Supporting Information (SI)

General synthesis of binary PtM and ternary PtM$_1$M$_2$ alloy nanoparticles on graphene as advanced electrocatalyst for methanol oxidation

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Figure S1 XRD patterns of (a) Cu/G, (b) Pt$_{35}$Cu$_{65}$/G, (c) Pt$_{50}$Cu$_{50}$/G, (d) Pt$_{65}$Cu$_{35}$/G and (e) Pt/G
Figure S2 EDX spectra of (a) Cu/G, (b) Pt_{50}Cu_{50}/G and (c) Pt/G
Figure S3 The high resolution XPS spectra of (a) Pt and (b) Cu for the obtained samples.
Figure S4 XRD patterns of the obtained (a) PtNi/G and (b) PtCoCu/G.
Figure S5 CV curves of (a) Pt/G and (b) Pt\textsubscript{50}Cu\textsubscript{50}/G for continuous 20 cycles
Figure S6 CO stripping curves the obtained (a) Pt_{35}Cu_{65}/G, (b) Pt_{50}Cu_{50}/G, (c) Pt_{65}Cu_{35}/G and (d) Pt/G in 1 M H_{2}SO_{4} solution at room temperature at a rate of 10 mV·s^{-1}
Figure S7 Nyquist plots of Pt$_{35}$Cu$_{65}$/G, Pt$_{50}$Cu$_{50}$/G, Pt$_{65}$Cu$_{35}$/G and Pt/G