supplementary information:

Hierarchical graphene nanocones over 3D platform of carbon fabrics: A route towards fully foldable graphene based electron source

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Preparation of graphene dispersion:

Graphite oxide was prepared by chemical oxidation of natural graphite powder employing the method of Kovtyukhova et al.[Nina I. Kovtyukhova, Patricia J. Ollivier, Benjamin R. Martin,Thomas E. Mallouk, Sergey A. Chizhik, Eugenia V. Buzaneva, Alexandr D. Gorchinskiy Chem. Mater. 1999, 11, 771- 778]. In brief, 1.5 *g* graphite powder (<50 μm) and 1.5 *g* sodium nitrate ($NaNO_3$, Merck) were mixed with 69 *ml* con. sulphuric acid (H_2SO_4, Merck) under stirring in flask that had been cooled to 0 ^0C using ice bath and allowed to stir for 15 min. Next, 9 *g* potassium permanganate ($KMnO_4$, Merck) was slowly added (for 50 min.) to this mixture under vigorous stirring keeping the temperature below 10 ^0C. Once mixed, the solution was transferred to a constant temperature water bath maintained at 35 ^0C and stirred gently for 2h which was followed by slow addition of 100 *ml* water during which the temperature of the reaction mixture increased to ~98 ^0C. This suspension was then diluted through quick addition of 200 *ml* of D.I water and in the subsequent time 10 *ml* of H_2O_2 (30%) was added slowly thereby turning the color from deep brown to bright yellow. This suspension was then filtered and washed with 300 *ml* 1:10 HCl solution and finally with copious amount of D.I water until the PH of the filtrate become neutral. The filtered cake was then dried over P_2O_5 under vacuum. 3 *mg*

GO was dispersed in 200 *ml* water and was sonicated at 200 *W* with a probe sonicator for 2h to obtain a stable GO dispersion of loading 0.015 *mg/ml*. The PH of this dispersion was adjusted between 10 and 11 by adding ammonia solution and then reduced with hydrazine hydrate (80%) (1:7 weight ratio with GO) at 90 ^{0}C in a regular laboratory oven for 6 hours to obtain a stable aqueous dispersion (0.015 *mg/ml*) of graphene. Graphene dispersion with 0.05 *mg/ml* loading was prepared exactly the same procedure as mentioned above taking 10 *mg* graphite oxide initially. The digital pictures of the stable dispersions are given below.

