

Author's Accepted Manuscript

Synergistic reinforcing effect from graphene and carbon nanotubes

Xiumin Liang, Qunfeng Cheng



PII: S2452-2139(18)30143-8
DOI: <https://doi.org/10.1016/j.coco.2018.09.002>
Reference: COCO131

To appear in: *Composites Communications*

Received date: 22 August 2018
Revised date: 4 September 2018
Accepted date: 5 September 2018

Cite this article as: Xiumin Liang and Qunfeng Cheng, Synergistic reinforcing effect from graphene and carbon nanotubes, *Composites Communications*, <https://doi.org/10.1016/j.coco.2018.09.002>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Synergistic reinforcing effect from graphene and carbon nanotubes

Xiumin Liang,¹ and Qunfeng Cheng^{1,2,3*}

¹Key Laboratory of Bio-inspired Smart Interfacial Science and Technology of Ministry of Education, School of Chemistry, Beijing Advanced Innovation Center for Biomedical Engineering, Beihang University Beijing 100191, P. R. China

²State Key Laboratory for Modification of Chemical Fibers and Polymer Materials, Donghua University Shanghai 201620, P. R. China

³State Key Laboratory of Organic-Inorganic Composites, Beijing University of Chemical Technology Beijing 100029, P. R. China Email: cheng@buaa.edu.cn

Abstract:

Carbon nanomaterials show excellent physicochemical properties, especially for carbon nanotubes (CNTs) and graphene nanosheets. A large amount of bioinspired hybrid materials based on graphene/CNTs have been reported. The mechanical and electrical properties of resultant carbon nanomaterials based hybrid materials have been dramatically improved, indicating the synergistic effect between carbon nanotubes and graphene. In fact, the synergistic effect always plays a key role in the natural materials such as nacre and bone, and bioinspired materials based on carbon nanomaterials. Herein, this mini-review summarizes recent progress in synergistic effect from CNTs and graphene in the bioinspired hybrid materials and also make the perspective of the synergistic reinforcing effect from CNTs and graphene in enhancing the performance of carbon nanomaterials-based nanocomposites.

Abbreviations:

2D, two-dimensional; 3D, three-dimensional; CNTs, carbon nanotubes; SACNT, super-aligned carbon nanotubes; SWNTs, single-walled carbon nanotubes; DWNTs, double-walled carbon nanotubes; MWNTs, multi-walled

Download English Version:

<https://daneshyari.com/en/article/11006690>

Download Persian Version:

<https://daneshyari.com/article/11006690>

[Daneshyari.com](https://daneshyari.com)