

Optimization of Hydrogel Conductive Nanocomposite as Solar Cell

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Abstract : Hydrogel conductive polymer nanocomposite fabricated via in-situ polymerization of polyaniline (PANI) inside thermosensitive hydrogels based on hydroxy ethyl meth acrylate (HEMA) copolymer with 2-acrylamido-2-methyl propane sulfonic acid (AMPS). SEM micrographs show the nanometric size of the conductive material (polyaniline, PANI) dispersed in the hydrogel matrix. The swelling parameters of hydrogel are measured. The incorporation of PANI improves the mechanical properties and swelling up to 30,000% without breaking. X-ray diffraction shows that typical polyaniline crystallization is formed in composite, which is advantageous to increase the electrical conductivity of the composite hydrogel. Open-circuit voltage (I-V) curve fill factor of the highest photo-conversion efficiency and enhanced to use in solar cell.

Keywords : hydrogel, solar cell, conductive polymer, nanocomposite

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