

Carbon Nanotube Templated Synthesis of Porphyrin-based Conjugated Microporous Polymer as Electrode Material for Supercapacitor

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Emergence of conjugated microporous polymer (CMP) as electrode material catapulted its development for supercapacitor application. However, most CMPs are known to be highly uncondutive despite the inherent conjugation system within the framework. In this study, carbon nanotubes (CNT) were utilized as a template and to improve the conductivity of as-synthesized CMP by mediating the transfer of electrons to the CMP, hence, providing a faster conduction pathway. Cyclic voltammetry experiment of FeCMP-CNT showed a 10-fold increase from as-synthesized FeCMP. This exhibited ~90 F/g of specific capacitance at current density 1 A/g as compared to the negligible amount of charge capacity of both the pristine CNT and as-synthesized FeCMP at the same current density. This work was supported by the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT and Future Planning (NRF-2016R1C1B2008694).