
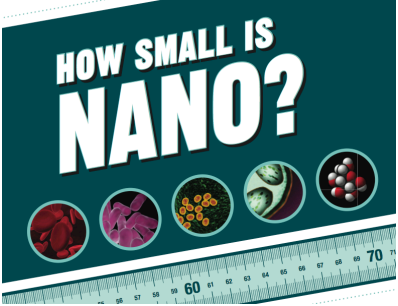


Selected Books About Nano

=* =children's books suitable for read-aloud story-times or to augment another program

For Children	
	<p>What's Smaller Than a Pygmy Shrew?* Robert E. Wells (1995) Morton Grove, IL: Albert Whitman & Company, 1995. 32 pages Reading level: Ages 4-8 ISBN-10: 0807588385 ISBN-13: 978-0807588383</p> <p><i>A pygmy shrew is among the tiniest of mammals. A ladybug is even smaller. But in this book you will find small things you could not ordinarily see. Illustrations of paramecia, bacteria, molecules, atoms, electrons, protons, neutrons and quarks are included along with the explanation that in order to view these a special microscope is needed. A small glossary is also included. The magnified illustrations help to clarify the vocabulary.</i></p>
	<p>How Small is Nano: Measuring Different Things* Rae Ostman, Catherine McCarthy, Emily Maletz, and Stephen Hale (2008) Sciencenter: Ithaca NY: Lulu.com 28 pages Reading level: Ages 9-12 ISBN-10: 0578001977 ISBN-13: 978-0578001975</p> <p><i>What is a nanometer? What things are measured in nanometers? Is a red blood cell bigger or smaller than a bacteria? Step down in size to find out the answers and learn about different types of units that are used to measure very tiny things.</i></p> <p>This children's book may be downloaded for free from nisenet.org or purchased in hard copy at www.lulu.com or www.amazon.com:</p> <ul style="list-style-type: none"> • http://www.nisenet.org/catalog/media/how-small-nano-measuring-different-things • http://www.lulu.com/content/hardcover-book/how-small-is-nano/2275183 • http://www.amazon.com/How-Small-Nano-Sciencenter-Ithaca/dp/B002AD0BM2/ref=sr_1_2?ie=UTF8&s=books&qid=1250275001&sr=1-2



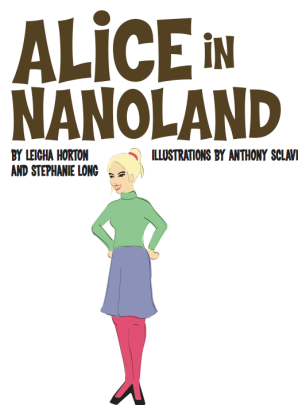
Is that Robot Real?*

Rae Ostman, Catherine McCarthy, Emily Maletz, and Stephen Hale (2008)
 Sciencenter: Ithaca NY: Lulu.com
 48 pages
 Reading level: Ages 9-12
 ISBN-10: 0578001969
 ISBN-13: 978-0578001968

What is a robot, and how small can robots be? Are there robots the size of a hand? How about the size of a strand of hair? Can a robot be as tiny as a single molecule? Learn what makes a robot a robot, then step down in size and find out which robots are real and which are science fiction.

This children's book may be downloaded for free from nisenet.org or purchased in hard copy at www.lulu.com or www.amazon.com:

- <http://www.nisenet.org/catalog/media/robot-real>
- <http://www.lulu.com/content/hardcover-book/is-that-robot-real/2307668>
- http://www.amazon.com/That-Robot-Real-Sciencenter-Ithaca/dp/B002AD80D4/ref=sr_1_4?ie=UTF8&s=books&qid=1250275125&sr=1-4*



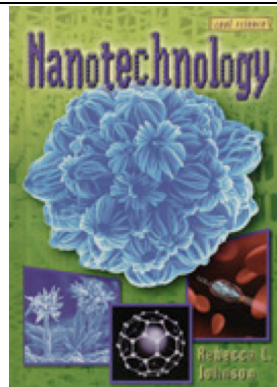
Alice in Nanoland

Leigha Horton (2010)
 Science Museum of Minnesota, Saint Paul, MN: Lulu.com
 33 pages
 Reading level: All ages

What is Nanoland, and what kind of curious things will Alice find there? Follow Alice down the rabbit hole into a land smaller than small, where crazy nano pants and cabbage abound! Based on Lewis Carroll's beloved classic, Alice's Adventures in Wonderland, this exciting romp explores the nano in nature and how phenomena at the very small scale affect our very big world.

