

**Figure captions.**

**Figure S1.** SEM image and the corresponding element mappings of the 3DFGM.

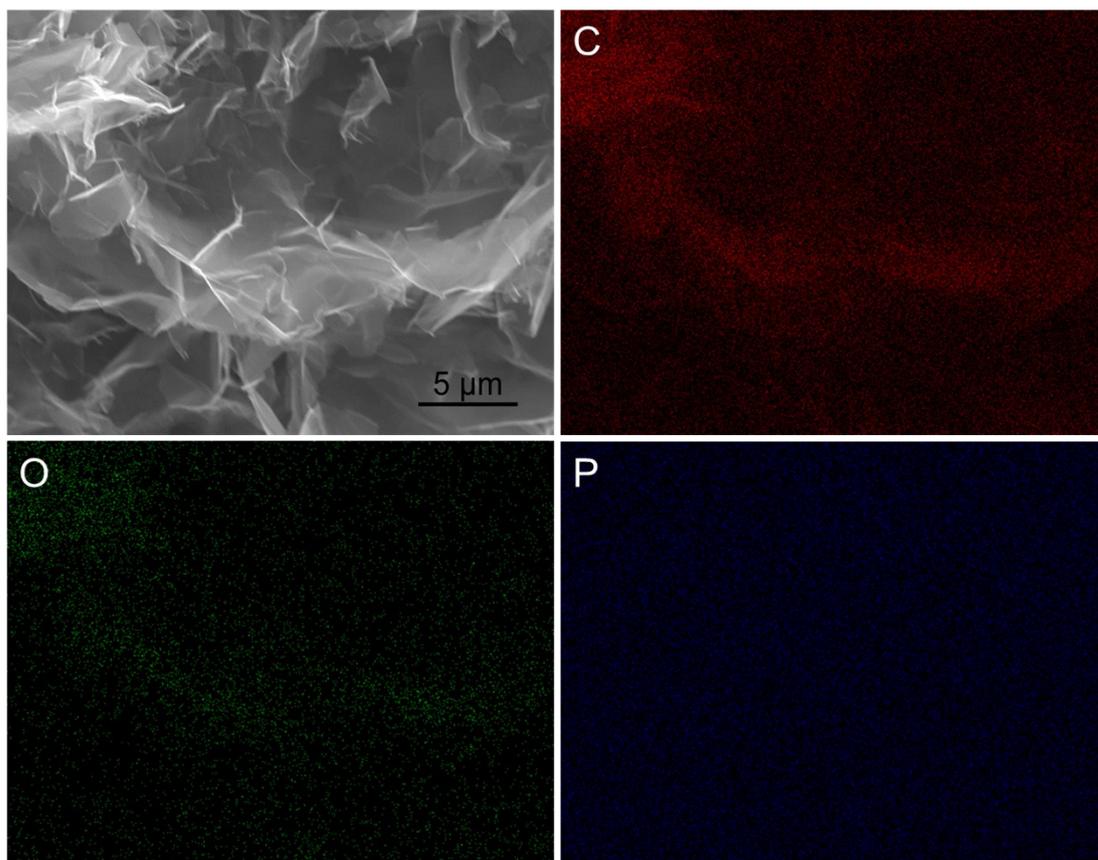
**Figure S2.** (a) TEM and (b-d) HRTEM images of the 3DFGM.

**Figure S3.** Pore size distributions of the 3DFGM and GF (inset).

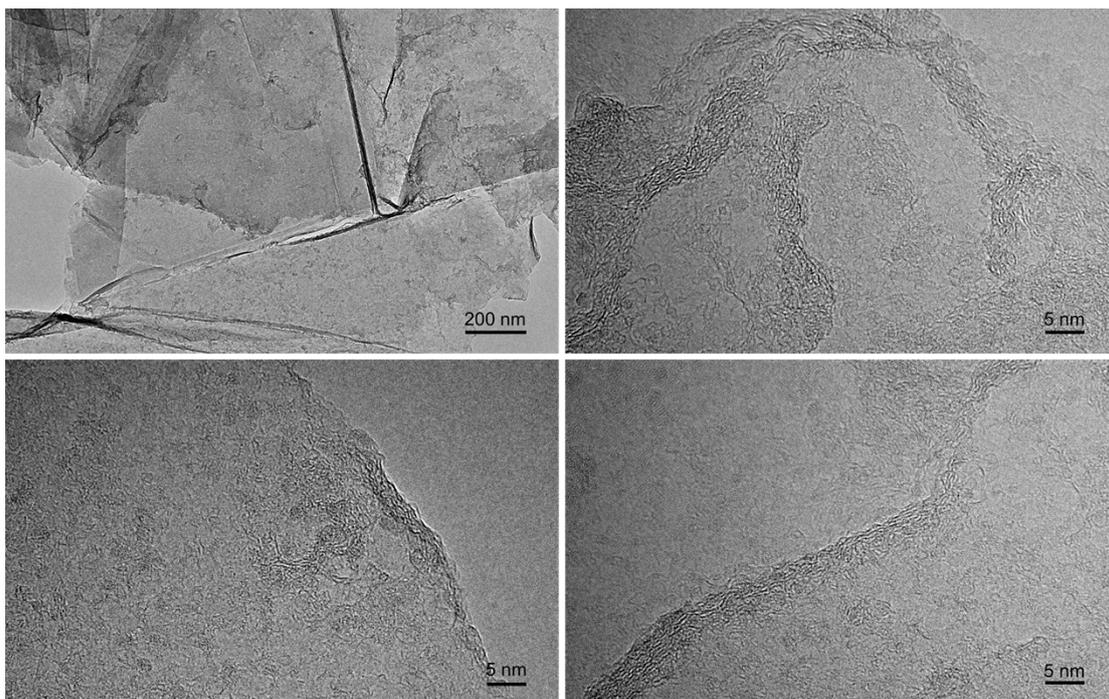
**Figure S4.** Water contact angle analyses of the (a) 3DFGM and (b) GF.