Graphene dispersion with loading 0.015 *mg/ml*

Graphene dispersion with 0.05 *mg/ml* loading

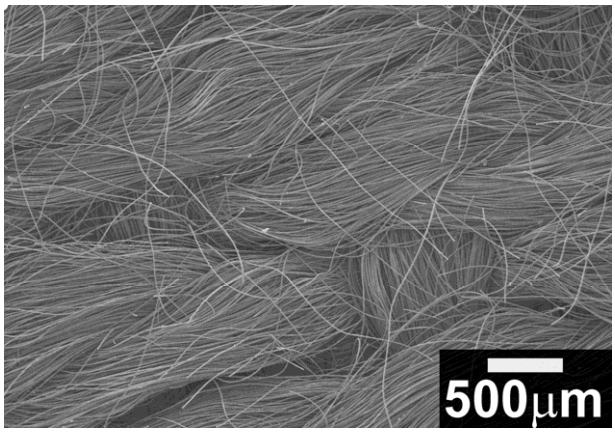

Fig. S1: Low magnification FESEM image of bare carbon fabric substrate

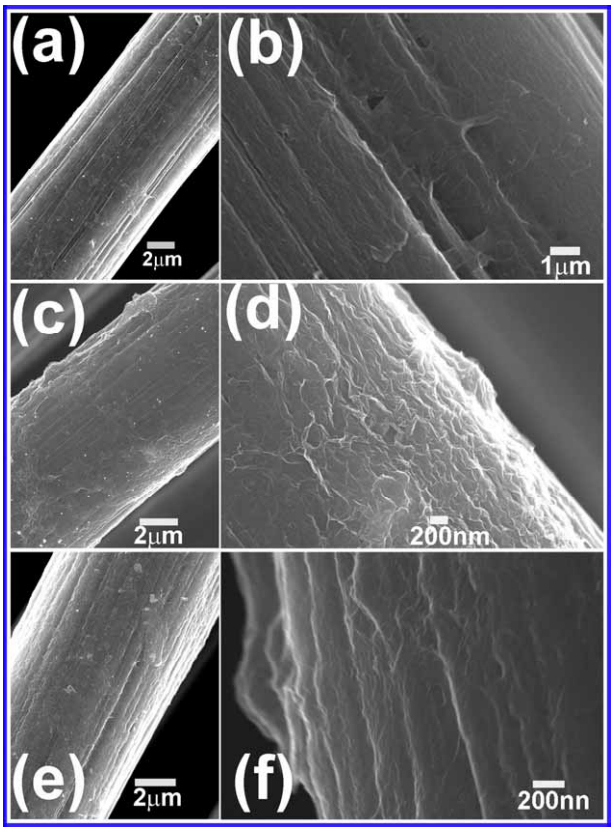

Fig.S2: FESEM image of deposited sample with deposition time : (a)&(b) 5s; (c)&(d) 1 min. ; (e) &(f) 5 min.

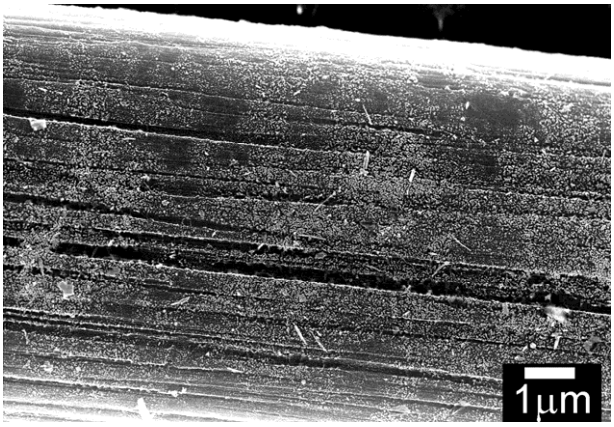

Fig.S3:FESEM image of a single carbon fiber after 5 min. plasma etching.

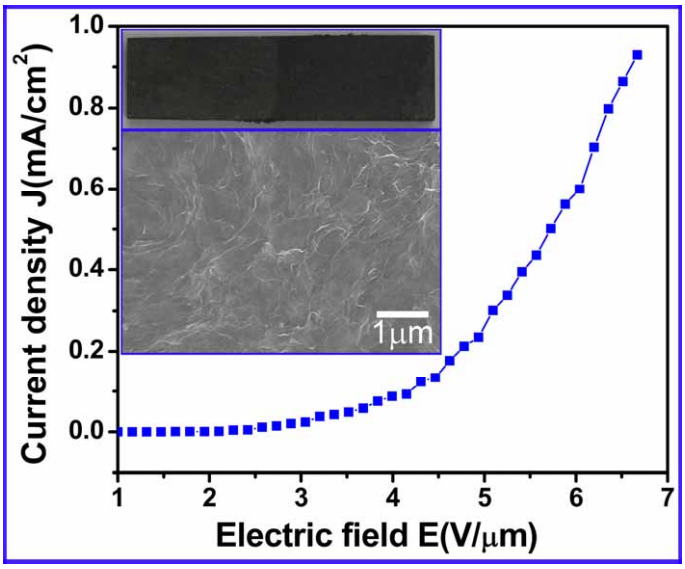

Fig.S4: J-E plot for the EPD deposited graphene over flat graphite substrate. Insets display the digital image of the graphene deposited graphite substrate and its corresponding FESEM image.