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Graphene Stocks to Invest in for 2021  
& BEYOND! (PART 1)  
Graphene-based Lubricants for High  
Performance Micro-machining  
Applications Commercial Graphene

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Production // Allotropes and  
Applications

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Graphene-based Lubricants for High  
Performance Micro-machining  
Applications ~~18 – Graphene Lubricants  
and nano diamonds Why graphene  
hasn't taken over the world...yet~~  
Graphene lubricant Will \"Graphite\"

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Help Motor Oil Performance? Let's find out! Vintage Arco Graphite vs Quaker State How to lubricate your chain with GRAPHENlube Welcome to Graphenoil

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Chain waxing and lubes revisited (15min grunge method is not a marginal gain) Superlubricity-near zero

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friction from nanodiamonds | Anirudha  
Sumant | TEDxNaperville 10 Most  
Groundbreaking Products That Use  
Graphene Beginner Rafter Layout |  
Speed Square | Common Rafter

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GRAPHENE POWER - Engine oil  
additiveProducing high quality  
graphene in 15 seconds | IChemE

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Business Start-Up Award Winner 2019

25 STRONGEST Materials Known to  
Man Tesla Graphene Battery?

Graphene Explained

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3 Things NOT To Grease On Your  
Bicycle! Grease vs Lube...How

~~Graphene is taking Solar Cells to the  
next level Powdered Graphite Added~~



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~~to Freewheeling Bearings~~

GRAPHENlube vs Muc-Off

Hydrodynamic FRICTION TEST

Graphene Coatings - 8 Way

Comparison - TWO WEEK UPDATE -

ALREADY have failures! ~~New Solid~~

~~Lubricant Shown to Reduce Friction~~

~~and Wear on Steel Surfaces Treadmill~~

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Belt Lubrication Guide -

AtHomeFitness.com Scottsdale Types  
of Lubrication and the Classifications  
and Properties of Different Lubricants  
Power Tool Lubricants ~~Which gun  
cleaner/lubricant/protectant should I  
buy for my firearm?~~ Graphene  
Powered RotaFlux Generator ~~How To~~

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~~Lubricate A Treadmill Belt~~ Graphene A  
New Emerging Lubricant

Most tribological studies on graphene have been carried out at the nano-scale and micro-scale, building the case for graphene to be used as a solid lubricant. Recent meso-scale and macro-scale tribological investigations

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Confirm previous predictions and open up new opportunities for graphene use as a solid lubricant in macro-scale systems too.

Graphene: a new emerging lubricant -  
ScienceDirect  
Graphene being two-dimensional

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material, offers unique friction and wear properties that is not typically seen in conventional materials.

Besides its well-established thermal, electrical, optical, and mechanical properties, graphene can serve as a solid or colloidal liquid lubricant. Its high chemical inertness, extreme

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Graphene: a new emerging lubricant  
Despite intense R&D efforts on  
graphene for a myriad of existing and  
future applications, its tribological  
potential as a lubricant remains  
relatively unexplored. In this review,

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we provide an up-to-date survey of recent tribological studies based on graphene from the nano-scale to macro-scale, in particular, its use as a self-lubricating solid or as an additive for lubricating oils.

Graphene: a new emerging lubricant -

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ScienceDirect  
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Materials Today Volume 17, Number 1  
January/February 2014 RESEARCH  
Graphene: a new emerging lubricant§  
Diana Berman<sup>1</sup>, Ali Erdemir<sup>2</sup> and  
Anirudha V. Sumant<sup>1,\*</sup> <sup>1</sup>Center 2 for  
Nanoscale Materials ...



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Graphene: a new emerging lubricant -  
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Despite intense R&D efforts on graphene for a myriad of existing and future applications, its tribological potential as a lubricant remains relatively unexplored. In this review, we provide an up-to-date survey of

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Recent tribological studies based on graphene from the nano-scale to macro-scale, in particular, its use as a self-lubricating solid or as an additive for lubricating oils. © 2014 Elsevier Ltd.

Graphene: A new emerging lubrican...

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Summary of paper by Diana Berman,  
Ali Erdemir, Anirudha V. Sumant

(PPT) Graphene: A New Emerging  
Lubricant | Ailie Sofyiana ...

Accordingly, the search continues for  
novel materials, coatings, and

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Lubricants (both liquid and solid) that can potentially reduce friction and wear. Despite intense R&D efforts on graphene for a...