This children's book may be downloaded for free from nisenet.org or purchased in hard and digital copy at www.lulu.com:

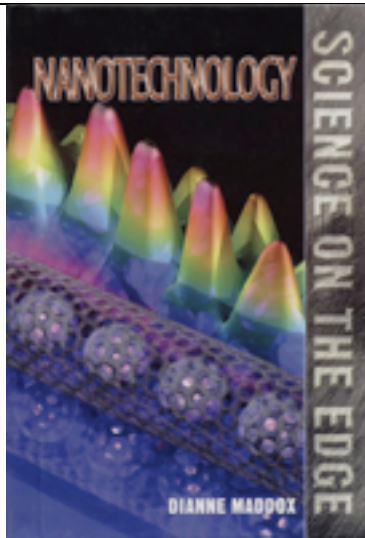
- http://www.nisenet.org/catalog/media/ alice_nanoland
- http://www.lulu.com/product/hardcover/alice-in-nanoland/14252616?productTrackingContext=search_results/search_shelf/center/1
- http://www.lulu.com/product/file-download/alice-in-nanoland/14252615?productTrackingContext=search_results/search_shelf/center/2



Nanotechnology (Cool Science)

Rebecca L. Johnson (2005)
 Minneapolis, MN: Lerner Publications,
 48 pages
 Reading level: Ages 9-12
 ISBN-10: 0822521113
 ISBN-13: 978-0822521112

Part of the 'Cool Science' series, this book is dedicated to the topic of nanotechnology. Middle grade readers are introduced to nanotechnology in five chapters that include an overview of the topic, tools that will come from the technology, the nanofuture, and nanobots. Not only will students find the subject of nanotechnology fascinating, but the book will also raise questions that will encourage discussions in and out of the classroom.



Science on the Edge–Nanotechnology

Dianne Maddox (2005)

Blackbirch Press

48 pages

Reading level: Ages 9–12

ISBN-10: 1410305309

ISBN-13: 978-1410305305

In the twentieth and twenty-first centuries, science and technology have advanced at an incredible pace. Often breakthroughs occur and new feats are possible before most people are aware that a technology even exists. The Science on the Edge series explores and explains the science behind today's most cutting-edge developments that dominate the headlines and affect the very essence of our daily lives.



Careers in Nanotechnology (Cutting-Edge Careers)

Corona Brezina (2007)

New York, NY: Rosen Publishing Group

64 pages

Reading level: Young Adult

ISBN-10: 1404209557

ISBN-13: 978-1404209558

Nanotechnology is the science and technology of working with matter on the ultra-small level. Still an emerging field, it promises to revolutionize the world in which we live. Government, academia, and industry are investing billions of dollars exploring potential technological advances and promoting the development of a workforce to fill future nanotech jobs. This insightfully written career guide presents a comprehensive view of the nanotech revolution and offers students a leg up in preparing for future nanotech careers.



Micro Machines: Ultra-Small World of Nanotechnology Science Frontiers

David Jefferis (2006)

New York, NY: Crabtree Publishing Company

32 pages (magazine format)

Reading level: Ages 9–12.

ISBN-13: 9780778728733

ISBN: 0778728730

Micro Machines much smaller than the width of a single human hair are already being used and the potential uses of this technology are mind-boggling. All of the information from an entire set of encyclopedias could be placed on the head of a pin. This tiny particle could then be implanted into the brain to produce a very smart person. Robots smaller than insects are being developed to study aspects of the environment and explore places such as caves and deep valleys. Experiments have been tightly controlled, but some people have expressed concern that nonobots could escape their scientific laboratories. No one knows what would happen if they came in contact with plant and animal life. What if they start reproducing on their own? A part of the "Science Frontiers" series, this book includes large full-color photographs, drawings, and diagrams to aid the reader in comprehending the miniscule size of these mini-machines and some of their uses.



