge in 0.1 M H₂SO₄ + 0.5 M methanol solution (b, specific activity; c, mass activity) with a scan rate of 50 mV·s⁻¹ at room temperature. (d) Current–time (i-t) curves of as-prepared PtCu₂ alloy nanosponge and commercial PtRu/C recorded at 0.6 V for 3600 s in 0.1 M H₂SO₄ + 0.5 M methanol solution. (The ECSA of PtRu/C was 52.5 m²/g.)