One-step Synthesis of V_2O_5/Carbon Nanotubes/rGO Aerogels for Supercapacitors

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Vanadium oxide (V_2O_5) and multiple walled carbo nanotubes spaced graphene aerogels was produced by one-step hydrothermal co-assembly method in order to obtain high specific capacitance material for supercapacitor electrode application. V_2O_5 is one of the most promising candidates for supercapacitors thanks to its cost effectiveness and high pseudocapacitance, while multiple walled carbo nanotube (MWCNT) is a potential carbonaceous material for ELDC electrodes. Two of these materials were first time combined together with graphene oxide in order to form a high capacitive 3D hybrid aerogels, which could be considered as a promising material for supercapacitors electrodes applications. V_2O_5/MWCNT/rGO aerogels were obtained quickly and efficiently by one-step hydrothermal co-assembly method, showed a high specific capacitance of about 745.3 F g-1 and long term charge-discharge stability.