

Supporting Information for

Microwave-assisted solvothermal preparation of nitrogen and sulfur co-doped reduced graphene oxide and graphene quantum dots hybrids for highly efficient oxygen reduction

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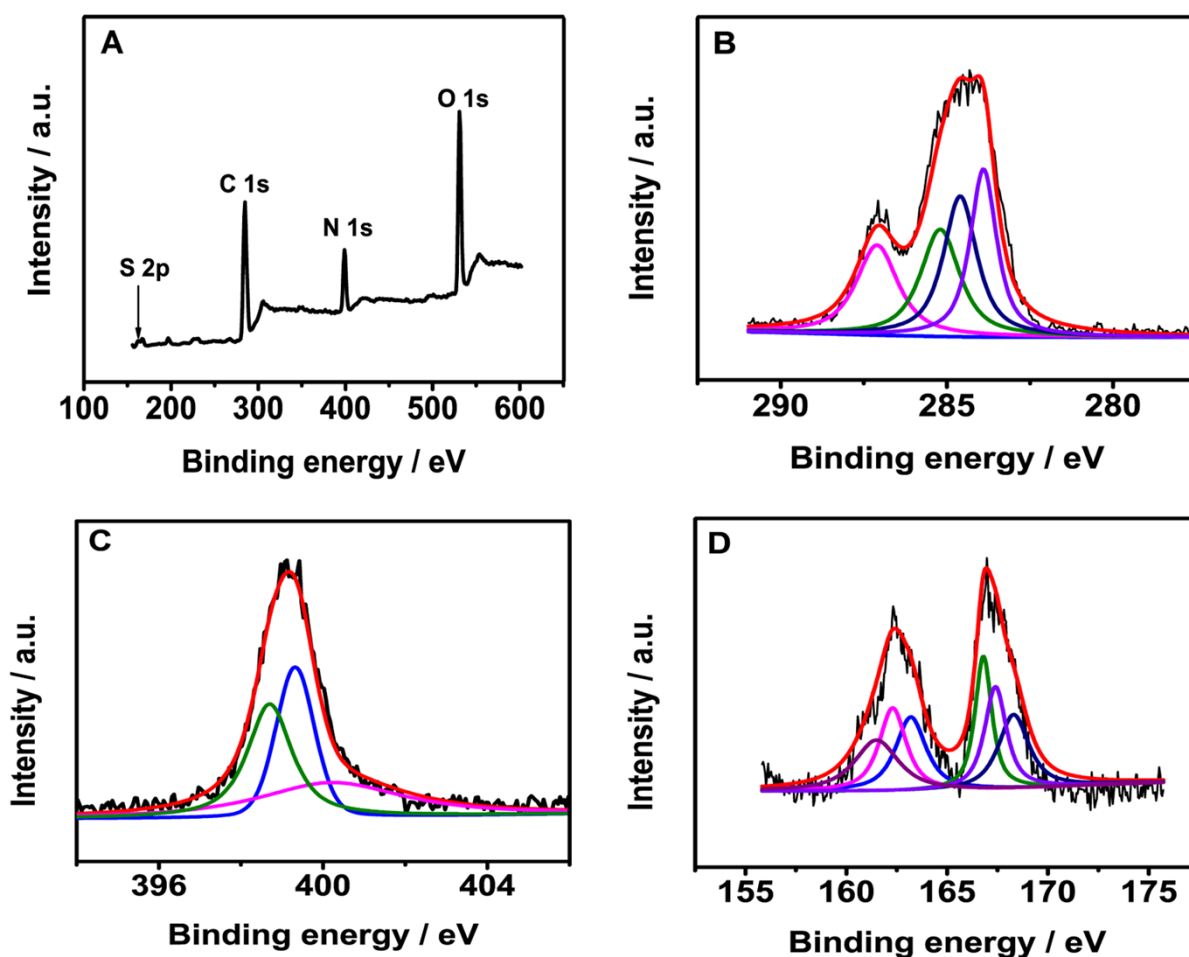


