Author's Accepted Manuscript

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PII: S2452-2139(18)30129-3
DOI: https://doi.org/10.1016/j.coco.2018.09.005
Reference: COCO134

To appear in: *Composites Communications*

Received date: 27 July 2018
Revised date: 1 September 2018
Accepted date: 16 September 2018

Cite this article as: Rui Zhao, Xiaofeng Lu and Ce Wang, Electrospinning based all-nano composite materials: recent achievements and perspectives, *Composites Communications,* https://doi.org/10.1016/j.coco.2018.09.005

Electrospinning based all-nano composite materials: recent achievements and perspectives

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Abstract

Nanoscale composite materials have received more and more attention in recent years. All-nano composite material produced by electrospinning is a rising field, which is in the basic research and primary development stage. Due to the multifunctional properties of these composite materials, they are expected to be applied in many fields. This review focuses on recent progress in reported electrospinning based all-nano composite materials for various applications, such as membrane filtration, adsorption of harmful substances, photo/chemical/electro catalysis, biological medicine, electronic nanodevices, energy storage and conversion, and electromagnetic interference shielding and stealth materials. Finally, we propose our personal insights into future research opportunities and challenges in the hope of stimulating more researchers to engage in this novel field of electrospinning based all-nano composite materials for innovative applications.