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## PROCESSING OF POLYMER NANOFIBERS THROUGH ELECTROSPINNING

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### ABSTRACT

Polymeric biomaterial processing is an area receiving increasing attention as progress is made towards tailoring the morphology and porosity of constructs for a variety of applications, including tissue engineering, vascular grafts, tissue repair, wound healing, and drug delivery. Towards this end, electrospinning has the unique ability to produce nanofibers of different materials in various fibrous assemblies. The relatively high production rate and simplicity of the setup makes electrospinning highly attractive to both academia and industry.

Electrospinning has been recognized as an efficient technique for the fabrication of polymer nanofibers. Various polymers have been successfully electrospun into ultrafine fibers in recent years mostly in solvent solution and some in melt form.

Nanofibers are able to form a highly porous mesh and their large surface-to-volume ratio improves performance for many applications. A variety of nanofibers can be made for applications in healthcare, energy storage, biotechnology, environmental engineering, and defense and security.

In this lecture the researches and developments related to electrospun polymer nanofibers including processing, properties, and applications will be presented. Also, information on the electrospinning process and some results from application in medicine has been summarized in the lecture.

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