

Supporting Information**PtRu Alloy Nanoparticles II. Chemical and Electrochemical Surface Characterizations for Methanol Oxidation**

R. Bavand^{a,b}, Q. Wei^{a,c}, G. Zhang^c, S. Sun^c, A. Yelon^b and E. Sacher^b

a. These authors contributed equally.

b. Département de Génie Physique, École Polytechnique, Montréal, Québec H3C 3A7, Canada.

c. Institut National de la Recherche Scientifique-Énergie, Matériaux et Télécommunications, 1650 Boulevard Lionel-Boulet, Varennes, Québec J3X 1S2, Canada.

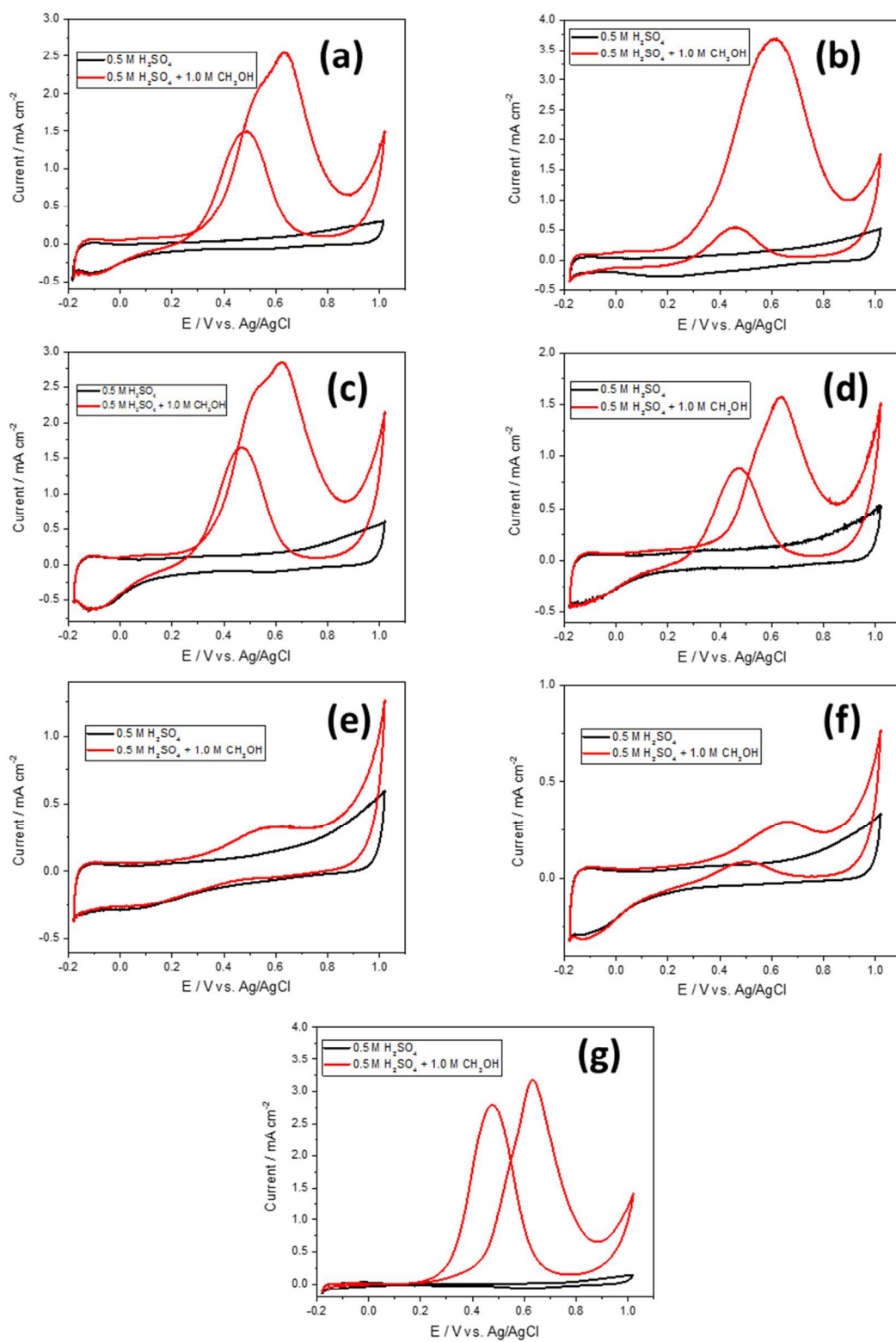


Figure S1: CVs of (a) Deposit 1, (b) Deposit 2, (c) Deposit 3, (d) Deposit 1 (annealed), (e) Deposit 2 (annealed), (f) Deposit 3 (annealed), and (g) Deposit 4, in 0.5 M H₂SO₄ and 0.5 M H₂SO₄ + 1.0 M CH₃OH.

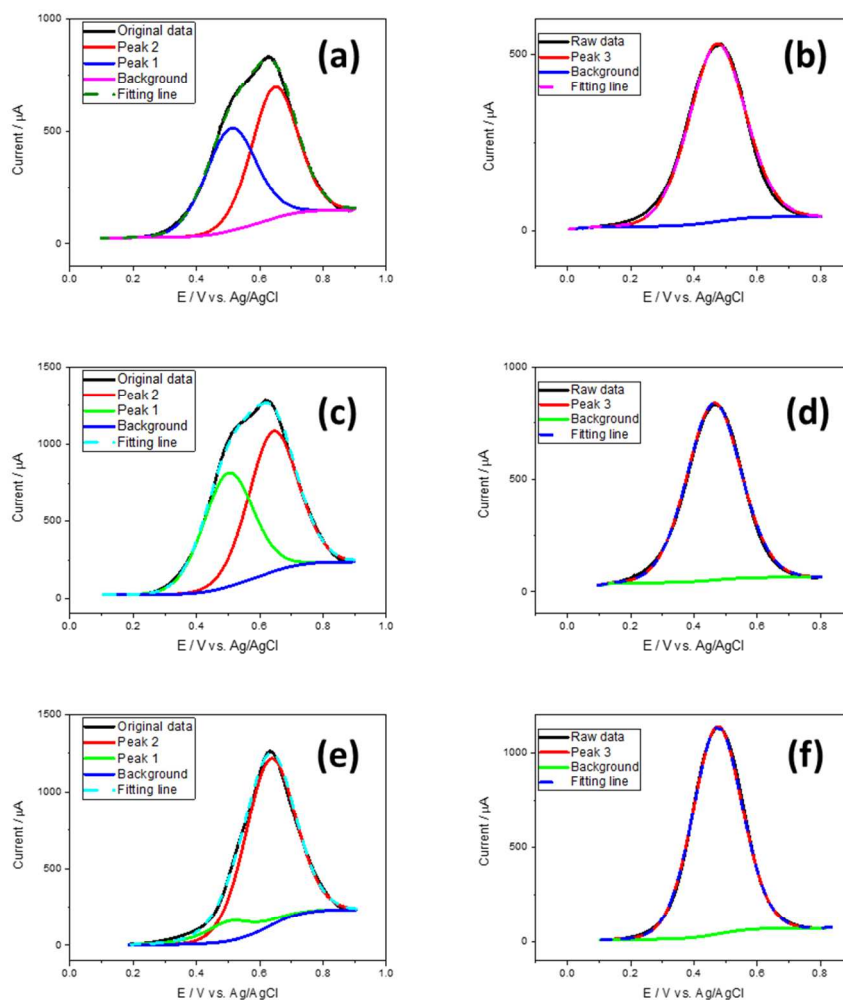


Figure S2: Peak deconvolutions of Deposit 1 (a-b), Deposit 3 (c-d) and Deposit 4 (e-f).

