Supporting Information

Title Vertically Aligned Reduced Graphite Oxide Nanosheet Film and its Application in High-Speed Charge/Discharge Electrochemical Capacitor

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Figure S1. SEM images of the deposited film obtained by freeze drying (A: top view and B: side view) and the deposited film obtained by conventional drying (C: top view and D: side view).
Figure S2. SEM top view and side view images of the deposited films for nanosheet concentrations of 0.1 (A and B), 0.2 (C and D), and 0.4 g L\(^{-1}\) (E and F) obtained after freeze-drying.
Figure S3. Cyclic voltammograms of the deposited film by slow (pore size of 100 μm) (a) and fast (pore size of 10 μm) freezing speed (b) with changing scan rates
Figure S4. Cyclic voltammograms of the deposited film by duration time of 5min (a) and 60 min (b) with changing scan rates
Figure S5. Cyclic voltammograms of the deposited film by low (0.1 g L$^{-1}$) (a) and high (0.2 g L$^{-1}$) (b) concentration of the nanosheet with changing scan rates.
Figure S6. Experimental setup for the change of freezing rate. For the fast freezing, the syringe-type setup was made by cutting of both ends of a 5ml disposal syringe and fixing the positive electrode to one end with an adhesive. The size of the positive and negative electrode in the syringe-type setup were 18 mm × 18 mm and 7 mm × 30 mm, respectively. The negative electrode was bent at a position 10 mm from the tip and immersed in the GO colloid, and the distance between the electrodes was set to be 7 mm. For the slow freezing, the vessel of the GO colloid was placed slightly away on liquid nitrogen surface. The marks of “+” and “-” represented the positive and negative electrode, respectively.
Figure S7. Schematic image of transfer method and SEM images of transferred film on a GC electrode.
Figure S8. Raman spectrum of the deposited films after hydrogen reduction