Electrospun Nanofiber Architectures: A New Class of Nonwovens for the Transportation Sector

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ABSTRACT

Electrospinning is a rapidly developing technology that provides a unique way to controllably produce nanofibers with diameters typically in the range from 10 nm to 500nm from a variety of solutions or melts. Anton Formhals first patented the invention of fibers by electrospinning in 1934. Extraordinary properties arise from the enhanced surface area to volume ratio of electrospun nanofibers, which makes them suitable for high value applications such as filtration media, ceramics, composites, biomedical, insulation, and energy storage. Recent developments in design and engineering of novel nonwoven nanofiber architectures through electrospinning along with their applications in the transportation sector will be highlighted in this presentation. This research is financially supported by the Michigan Economic Development Corporation (MEDC), 21st Century Jobs Fund Project Number: 06-1-P1-026.