(PDF) Graphene: A new emerging lubricant - ResearchGate

Graphene is starting to emerge in

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many industrial sectors as an alternative to the status quo and has started to be used in commercial products. One area that has emerged in the last few years is the use of graphene as a lubricant. When people often think of lubricants, they think of a fluid that is present in their cars or

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Could Graphene Lubricants Replace Oil?

just checking out a book graphene a new emerging lubricant researchgate along with it is not directly done, you could believe even more all but this

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life, more or less the world. We provide you this proper as competently as easy artifice to acquire those all. We find the money for graphene a new emerging lubricant researchgate and numerous book collections

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Berman D, Erdemir A, Sumant A V.  
Graphene: A new emerging lubricant.  
Mater Today 17(1): 31-42 (2014)  
Google Scholar [6] Le Cao Ky D, Tran  
Khac B C, Le C T, Kim Y S, Chung K  
H. Friction characteristics of  
mechanically exfoliated and CVD-



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Recent advances in friction and  
lubrication of graphene ...  
Graphene - the thinnest solid lubricant  
New research into graphene flakes  
has discovered that the material can

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act as a surfactant, for the first time demonstrating how it can be a versatile 2D stabilizer ideal for many industrial ... Graphene can act as surfactant -- ScienceDaily Berman D, Erdemir A, Sumant A V. Graphene: A new emerging lubricant.

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Graphene A New Emerging Lubricant  
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(PDF) Graphene: A new emerging lubricant - ResearchGate studies based on graphene from the nano-scale to macro-scale, in particular, its use as a self-lubricating solid or as an additive for lubricating oils. Graphene:

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a new emerging lubricant -

ResearchGate Our company is in an absolute leading position in the industry. We have

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Graphene's hexagonal structure makes it an excellent lubricant. While researchers have found many

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Materials that help to reduce friction, conventional lubricants often have chemical limitations. A recent analysis at the U.S. Department of Energy's Argonne National Laboratory has identified the properties of a newer, exceptionally wear-resistant substance that works in a broader range of

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Researchers fight friction and wear  
with one-atom-thick ...

Graphene : Solid Lubricant □

Graphene powder or flakes are used  
as lubricant. □ High load carrying  
capacity □ Friction and wear reduction



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depends on number of layers of  
graphene □ With a coating thickness of  
0.001-0.002 $\mu\text{m}$ , graphene gives a  
coefficient of friction of 0.15-0.2 in  
humid as well as dry conditions. 11.

Study of Graphene as lubricant -  
SlideShare

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D. Berman, A. Erdemir, A.V. Sumant: □  
Graphene: A new emerging lubricant □.  
Materials Today, 17, 31-42 (2014). D.  
Berman, A. Erdemir, A.V. Sumant: □  
Graphene as a protective coating and  
superior lubricant for electrical  
contacts □. Applied Physics Lett, 105,  
231907 (2014).

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Diana Berman | Materials Science and  
Engineering

For the application of graphene as a  
dry lubricant, N, N-dimethylformamide  
(DMF) was used to deagglomerate  
graphene platelets and graphite  
nanoparticles and to apply the

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platelets and particles to the bearing surfaces [ 22, 23 ]. For the investigation, graphene platelets of three different thicknesses were applied: 2 nm, 6–8 nm, and 11–15 nm.

Lubricants | Free Full-Text |  
Investigations on Graphene ...

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In a study on the potential of graphene as a new emerging lubricant 5, researchers estimated that the reduced loss of energy to friction offered by new materials would yield potential energy savings of 2.46 billion kilowatt-hours per year, equivalent to 1.5 million barrels of oil.

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Exploring the possibility of limitless  
bearing wear | Flow ...

A New Method for the  
Functionalisation of Graphene An  
international research team involving  
Professor Federico Rosei of the  
Institut national de la recherche

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scientifique (INRS) has demonstrated a novel process to modify the structure and properties of graphene, a one atom thick carbon.

