Third Laureate
Research & Development

- **Project title: Industrial Electroris**
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Abstract:

Electrospinning is an easy and cost effective way to fabricate nanofibers with diameters ranging from 3 nm to more than 5 μm that can be used in large scale production. Electrospun nanofibrous meshes have gained large attention in terms of their versatile applications in drug delivery, tissue engineering, wound dressing, biosensors, enzyme carriers, protective materials, energy storage and filters. Developing an electrospinning technique for large-scale nanofiber production has become more and more important, as the conventional needle electrospinning has limited productivity and is only suitable for research purpose. Industrial electrospinning has been shown the ability to mass produce nanofibers and it is also the most successful design for practical applications. This industrial electrospining machines can be used in coating of filters' paper by a layer of polymeric nanofibers increasing filteration efficiency and filter life time without increasing in pressure drop which is very important in efficient filters. The produced nanofilters by this large scale machine are useful in cars' filter, health masks, power plants' filters and else. Just in power plants filters this technology can improve the energy conversion and reduce costs and can be benefit through making and saving a few million dollars for only one power plant working in Iran. The capacity of this largescale electrospinning machine is about 500 square meters per hour coating of the paper by nanofibers. The technologies and machines are totally made by FNM. Also sub systems of electrospinning including high voltage power suppliers, syringe pumps, collectors and other accessories are being produced in this company.