**Figure S5.** Areal and volumetric capacitances of 3DFGM electrode at various gravimetric current densities.

**Figure S6.** Areal and volumetric capacitances of 3DFGM//3DFGM supercapacitor at various gravimetric current densities.



**Figure S1**



**Figure S2**

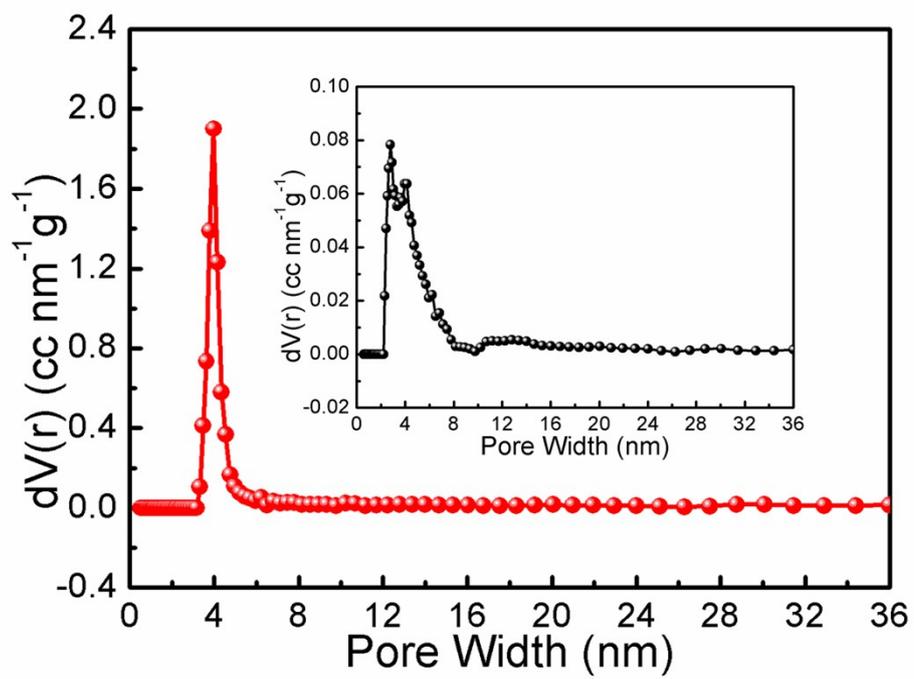


Figure S3

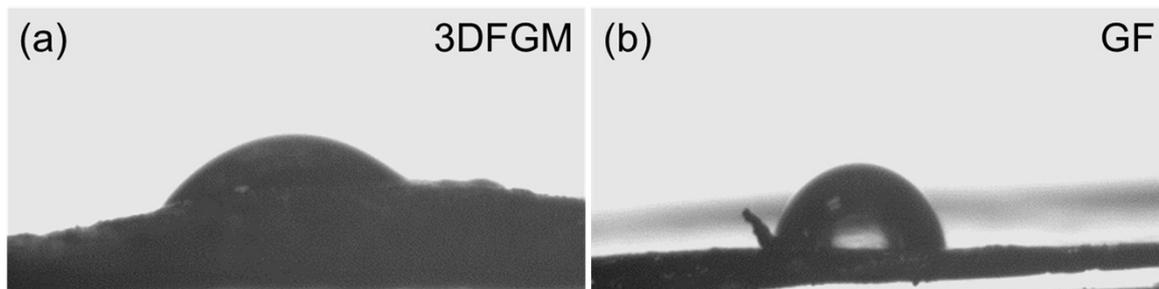


Figure S4

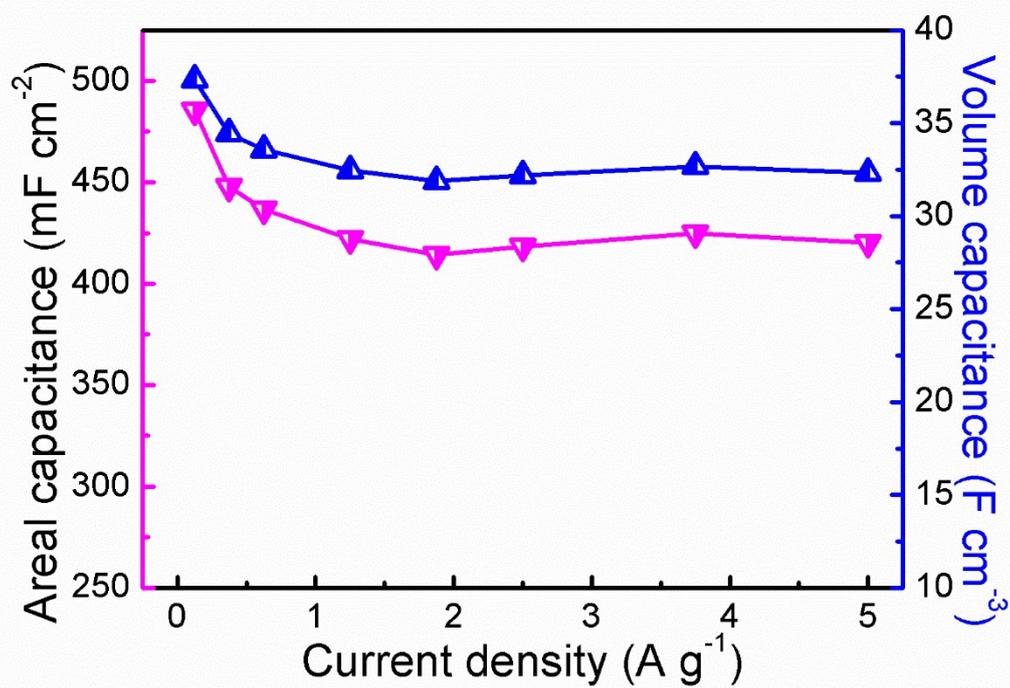


Figure S5

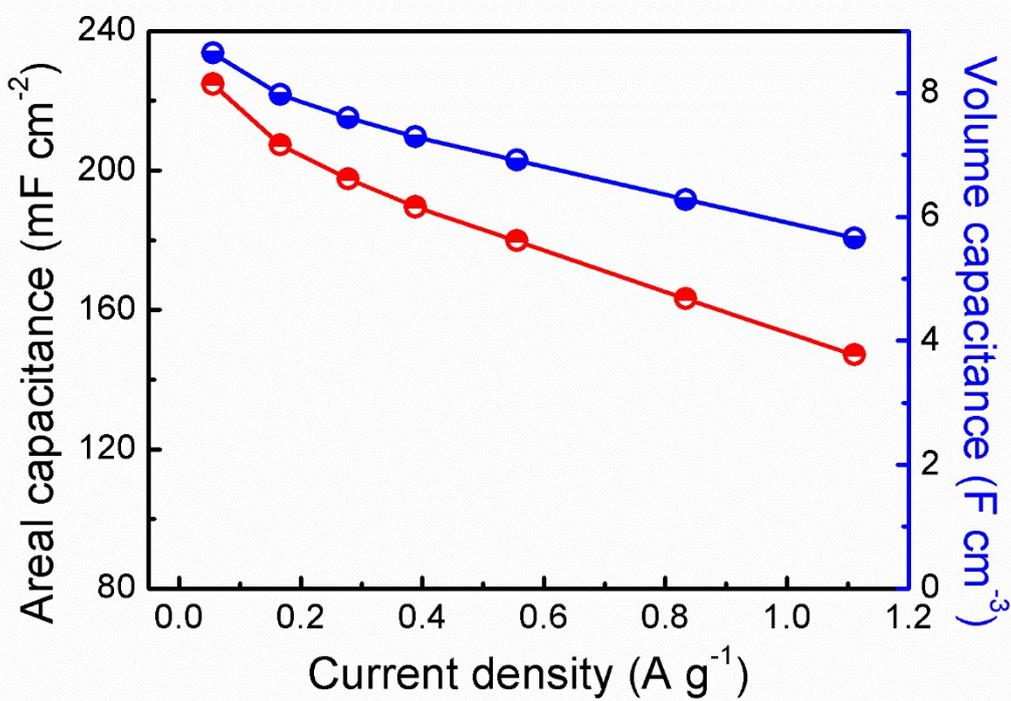


Figure S6