

Supercapacitor application of doped reduced graphene oxide

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Graphene is one of the promising electro-chemical capacitors electrode materials due to its high surface area and high electrical conductivity. Nitrogen doped graphene has also been intensively investigated as electrode materials for supercapacitors. Nitrogen doping is a simple but useful process for graphene because N-doping easily manipulates local electronic structures of graphene and thus can improve the supercapacitor performance in terms of improved conductivity and more excellent electrolytic activity.

Supercapacitors are very attractive power sources compared with batteries since they are essentially maintenance-free, possess a longer cycle-life, require a very simple charging circuit, experience no memory effect, and are generally much safer.

In this study, we tried to control N-doping site on graphene through thermal annealing of GO via nitrogen-containing compounds. We used the N-doped graphene as an active material in SC electrodes. NG showed excellent capacitance in comparison with pristine graphene by improved electrical conductivity and electronic activity.