Superlubricity is defined as a sliding

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regime in which friction or resistance to sliding vanishes. It has been shown that energy can be conserved by further reducing/removing friction in moving mechanical systems and this book includes contributions from world-renowned scientists who address some of the most fundamental



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Research issues in overcoming friction. Superlubricity reviews the latest methods and materials in this area of research that are aimed at removing friction in nano-to-micro scale machines and large scale engineering components. Insight is also given into the atomic-scale origins of friction in

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Research and superlubricity while other chapters focus on experimental and practical aspects or impacts of superlubricity that will be very useful for broader industrial community. \*  
Reviews the latest fundamental research in superlubricity today \*  
Presents 'state-of-the-art' methods,

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Materials, and experimental techniques \* Latest developments in tribomaterials, coatings, and lubricants providing superlubricity

This book gathers the proceedings of the 15th IFToMM World Congress, which was held in Krakow, Poland,

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from June 30 to July 4, 2019. Having been organized every four years since 1965, the Congress represents the world's largest scientific event on mechanism and machine science (MMS). The contributions cover an extremely diverse range of topics, including biomechanical engineering,

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Computational kinematics, design methodologies, dynamics of machinery, multibody dynamics, gearing and transmissions, history of MMS, linkage and mechanical controls, robotics and mechatronics, micro-mechanisms, reliability of machines and mechanisms, rotor

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dynamics, standardization of terminology, sustainable energy systems, transportation machinery, tribology and vibration. Selected by means of a rigorous international peer-review process, they highlight numerous exciting advances and ideas that will spur novel research

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directions and foster new  
multidisciplinary collaborations.

The technology involved in lubrication by nanoparticles is a rapidly developing scientific area and one that has been watched with interest for the past ten years. Nanolubrication offers

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a solution to many problems associated with traditional lubricants that contain sulphur and phosphorus; and though for some time the production of nanoparticles was restricted by the technologies available, today synthesis methods have been improved to such a level



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that it is possible to produce large quantities relatively cheaply and efficiently. Nanolubricants develops a new concept of lubrication, based on these nanoparticles, and along with the authors' own research it synthesises the information available on the topic of nanolubrication from

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existing literature and presents it in a concise form. Describes the many advantages and potential applications of nanotechnology in the tribological field. Offers a full review of the state-of-the-art as well as much original research that is yet unpublished. Includes sections on boundary

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Lubrication by colloidal systems, nanolubricants made of metal dichalcogenides, carbon-based nanolubricants, overbased detergent salts, nanolubricants made of metals and boron-based solid nanolubricants and lubrication additives. Authored by highly regarded experts in the field

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with contributions from leading international academics.

Nanolubricants will appeal to postgraduate students, academics and researchers in mechanical engineering, chemical engineering and materials science. It should also be of interest to practising engineers with

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petroleum companies and mechanical manufacturers.

In most tribological applications, liquid or grease based lubricants are used to facilitate the relative motion of solid bodies to minimize friction and wear between interacting surfaces. The

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challenges for liquid lubricants arise in extreme environmental conditions, such as very high or low temperatures, vacuum, radiation, and extreme contact pressure. At these conditions, solid lubricants may be the alternative choice which can help to decrease friction and wear without incorporating

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liquid lubricants. Challenges with solid lubricants are to maintain a continuous supply of solid lubricants on the contact surfaces to act as lubricous layer between two sliding surfaces. Such a continuous supply of solid lubricant is more easily maintained in the case of liquid lubricants when

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Compared to solid lubricants. The most innovative development to ensure a continuous supply of solid lubricant to the contact surface during sliding is to introduce solid lubricant as reinforcement into the matrix of one of the sliding components. Composite materials are engineered or naturally



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Occurring materials which contain two or more distinct constituents with significantly different chemical, physical and mechanical properties. Composites consist of reinforcement and matrix (metal, polymer and ceramics). Among various reinforcements, recent emerging

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Material, solid lubricant, is found to have many favorable attributes such as good self-lubricant property.

Self-lubrication is the ability of material to transfer embedded solid lubricants to the contact surface to decrease wear rate and friction in the absence of an external lubricant. Self-lubricating

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metal matrix composites (SLMMCs) are an important category of engineering materials that are increasingly replacing a number of conventional materials in the automotive, aerospace, and marine industries due to superior tribological properties. In SLMMCs, solid lubricant

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Materials including carbonous materials, molybdenum disulfide (MoS<sub>2</sub>), and hexagonal boron nitride (h-BN) are embedded into the metal matrices as reinforcements to manufacture a novel material with attractive self-lubricating properties. Several studies have been

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investigated the tribological properties of self-lubricating materials. This book fills that gap to have a reference book about self-lubricating materials and their properties to help scientists, engineers, and industries. This book will try to discuss technically about self-lubricating materials and their

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properties and the applications for industries. The chapters will be written by authoritative expertise in the field. Additionally, this book will demonstrate fundamental study and most advanced innovations in self-lubricating materials as regards to friction and wear. The chapters also include tribological

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properties of composites and coatings  
and some practical application of self-  
lubricating materials.

