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A simple electrospinning system for fabrication of core-shell nanofibers

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Abstract

In this work, a simple electrospinning system for fabrication of core-shell nanofibers has been developed. The electrospinning set up as well as experimental procedure are described in detail. The fabrications of metal oxide and composite nanofibers with core-shell structures and other nanostructures are demonstrated. The prepared nanostructures are characterized by various techniques including thermal analysis, X-ray diffraction, Fourier transform infrared spectroscopy, scanning electron microscopy, transmission electron microscopy, and X-ray absorption spectroscopy. This simple electrospinning syetm can be used to fabrication core-shell nanofiebrs for many innovative applications including ultrafiltration, fuel cells, membranes, tissue engineering, catalysis and drug delivery or release and nanofluidics and hydrogen storage.

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