



Deposition Technique for Organic Electronics: Polyaniline Nanofibers

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Conducting polymers are organic chains able to conduct electricity. Polyaniline is a favorable polymer to use because it is easily synthesized, environmentally stable, and has the ability to become doped and dedoped by simple acid/base chemistry. Polyaniline nanofibers have been recently studied due to their capability of yielding new properties and enhancing the performance of existing applications. This study is concerned with developing a method of chemical treatment to remove films from glass substrates. The formation and delamination of polyaniline nanofiber films requires solution based and interfacial chemistry. Deposition and formation is key to the homogeneity of films. This study employs a deposition technique that uses an immiscible binary system composed of water and oil. Interfacial surface tension between these phases leads to the formation of film. The films were prepared from multiple acidic solutions. The nanofiber solutions are run through dialysis for several day to rid them of impurities. The nanofibers are then dedoped during the film formation process. The study has proved that dedoped films are robust and stable when delaminated in aqueous solutions. Films must remain moist never dry in order that they may not fully adhere to the glass substrate. Delamination was conducted in aqueous solutions of water and several different alcohols in order to lower surface tension and allow for stable delamination. Results from this study seek to produce continuous, homogeneous, and transparent films that are able to stand alone and enhance their capabilities in solar cells, transistors, and electrochromics.