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Synthesis of a three dimensional graphene network for ultracapacitor application

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Abstract content
   (Max 300 words)

We presents report on the preparation of a three dimensional graphene foam network for use in ultracapacitor application. A graphene foam consist of highly porous interconnected network of graphene with a very high electrical conductivity which make it suitable for ultracapacitor application.
The structure of the prepared graphene samples were investigated using scanning electron microscopy and transmission electron microscopy which revealed the homogeneity of the three dimensional network with very high porosity. The Raman spectra of 3D graphene grown by the thermal decomposition of methane shows an intense 2D-band, a weaker G-band and hardly any D-band, which are clear indication of Single/few Layer Graphene. The absence of the D-peak shows that the graphene samples were of very good quality.
A cell coin was fabricated with the graphene as electrode for electrochemical characterization. The electrochemical performance shows a nearly rectangular CV shape at various scan rate, which is an indication of nearly ideal
capacitive behavior.

Apply to be
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Level for award
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PhD

Main supervisor (name and email)
and his / her institution

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