Special Issue

Carbon Nanotube Based Composites: Processing, Properties, Modeling and Application

Message from the Guest Editor

One way to take advantage of the marvelous properties of carbon nanotubes, consists of incorporating them into a matrix to build composite materials. The extraordinary mechanical properties, together with the high ratios (100–10,000) of the geometric aspect, stiffness-to-weight, and strength-to-weight, all point to carbon nanotubes as potentially ideal reinforcing agents in advanced composites. However, not only the stiffness and strength of the polymer can be improved by adding CNTs, but also the thermal and electrical conductivities, optical properties, toughness, fatigue resistance, and damping characteristics of the formed composites can be enhanced. Before seeing an extensive use of carbon nanotube enhanced polymer composites, there are a few difficult challenges that need to be addressed, in particular, it is important to consider the following: to develop inexpensive mass production techniques for CNTs, to be able to accurately control their geometrical features (like diameter, length, and chirality), to achieve the ability to disperse the CNTs homogeneously throughout the matrix, and to efficiently transfer the mechanical load from the matrix to the CNTs.

Guest Editor

Prof. Dr. Antonio Pantano
Dipartimento di Ingegneria, Università degli Studi di Palermo, 90128 Palermo, Italy

Deadline for manuscript submissions

closed (31 December 2020)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

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Materials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
materials@mdpi.com

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

Editor-in-Chief

Prof. Dr. Maryam Tabrizian
1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada
2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

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