

ABSTRACT:

Electrospinning is a very simple and versatile process by which polymer nanofibers with diameters ranging from a few nanometers to several micrometers can be produced using an electrostatically driven jet of polymer solution (or polymer melt). Significant progress has been made in this process throughout the last decade and the resultant nanostructures have been exploited to a wide range of applications. An important feature of the electrospinning process is that electrospinning nanofibers are produced in atmospheric air and at room temperature. This paper reviews the assembled polyacrylonitrile (PAN)-based carbon nanofibers with various processing parameters such as electrical potential, distance between capillary and collector drum, solution flow rate (dope extrusion rate), and concentration of polymer solution. The average fiber diameter would increase with increasing concentration of the polymer solution and the flow rate. Therefore, the screen distance could also increase but the average electrical potential of the fibers diameter decreases. Electrospinning process can be conducted at higher electrical potentials, lower flow rate, nearer screen distance, and higher concentrations of dope.