Supercapacitor Electrodes Delivering High Energy and Power Densities

R. Jose', S.G. Krishnan, B. Vidyadharan, I.I. Misnon, M. Harilal, R.A. Aziz, J. Ismail, M.M. Yusoff
Nanostructured Renewable Energy Materials Laboratory, Universiti Malaysia Pahang, 26300 Kuantan, Pahang, Malaysia

ABSTRACT
Considerable progress has been achieved in developing supercapacitor materials with desirable charge storage properties; however, uniting energy density (*ES*) and power density (*PS*) in a single device is an elusive issue. We have explored diverse range of materials and structures such as (i) activated carbon from bio-resources, (ii) ceramic electrochemical materials as nanoparticles, nanowires, and nanoribbons, and (iii) layered materials to overcome this issue. An *ES* of ~52.6 Wh kg^{-1} @ *PS* of ~15000 W kg^{-1} is delivered using nanowire nanocomposites based device which appear to be the best ever achieved in supercapacitor charge storage mode employing aqueous alkaline electrolytes.

KEYWORDS: Electrospinning; Hydrothermal; Nanowire; Nanoflower; Energy storage

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