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Opto-functional characteristics of merit in graphene oxide and reduced graphene oxide from synthetic graphite feedstock for potential incorporation in thin film organic solar cells

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This work derives from the problematic low performance of organic solar cells (OSCs) and attempts to make a contribution to its improvement through an empirical exploration of the potential of graphene derivatives, graphene oxide (GO) and reduced graphene oxide (rGO), for incorporation in OSCs. Along this, GO and rGO were synthesized from the primary feedstock, synthetic graphite (SG). GO was synthesized using the modified Hummers' method, while rGO was synthesized using the modified Tour method. The intrinsic properties of these graphene derivatives were searched for through characterization technique engagements due to Fourier Transform Infrared (FTIR) spectroscopy and Ultraviolet (UV-vis) spectrophotometry, followed by analysis. GO and rGO have been found to be having properties (for example, improved electrical conductivity and light absorbance) that favour their incorporation in organic solar cells, for performance enhancement of the cells.

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

Yes

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

Hons

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