Powers of Ten: A Flipbook

Charles and Ray Eames (1998)

W H Freeman & Co.

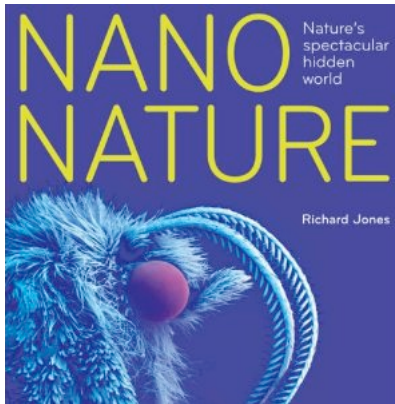
154 pages

Reading level: All ages

ISBN-10: 0716734419

ISBN-13: 978-0716734413

A fun and compact visual odyssey, the "Powers of Ten" flipbook shows readers not only the relative size of things in the known world, but our own place in it. This magnificent journey begins millions of light years away, with every two pages representing a view ten times larger than the view two pages earlier.



Nano Nature

Richard Jones (2008)

Collins

208 pages

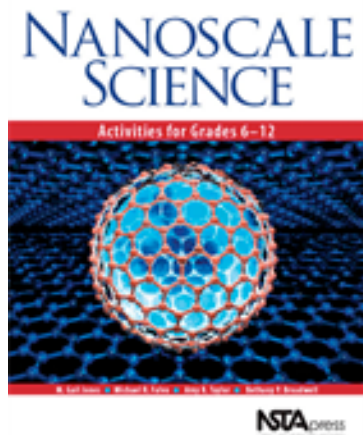
Reading level: All ages

ISBN-13: 978-1435110335

ISBN: 1435110331

An exploration of nature's hidden beauties, as revealed by the scanning electron microscope. Nature is renowned for its staggering beauty, but it conceals a hidden world more stunning than anything we can see with the naked eye. At the furthest reaches of human technological achievement, the powerful scanning electron microscope can magnify up to an astounding 200,000 times, producing images that unveil a world of unimaginable beauty and compelling complexity. More surreal than any works of art, Nano Nature brings these images out of the high-tech science laboratory and into the public domain, revealing a wealth of extraordinary patterns and improbable structures. Combining spectacular imagery with fascinating narrative, this book uncovers an amazing world beyond imagination, giving us a unique glimpse into the hidden complexities of nature in all its glory.

For Educators



Nanoscale Science: Activities for Grades 6-12

M. Gail Jones, Michael R. Falvo, Amy R. Taylor, and Bethany P. Broadwell (2007)
Arlington, VA: NSTA Press Book

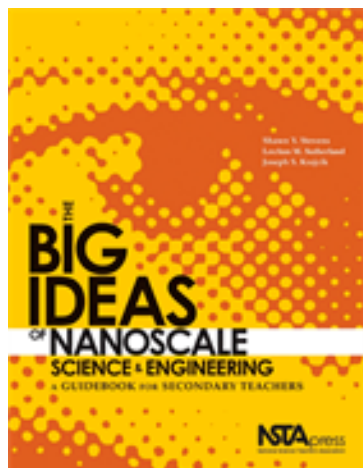
155 pages

Grade Level: Middle School, High School

ISBN: 978-1-93353-105-2

http://www.nsta.org/store/product_detail.aspx?id=10.2505/9781933531052

A great resource for formal or informal science educators, this book provides instructions and materials lists for activities designed to introduce students to various aspects of nanotechnology, including scale, tools, nanoscale properties and behaviors, applications, and social implications. Provides student response sheets, templates for creating materials, discussion questions, and additional resource lists.