Graphene nanoplatelets (GNPs) have  
attracted considerable interest due to  
their exceptional mechanical,  
electrical, and thermal properties,

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Among others. This book provides a deep review of some aspects related to the characterization of GNPs and their applications as nanoreinforcements for different types of matrices such as polymeric- or cement-based matrices. In this book, the reader will find how these



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nanoparticles could be used for several industrial applications such as energy production and storage or effective barrier coatings, providing a wide overview of future progress in this topic

The eighth volume in a series of

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handbooks on graphene research and applications The Handbook of Graphene, Volume 8: Technology and Innovations discusses the role of graphene-based applications in technological advancements. Topics include graphene materials used in circuit board repairs; RFID antenna

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and sensor fabrication; and wearable healthcare electronics. Chapters present detailed information on: modeling methods used in graphene research; applications of graphene-on-silicon photonic integrated circuits; the development of graphene for engineering applications; and other

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graphene subjects of interest to  
scientists, chemists and physicists.

Graphene is, basically, a single atomic layer of graphite, an abundant mineral that is an allotrope of carbon that is made up of very tightly bonded carbon atoms organized into a hexagonal

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lattice. What makes graphene so special is its  $sp^2$  hybridization and very thin atomic thickness (of 0.345 Nm). These properties are what enable graphene to break so many records in terms of strength, electricity, and heat conduction (as well as many others). This book gathers valuable

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Information about the surface chemistry of graphene, some of its properties (electrical, mechanical, etc.), and many of its modifications that can be taken into account.

Since the great success of graphene, atomically thin-layered nanomaterials,

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called two dimensional (2D) materials, have attracted tremendous attention due to their extraordinary physical properties. Specifically, van der Waals heterostructured architectures based on a few 2D materials, named atomic-scale Lego, have been proposed as unprecedented platforms for the

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Implementation of versatile devices with a completely novel function or extremely high-performance, shifting the research paradigm in materials science and engineering. Thus, diverse 2D materials beyond existing bulk materials have been widely studied for promising electronic,



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optoelectronic, mechanical, and thermoelectric applications. Especially, this Special Issue included the recent advances in the unique preparation methods such as exfoliation-based synthesis and vacuum-based deposition of diverse 2D materials and also their device applications based on

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Researchgate interesting physical properties.

Specifically, this Editorial consists of the following two parts: Preparation methods of 2D materials and Properties of 2D materials

Handbook of Modern Coating  
Technologies: Application and

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Development reviews recent applications and developments of modern coating technologies. The topics in this volume consist of role of antibacterial coatings in the development of biomaterials, insights of technologies for self-healing organic coatings, sensor applications,

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Application of carbon

nanotubes-based coating in the field of art conservation, oxide-based self-cleaning and corrosion-protective coatings, protective coatings for wood, applications of optical coatings on spectral selective structures, application of natural antimicrobial

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Coating for controlling foodborne pathogens on meat and fresh produce, efficacy of antimicrobial coating in reducing pathogens on meat, composite membrane: fabrication, characterization, and applications, development of nanostructured HVOF coatings on high strength steel

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Components for turbine blades,  
nanoscale multilayered composite  
coating, applications of sol-gel  
coatings, application of graphene in  
protective coating industry, application  
of coatings in outdoor high-voltage  
installations, defects and doping  
effects in thin films of transparent and

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Conductive oxides, and functional coatings for lab-on-a-chip systems based on phospholipid polymers.

Carbon Nanomaterials: Modeling, Design, and Applications provides an in-depth review and analysis of the most popular carbon nanomaterials,

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including fullerenes, carbon nanotubes, graphene and novel carbon nanomaterial-based membranes and thin films, with emphasis on their modeling, design and applications. This book provides basic knowledge of the structures, properties and applications of carbon-



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Researchgate based nanomaterials. It illustrates the fundamental structure-property relationships of the materials in both experimental and modeling aspects, offers technical guidance in computational simulation of nanomaterials, and delivers an extensive view on current

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Achievements in research and practice, while presenting new possibilities in the design and usage of carbon nanomaterials. This book is aimed at both undergraduate and graduate students, researchers, designers, professors, and professionals within the fields of

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materials science and engineering,  
mechanical engineering, applied  
physics, and chemical engineering.

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