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## Synthesis and Characterization of Graphene Oxide Nanocomposite for Application in Hybrid Supercapacitors

Energy storage is one major challenge in the development of viable storage devices to sustain many electronic devices. Hybrid supercapacitors combine the underlying structures of both batteries and supercapacitors in one physical unit. Graphene oxide (GO) has been suggested as a promising material for improved energy density in storage devices. In this study, GO was prepared by modified Hammers method using graphite,  $\text{KMnO}_4$ ,  $\text{H}_2\text{SO}_4$  and  $\text{H}_3\text{PO}_4$ . Fourier-transform infrared (FTIR) and Ultraviolet-Visible (UV-vis) spectroscopy were used to characterize the synthesized GO. From FTIR analysis, the transmittance broad band between 3100 to 3300  $\text{cm}^{-1}$  (O-H) and spectral troughs at 1730  $\text{cm}^{-1}$  and 1018  $\text{cm}^{-1}$  which are attributable to C-O indicate the successful oxidation of graphite. UV-vis spectra support this success with the highest absorption peak at 800 nm.

**Apply to be considered for a student ; award (Yes / No)?**

Yes

**Level for award;(Hons, MSc, PhD, N/A)?**

MSc

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