The Big Ideas of Nanoscale Science and Engineering: A Guidebook for Secondary Teachers

Shawn Y. Stevens, LeeAnn M. Sutherland, and Joseph S. Krajcik (2009)
Arlington, VA: NSTA Press Book

300 pages

Grade Level: Middle School, High School

ISBN 978-1-93515-507-2

http://www.nsta.org/store/product_detail.aspx?id=10.2505/9781935155072

Given the ability of nanoscience and nanotechnology to exploit the unique properties that matter exhibits at the nanoscale, the research resulting from these emerging fields is poised to dramatically affect everyday life. In fact, many widely used electronic, pharmaceutical, cosmetic, and textile products already employ nanotechnology. With the support of the National Science Foundation, scientists, educators, researchers, and curriculum developers have achieved a rough consensus on what the key concepts—or “big ideas”—of nanoscience might be for middle and high school science students.



Welcome to Nanoscience: Interdisciplinary Environmental Explorations

Andrew S. Madden, Michael F. Hochella Jr., George E. Glasson, Julie R. Grady, Tracy L. Bank, André M. Green, Mary A. Norris, Andrew N. Hurst, and Susan C. Eriksson (2011)

Arlington, VA: NSTA Press Book

171 pages

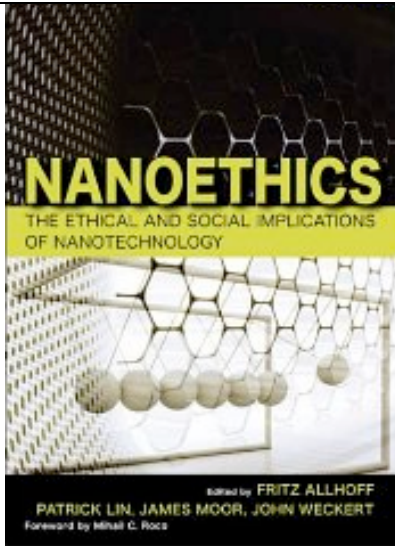
Grade Level: High School

ISBN 978-1-936137-32-9

http://www.nsta.org/store/product_detail.aspx?id=10.2505/9781936137329

In a society where technology plays an ever-increasing role, students' ability to understand the underlying science and make smart social and environmental decisions based on that knowledge is crucial. This text helps biology, chemistry, and Earth science teachers introduce the revolutionary fields of nanoscience and nanotechnology to high school students through the unique framework of the environment. The flexible curriculum offers numerous entry and exit points. Also included is a link to a downloadable computer simulation program specially designed to allow students to explore the atomic force microscope.

For Adults



Nanoethics: The Ethical and Social Implications of Nanotechnology

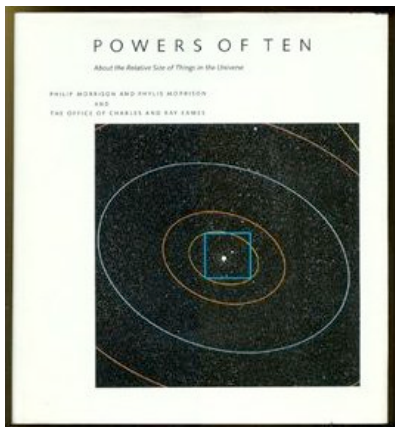
Fritz Allhoff, Patrick Lin, James Moor, and John Weckert. Eds. (2007)
Hoboken, NJ: John Wiley and Sons, Inc.

416 pages

ISBN-10: 0470084170

ISBN-13: 978-0470084175

A collection of academic essays on the social implications of nanotechnology. Many articles focus on various aspects of communication and prediction about nanotechnology.



Powers of Ten: A Book About the Relative Size of Things in the Universe

Philip Morrison, Phylis Morrison, Office of Charles and Ray Eames (1994)

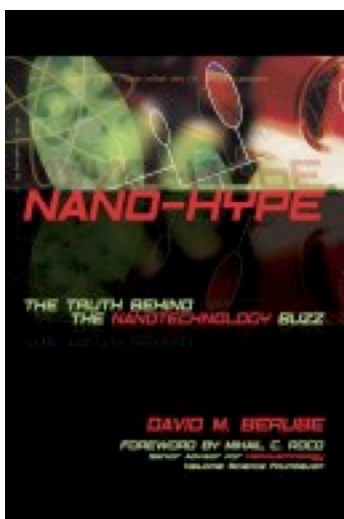
W H Freeman & Co.

