ABSTRACT

Methods for forming a graft copolymer of a poly(vinylidene fluoride)-based polymer and at least one type of electrically conductive polymer, wherein the electrically conductive polymer is grafted on the poly(vinylidene fluoride)-based polymer are provided. The methods comprise a) irradiating a poly(vinylidene fluoride)-based polymer with a stream of electrically charged particles; b) forming a solution comprising the irradiated poly(vinylidene fluoride)-based polymer, an electrically conductive monomer and an acid in a suitable solvent; and c) adding an oxidant to the solution to form the graft copolymer. Graft copolymers of a poly(vinylidene fluoride)-based polymer and at least one type of electrically conductive polymer, wherein the electrically conductive polymer is grafted on the poly(vinylidene fluoride)-based polymer, nanocomposite materials comprising the graft copolymer, and multilayer capacitors comprising the nanocomposite material are also provided.

Figure 1