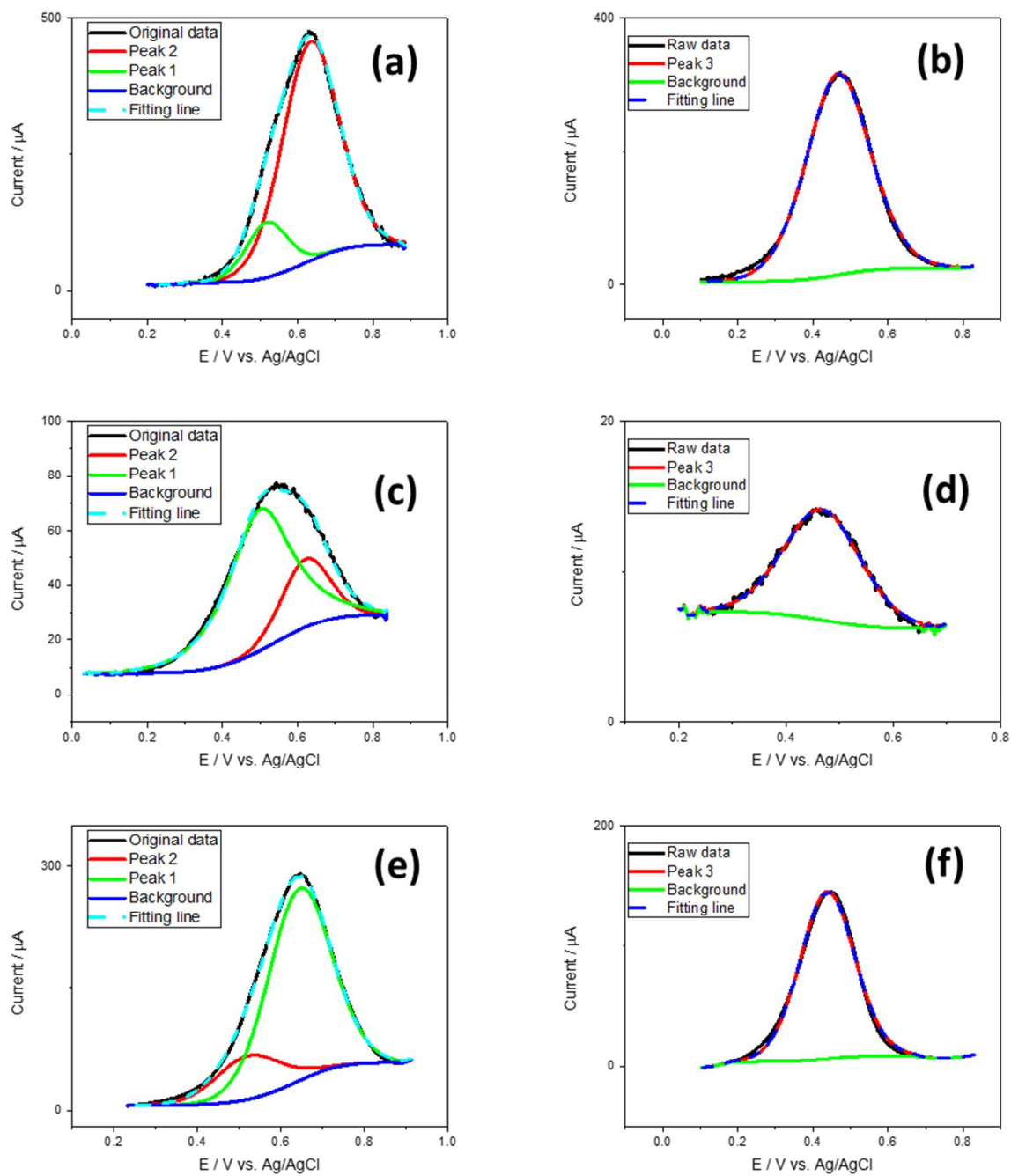


Figure S3: Peak deconvolutions of Deposit 1 (annealed) (a-b), Deposit 2 (annealed) (c-d) and Deposit 3 (annealed) (e-f).

