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Multi-walled carbon nanotube (MW-CNT) based electrodes for increasing the performance of electrochemical supercapacitors

Belqasem Aljafari

University of South Florida, USA

There has been concern over the commercially existing energy storage technologies over their capacities and efficiency. Supercapacitors are now being viewed as one of the most efficient energy technology alternatives. In fact, research engineers are now focusing on ways and means to boost its performance further hence it is being fortified with multi-walled carbon-based electrodes to increase its performance. This paper considers the emerging technologies and how it is shaping up the performance of electrochemical supercapacitors. Many research scientists and engineers have concentrated on the techniques and methodologies of ensuring that fortification of the supercapacitor using the multi-walled carbon nanotube material bears fruit. The investigation of correlation in characteristics between a purely made supercapacitor with ordinary carbon as a base material and that in which the multi-walled carbon nanotubes are embedded was carried out. The results obtained were positive as there was a marked improvement in the capacitive performance of the fortified supercapacitor. The carbon nanotubes provided a more significant electrode potential hence attracting more ions. In fact, the capacitance, due to this composition, jumped from four to 139F/g. Further agree that the desirable capacitive qualities in carbon nanotubes could be attributed to the fact they have higher specific surface area, greater thermal and electrical conductivity, and lower mass.

Biography

Belqasem Aljafari has completed his MS from Northern Illinois University School of Engineering. He is currently pursuing his PhD degree from the School of Engineering.

belqasem.aljafari@gmail.com

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