Abstract

Novel materials are investigated to simultaneously enhance energy and power density of ultra-capacitors that are solvent-free for autonomous sensors. Hybrid energy storage / power delivery devices are desired because of their flexible design to accommodate different autonomous sensors format and a wide range of other applications. However, the current technology is expensive, less eco-friendly and meet stability problems [1].

In this regard, carbon material and clay composites are used here as a suitable material for anode with an ionic liquid as partner electrolyte. The carbon material selected is graphene, which is an interesting conductive material used in ultra-capacitors [2] and we propose to intercalate it with a clay such as montmorillonite, which is an innovative way to increase the ion conduction and improve the shaping process of the electrode [3].

References


Figures

Figure 1: Design of energy storage/delivery device

Figure 2: Clay/graphene composite free-standing film