

Supercapacitor Performance of PAN based Carbonnanofiber Containing Modified MWCNTs

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Abstract

Since nanofibers were successfully produced by electrospinning process in the 1930 [1], they have attracted attentions due to its superior properties such as wide surface area, high electrical conductivity [2], and good thermal property. As carbonnanotubes (CNTs) are widely used because of their superior mechanical, thermal, electrical properties [3], different type of CNTs are used in this paper. There are various factors which influenced CNFs such as Voltage [4], feed rate, concentration of CNTs in polymer composites and types of CNTs. It is important to control factors to get uniform and desired results. Among the various factor, concentration and type of CNTs are chosen to observe the influence of these factors while other factors are same. Nanofibers containing various ratio of carbonnanotubes (CNTs) are prepared by electrospinning with polymers such as Polyacrylonitrile (PAN) and Dimethylformamide (DMF) as a solvent. Carbonnanofiber (CNFs) are produced through stabilization, carbonization and activation process [2]. Three types of CNTs - Raw and functionalized CNTs (CNT-OH, CNT-COOH) - are added to PAN solution respectively to study the influence of functional group on CNTs during electrospinning.

References

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Figures

