

Fabrication of Conducting Polymer Nanofibers via Electrospinning and Oxidative Polymerization

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Conducting nanofibers from poly(methyl methacrylate) (PMMA) and poly(3,4-ethylenedioxythiophene) (PEDOT) were fabricated using electrospinning (ES) for conductive nanofiber mats. The growth of PEDOT layers onto PMMA nanofibers via an oxidative polymerization (OP) process. PMMA-PEDOT nanofibers were characterized by scanning and transmission electron microscopy to confirm their surface morphology and coated layer structure. The OP of EDOT on the electrospun PMMA nanofiber mats were monitored using transmission fourier transform-infrared spectroscopy (FT-IR). In addition, a four-probe conductivity of the as-polymerized PMMA-PEDOT nanofiber mats were measured by the van der Pauw method. PEDOT-coated PMMA nanofibers were demonstrated good electrical properties without the need of purification and expected to be excellent candidates for the fabrication of flexible electronic devices.