

Supplementary Information for

**Graphene-Cobaltite-Pd Hybrid Materials for use as Efficient Bifunctional Electrocatalysts
in Alkaline Direct Methanol Fuel Cell**

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Table S1. Results of deconvolution of the Co 2p X-ray photoelectron spectra.

Composite	Spin-orbit doublet - I		Spin-orbit doublet - II		S ₁	S ₂	S ₃	Δp ₁	Δp ₂	Co ⁺² /Co ⁺³
	2p _{3/2}	2p _{1/2}	2p _{3/2}	2p _{1/2}						
CoC	779.8 (29%)	795.6 (26%)	781.7 (27%)	795.6 -	786.6 (18%)			15.8	13.9	0.9
MnC	779.5 (17%)	794.9 (23%)	781.4 (39%)	797.2 (14%)	- -	788.7 (4%)	805.4 (3%)	15.5	15.8	2.2
NiC	779.7 (22%)	795.8 (24%)	781.5 (27%)	795.8 -	787.5 (23%)		802.3 (4%)	16.1	14.3	1.2
Pd- MnC	779.2 (16%)	795.8 (27%)	781.4 (31%)	795.8 -	784.2 (17%)	789.7 (2%)	802.2 (7%)	16.6	14.4	2.0
Pd- 10MnC/GNS	779.7 (23%)	795.3 -	780.9 (41%)	795.3 -	785.9 (23%)	789.0 (13%)				1.8
Pd- 10NiC/GNS	779.9 (22%)	795.8 (70%)	781.4 (37%)	796.4 (30%)	782.8 (18%)	789.4 (17%)				1.4
Pd- 10CoC/GNS	779.9 (16%)	794.5 (15%)	781.2 (39%)	796.1 (85%)	784.9 (10%)	788.4 (21%)				1.3