

# Accepted Manuscript

Review

## Microstructure Engineering of Graphene towards Highly Thermal Conductive Composites

Haoming Fang, Shu-Lin Bai, Ching Ping Wong

PII: S1359-835X(18)30238-0

DOI: <https://doi.org/10.1016/j.compositesa.2018.06.010>

Reference: JCOMA 5071

To appear in: *Composites: Part A*

Received Date: 3 April 2018

Revised Date: 31 May 2018

Accepted Date: 6 June 2018



Please cite this article as: Fang, H., Bai, S-L., Ping Wong, C., Microstructure Engineering of Graphene towards Highly Thermal Conductive Composites, *Composites: Part A* (2018), doi: <https://doi.org/10.1016/j.compositesa.2018.06.010>

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 proof before it is published in its final 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.

# Microstructure Engineering of Graphene towards Highly Thermal Conductive Composites

Haoming Fang<sup>a</sup>, Shu-Lin Bai<sup>a\*</sup>, Ching Ping Wong<sup>b</sup>

<sup>a</sup> *Department of Materials Science and Engineering, HEDPS/CAPT/LTCS, Key Laboratory of Polymer Chemistry and Physics of Ministry of Education, College of Engineering, Peking University, Beijing 100871, China*

<sup>b</sup> *School of Materials Science and Engineering, Georgia Institute of Technology, 771 Ferst Dr, Atlanta, GA, 30332, USA.*

*\*Corresponding author. Tel.: +86-10-6275 9379. E-mail address: slbai@pku.edu.cn*

## ABSTRACT:

Heat management is more and more crucial challenge since the development of modern electronic devices towards miniaturization and high dense integrity. Highly thermal conductive composites based on graphene are ideal heat-dissipating materials for their excellent heat dissipation ability, outstanding mechanical properties as well as low coefficient of thermal expansion. Numerous efforts have been made towards the development of graphene-based polymeric composites with high performance. Furthermore, it has been demonstrated that microstructure engineering of graphene-based construction of three-dimensional networks and high orientation is extremely important to improve the properties of composites. In this review, the research progress on the latest strategies of microstructure engineering of graphene for highly thermal conductive composites is summarized. Both fabrication methods and theoretical simulations are discussed. Finally, development and perspectives of highly thermal conductive composites are presented.

**KEYWORDS:** thermal conductivity; graphene; polymeric composites; interconnected structure and orientation; surface treatment

Download English Version:

<https://daneshyari.com/en/article/7889406>

Download Persian Version:

<https://daneshyari.com/article/7889406>

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