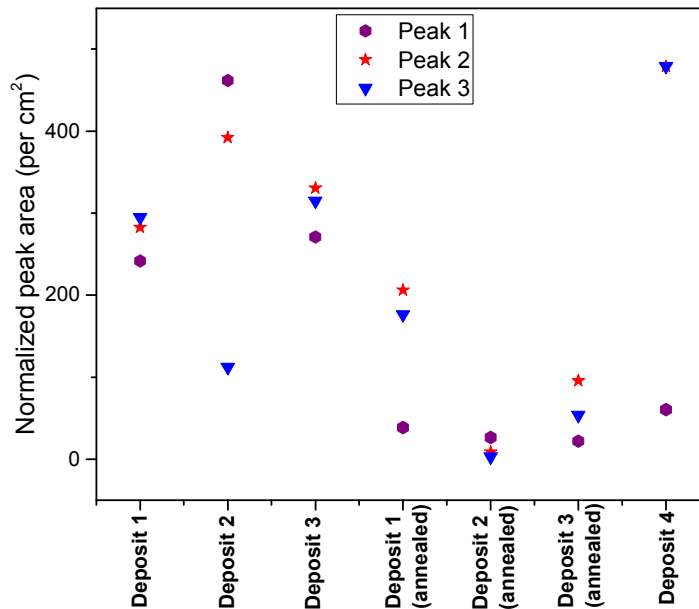


Figure S4: Peak areas of the samples (normalized, based on geometric area).

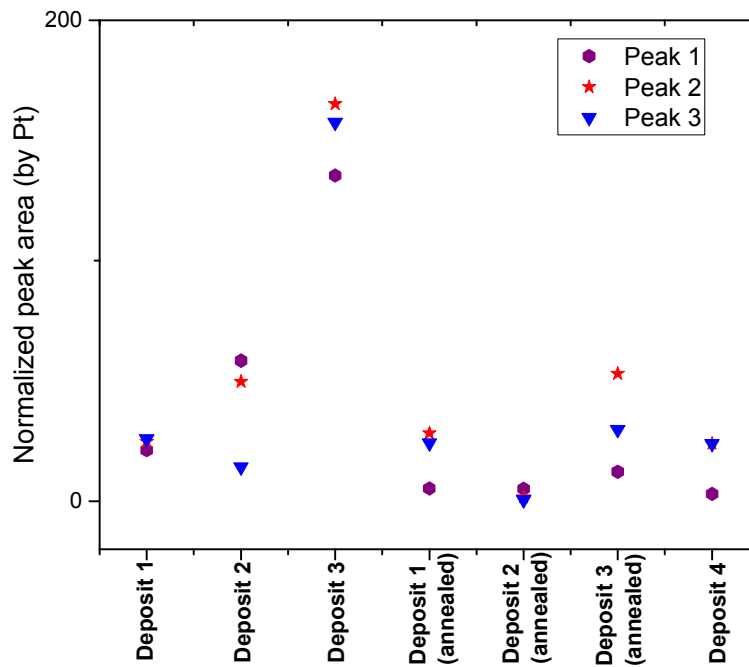


Figure S5: Peak areas of the samples (normalized, based on Pt content).

Table S1: A comparison of I_f/I_b ratios with recent reports.

Catalysts	Electrolyte	I_f/I_b Ratio	Ref.
Pt-decorated 3D architectures built from graphene and g-C ₃ N ₄ nanosheets	1 M H ₂ SO ₄ + 2 M CH ₃ OH	1.64	[1]
Pt–Cu alloy concave nanocubes	0.1 M HClO ₄ + 1 M CH ₃ OH	1.04	[2]
Pd–Pt alloy concave nanocubes	0.5 M H ₂ SO ₄ + 1 M CH ₃ OH	1.4	[3]
Pt–Ru/c-MWNT	0.5 M H ₂ SO ₄ + 0.5 M CH ₃ OH	1.25	[4]
Pt–Ru/RGO-AB	0.5 M H ₂ SO ₄ + 1 M CH ₃ OH	3.21	[5]
Pt/C _{Ru-dim}	0.5 M H ₂ SO ₄ + 0.5 M CH ₃ OH	1.3	[6]
PtRu-a	0.5 M H ₂ SO ₄ + 1 M CH ₃ OH	1.03	[7]
Ru-decorated Pt cubes	0.5 M H ₂ SO ₄ + 0.5 M CH ₃ OH	2.02	[8]
Pt nanoparticles/Mo ₂ C nanotube	0.5 M H ₂ SO ₄ + 0.5 M CH ₃ OH	1.71	[9]
RGO-PEDOT/Pt-Ru	0.5 M H ₂ SO ₄ + 0.5 M CH ₃ OH	2.33	[10]
Deposit 2	0.5 M H ₂ SO ₄ + 1 M CH ₃ OH	4.98	This work

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