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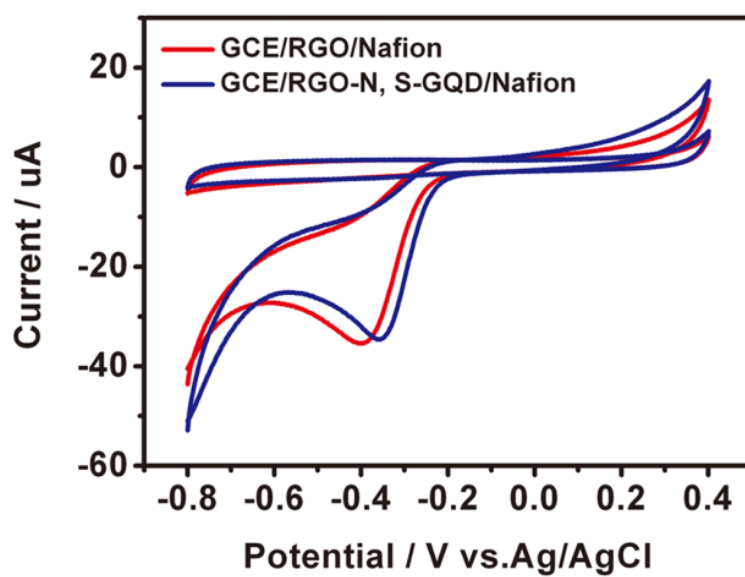


Fig. S2 ORR measurements of GCE modified with RGO (red) or RGO/N, S-GQDs (blue) in N_2 -saturated 0.1 M KOH solution, O_2 -saturated 0.1 M KOH solution.

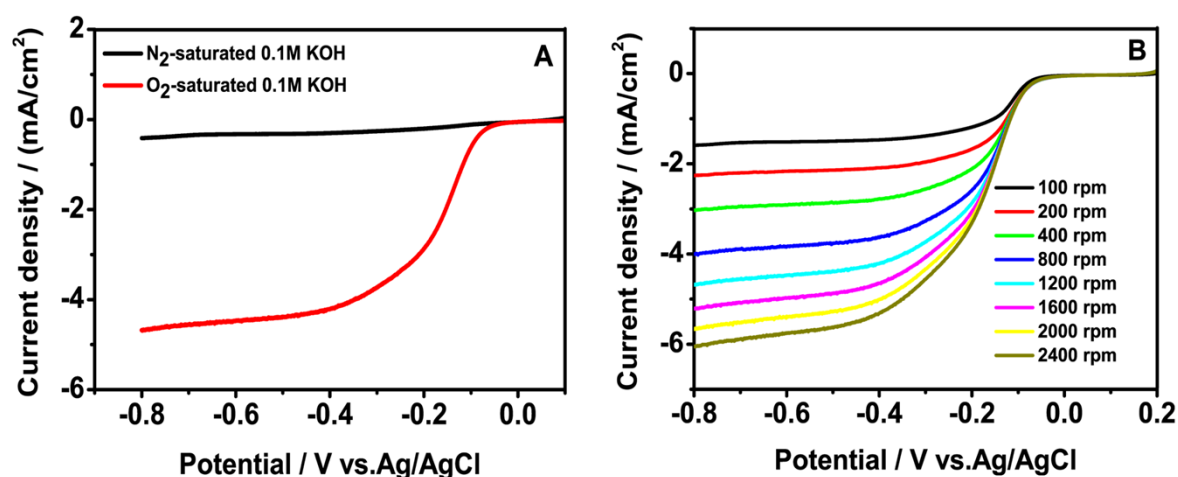


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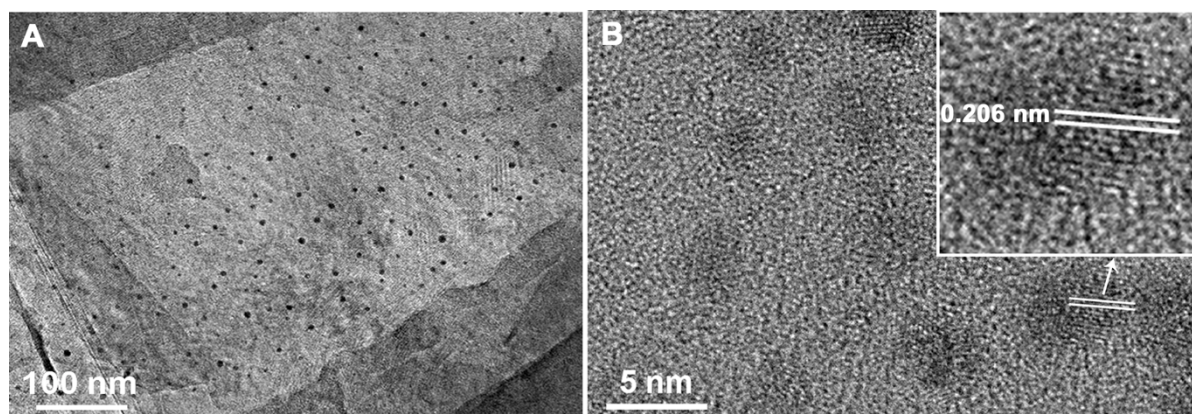


