



BOOK TITLES

Innovative Developments of Advanced Multifunctional Nanocomposites in Civil and Structural Engineering

DESCRIPTION

This book focuses on nanotechnology, the innovation and control of materials at 100 nm or smaller length scales, and how they have revolutionized almost all of the various disciplines of science and engineering study. In particular, advances in synthesizing, imaging, and manipulating materials at the nano-scale have provided engineers with a broader array of materials and tools for creating high-performance devices. Nanomaterials possess drastically different properties than those of their bulk counterparts mainly because of their high surface-to-mass ratios and high surface energies/reactivity. For instance, carbon nanotubes have been shown to possess impressive mechanical strength, stiffness, and electrical conductivity superior to that of bulk carbon. This book covers that proliferation and the main challenges associated with the integration of nanomaterials and nano-scale design principles into civil and structural engineering.

AUTHOR/EDITOR

Loh, Kenneth J.; Nagarajaiah, Satish

PUBLISHER

Elsevier

COPYRIGHT DATE

2016

ISBN

978-1-78242-326-3

ELECTRONIC ISBN

978-1-78242-344-7

KNOVEL RELEASE DATE




















2016-03-29

KNOVEL SUBJECT AREA(S)

Civil Engineering & Construction
Materials
Nanotechnology

Table of Contents

Log in ភ័យ

SECTION	FEATURES
▶ Front Matter	
Table of Contents	
▶ 1. Introduction to Advanced Nanocomposites in Civil, Structural, and Construction Engineering	
<i>Part I. Innovative Developments of Nano-Engineered Cementitious Composites</i>	
▶ 2. Development of Carbon Nanofiber Aggregate for Concrete Strain Monitoring	
▶ 3. Carbon Nanofibers in Cement Composites: Mechanical Reinforcement	
▶ 4. Self-Sensing of Nano-Carbon Black Concrete	
▶ 5. Hybrid Cementitious Materials: Nanoscale Modeling and Characterization	
▶ 6. Smart Cement Paste with Carbon Nanotubes	
▶ 7. Tomographic Imaging of Cementitious Materials	
<i>Part II. Innovative Developments of Nano-Engineered Pavements</i>	
▶ 8. Nano Carbon Material- Filled Cementitious Composites: Fabrication, Properties, and Application	
▶ 9. Nanoclay Modified Asphalt	
▶ 10. Mechanical and Environmental Resistance of Nanoparticle-Reinforced Pavement Materials	
▶ 11. The Self-Heating Carbon Nanofiber Polymer Composite and its Applications in Deicing and Snow Thawing of Pavement	
<i>Part III. Innovative Developments of Nanocomposites for in situ Damage Detection and Structural Health Monitoring</i>	
▶ 12. Sensing Sheets Based on Large-Area Electronics and Integrated Circuits	
▶ 13. Strain Sensing and Structural Health Monitoring Using Nanofilms and Nanocomposites	
▶ 14. In situ Sensing in Glass Fiber-Reinforced Polymer Composites via Embedded Carbon Nanotube Thin Films	
▶ 15. Strain-Sensing Smart Skin: A Noncontact Optical Strain Sensor Using Single-Walled Carbon Nanotubes	
▶ 16. Future Trends and Directions	
▶ Index	

Download in Progress...

Access Denied

กรณีสืบ user/password แล้ว

Username

Password

Remember Me

Login

Cancel and browse as guest.

Normally access Knovel through another site?

Search for your institution

AICHE

IChemE

IMechE

Open Athens

UK Federation

Unsure if you have access to Knovel?

CLICK HERE

กรณีสืบจากภายนอก

มหาวิทยาลัย

Forgot your password?

Verify that you are a **Knovel Subscriber**

About Knovel

Knovel is an engineering decision-support solution enabling engineers to solve problems faster. Through a cloud-based platform with powerful search and interactive analytical tools, engineers can confidently find answers to technical questions through best practice insights, validated equations and materials and substance data from more than 120 providers.



About Try Knovel

Try Knovel offers limited time access to a subset of Knovel's interactive content and tools. Try Knovel includes Interactive Equations, Knovel Critical Tables, International Critical Tables, PTC Mathcad Worksheets and Knovel Sampler.

Find out more About **Try Knovel**

Are you unsure if you have access to Knovel?

Enter your **company or institutional e-mail address** and we'll tell you

Company or Institutional E-mail Address:*

VERIFY ACCESS

Even if you do not have access, you can still explore **Try Knovel** and gain limited access to a select set of Knovel's interactive features.

ใส่ Email Address เฉพาะ
ของมหาวิทยาลัยเท่านั้น แล้วกด
ปุ่ม "VERIFY ACCESS"

You're almost done...

Please check your email (sthanakr@mut.ac.th) to activate your account.

NOTE: Automatically-generated emails can sometimes be routed to Bulk email folders. Please check this folder if you do not receive your activation email and add Knovel to your "safe senders" list.

**Knovel จะส่งจดหมายยืนยัน
ไปตาม email ที่ได้สมัครไว้
เพื่อให้เรายืนยันตัวตน**

We recommend that you take a few minutes to view this informative introductory video

Please login or authenticate via an Organization

Username

[REDACTED]@mut.ac.th|

Password

.....

Remember Me

Login

Cancel and browse as guest.

Normally access Knovel through another site?

Search for your institution

AICHE

IChemE

IMechE

Open Athens

UK Federation

Unsure if you have access to Knovel?

CLICK HERE

[Forgot your password?](#)

*เมื่อכןท่านเรียบร้อย ให้ใช้ user/password ที่
ได้ลงทะเบียนไว้ Login เข้าใช้ฐานข้อมูลได้ทันที*

BROUGHT TO YOU BY

MAHANAKORN
UNIVERSITY OF TECHNOLOGY

"tool steels"

GO

For **MATERIAL/SUBSTANCE** or **PROPERTY** search, use[Data Search ▶](#)

Access Knovel on the go!

You can use most Knovel features and functionality on your tablet—from Basic Search to Data Search to My Knovel, as long as you have an internet connection.

[Try it now!](#)

Please take 3 minutes to complete a survey on your use of engineering equations.

[Take the survey](#)

Knovel would like your feedback.

Please take a moment to let us know what CAD/FEA/PLM tools you use so that we can improve Knovel's workflow integrations.

[Take the survey](#)

เมื่อ login เข้ามา
จะเป็นแบบนี้