

Energy conversion of electrostrictive poly(vinylidene fluoride-co-hexafluoropropylene) /Graphene composites

Energy conversion of electrostrictive poly (vinylidene fluoride-co-hexafluoropropylene), P(VDF-HFP) polymer filled with graphene nanosheet (GNPs) was investigated. Those composites were fabricated by solution casting method. In fact, dielectric constant is one of key performance of the energy conversion based on the electrostrictive materials. Thus, the LCR meter was used to determine the dielectric behavior in a range of frequency. The photonic sensor was used to investigate the electrostrictive coefficient in varying the vibration conditions and electric field. The results revealed that dielectric constant, and electrostrictive coefficient significantly increase when the GNPs fillers were increased. Consequently, the generated current from the composite films also increased with the GNPs content. The results show that the obtained P(VDF-HFP)/GNPs composites are very promising electrostrictive polymers for the energy conversion application.

Primary authors: RUADROEW, Rojanasak (Prince of Songkla University); PUTSON, Chatchai (Prince of Songkla University)

Presenter: RUADROEW, Rojanasak (Prince of Songkla University)

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