Fig. S4 TEM (A) and HRTEM (B) images of N, S-RGO/GQDs hybrids after 1000 cycles of CVs.

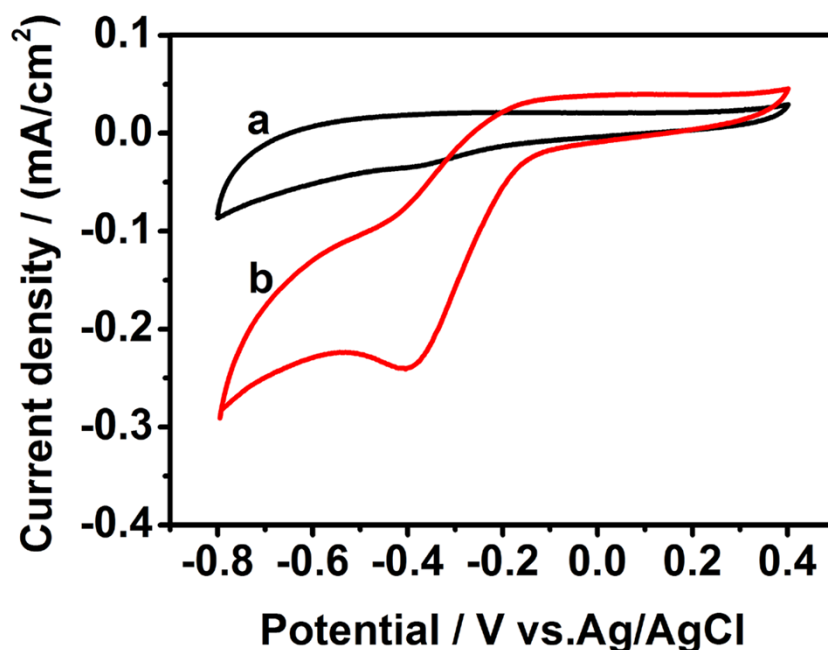


Fig. S5 CVs of GCE modified with N, S- RGO/GQD hybrids after being annealed at 800 °C for 2 h in the Ar in N₂-saturated 0.1 M KOH solution (a), O₂-saturated 0.1 M KOH solution (b). Scan rate is 5 mV s⁻¹.

