Supporting Information

Electrodeposited Pt on three dimensional interconnected graphene as free-standing electrode for fuel cell application

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Fig. S1 SEM images of Pt/3 D-GN catalyst prepared by conventional electrodeposition technique.



Figure S2. (a) TEM images of bare graphene film and (b) graphene film coated with platinum nanoparticles (PtNPs).

Transmission electron microscopy (TEM) characterization of the samples was performed with a JEOL JEM-2100Fmicroscope equipped with an Oxford integrated scientific information system (ISIS). The operating voltage on the microscope was 200 keV. Figure S1 shows the TEM image of as-prepared graphene. Figure S1b shows the TEM image of as-prepared Pt nanoparticles on 3 D graphene. Well dispersed Pt NPs were loaded on 3 D graphene



Figure S3. (a) Nitrogen adsorption isotherm and (b) pore size distribution of the 3D graphene material.

Nitrogen adsorption data were collected using Quantachrome autosorb automated gas sorption systems. A BET surface area up to $670 \text{ m}^2/\text{g}$ was obtained based on nitrogen adsorption- desorption analyses (Figure S3a). The pore size distribution was obtained from the corresponding pore volume distribution (Figure S3b) by assuming cylindrical pore geometry.