Supporting Information

The Electrochemistry of Aqueous Colloidal Graphene Oxide on Pt Electrodes

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Table of Contents

- S1. Dependence of scan rate on Peak I from Figure 1(a)
- S2. Voltammetric response of GO on a glassy carbon electrode
- S3. Theoretical peak-current calculations used in Figure 3(b)

Section S1. Scan rate dependence on peak current of GO solutions.

Figure S1: Dependence of deposition peak height on scan rate.

S2. Voltammetric response of GO on a glassy carbon electrode

Figure S2: Cyclic voltammograms of GO in 0.1 M KNO_3 . Working electrode: 3.0mm GC disk, reference electrode: Saturated calomel electrode, counter electrode: Pt coil, $\nu = 100 \text{ mV}\cdot\text{s}^{-1}$.

Section S3. Theoretical peak-current calculations used in Figure 3(b).

Theoretical peak currents were calculated using the Randles-Sevcik equation, which assumes semi-infinite linear diffusion to the electrode surface:

$$i_p = 0.4463nFAC \left(\frac{nFvD}{RT} \right)^{1/2} \quad (\text{S1})$$

where n is the number of electrons transferred, F is Faraday's constant, A is the electrode area, C is the concentration of the electroactive species, v is the scan rate (V s^{-1}), D is the diffusion coefficient, R is the ideal gas constant, and T is the absolute temperature. Under conditions of standard temperature and pressure, equation S1 reduces to:

$$i_p = 268600n^{3/2}AD^{1/2}Cv^{1/2} \quad (\text{S2})$$

The following were used to calculate the theoretical line in Figure 3(b): $A = 0.125 \text{ cm}^2$; $D_{H^+} = 9.4 \cdot 10^{-5} \text{ cm}^2 \text{ s}^{-1}$; $v = 0.1 \text{ V s}^{-1}$; C is calculated from the measured pH of the suspension.