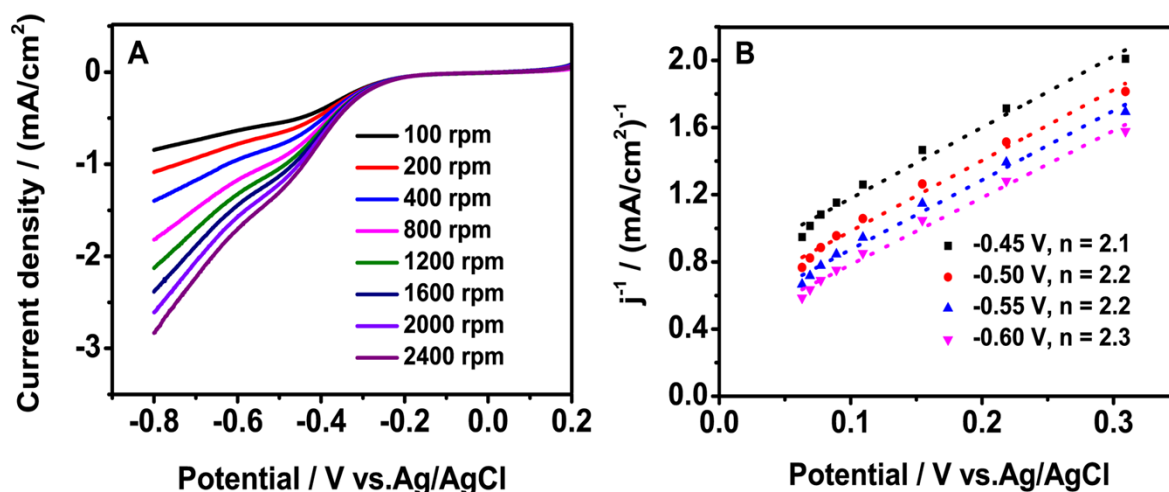


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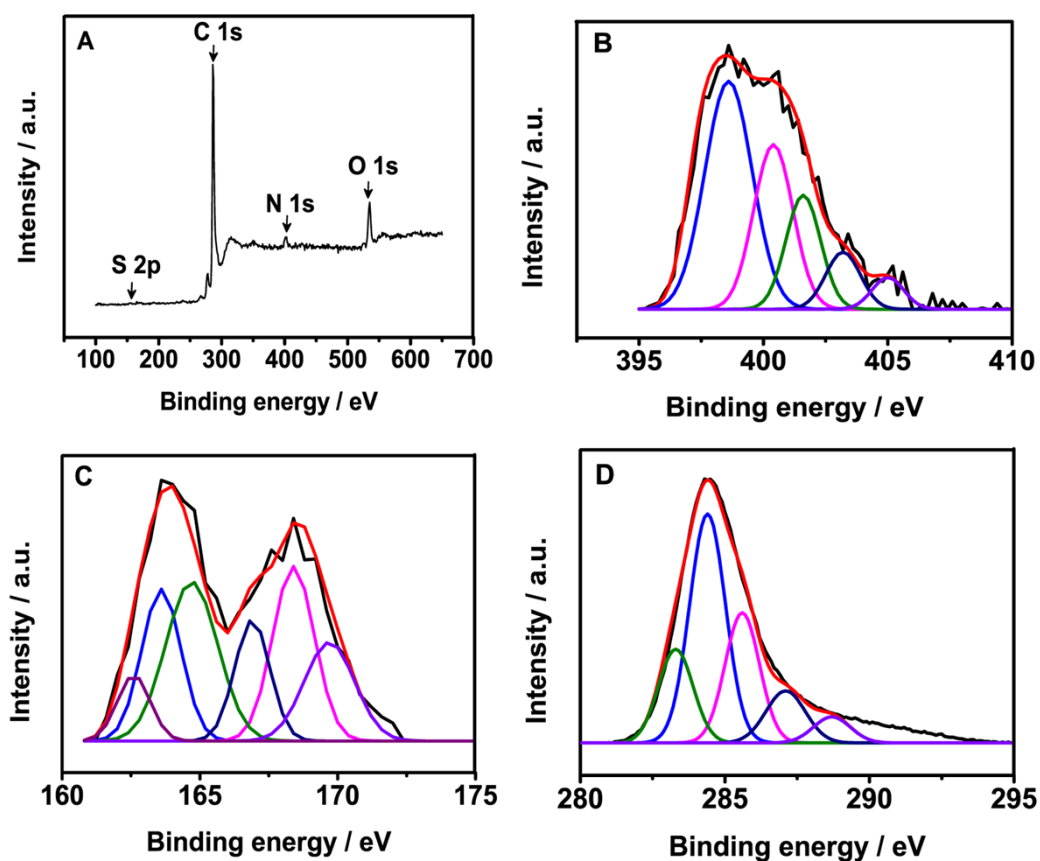


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Table S1 Comparison of ORR catalytic performances between N, S-RGO/GQDs hybrids and other doped carbon materials in literatures.

Catalyst	Onset potential	Electron transfer number	Reference
NCM ₅₈	-0.13 V	3.4 (at -0.9 V)	[1]
NG	-0.183 V	1.7-2.0 (at -0.4~0.7 V)	[2]
SGnP	-0.18 V	3.3 (at -0.6 V)	[3]
NG	-0.10 V	3.6 (at -1.0 V)	[4]
GN12	-0.30 V	2.0 (at -0.4~-0.6 V)	[5]
N, S-RGO/GQDs	-0.10 V	3.6-4.0 (at -0.45~-0.60 V)	This article

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