150 pages

ISBN-10: 0716714094

ISBN-13: 978-0716714095

Kees Boeke's wonderful idea of presenting the universe in a series of jumps by the powers of 10 in size was transformed by Charles and Ray Eames into a film. This book is the translation of the film into print. The photographs and the brief dialogue from the film have been enlarged and enriched by ideas from the fields of astronomy, physics, and biology to name a few.



Nano-Hype: The Truth behind The Nanotechnology Buzz.

David M. Berube (2006)

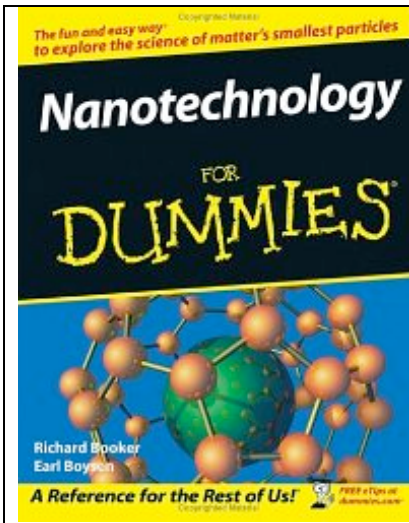
Amherst, NY: Prometheus Books

521 pages

ISBN-10: 1591023513

ISBN-13: 978-1591023517

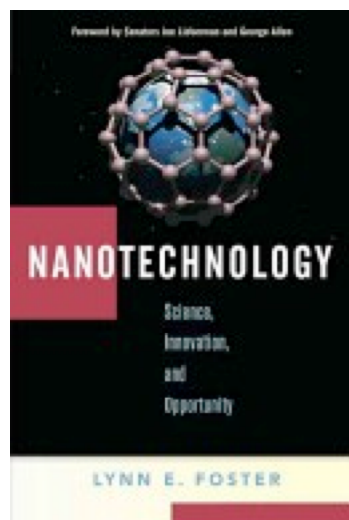
Written by a professor at the University of South Carolina who studies the societal aspects of nanoscale science and technology, this book explores the political, social, and economic motivations behind the positive and negative "hype" around nano in the research, government, consumer, and corporate spheres. Berube calls for building a deliberative public that is motivated and informed enough to make responsible decisions about nanotechnology research, applications, and policy.



Nanotechnology for Dummies.

Richard Booker and Earl Boysen (2005)
 Hoboken, NJ: Wiley Publishing, Inc.
 336 pages
 ISBN-10: 0764583689
 ISBN-13: 978-0764583681

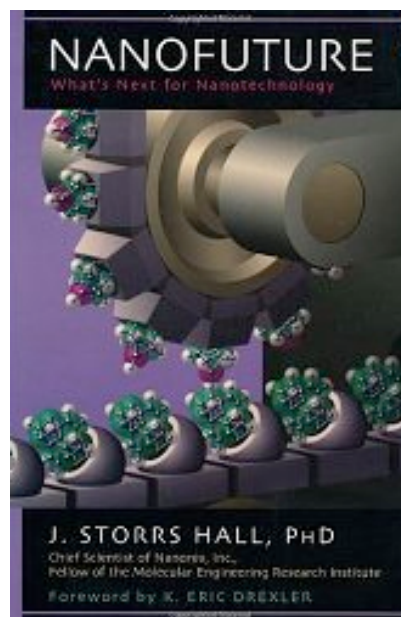
Like the rest of the Dummies series, this book provides an introduction to nanoscale science and nanotechnology in materials, information, and health. Includes a chapter on the business of nanotechnology, but lacks coverage of the social implications of nano.



Nanotechnology: Science Innovation & Opportunity

Lynn E. Foster (2006)
 Upper Saddle River, NJ: Prentice Hall
 336 pages
 ISBN-10: 0137025750
 ISBN-13: 978-0137025756

This compilation of essays covers the industry of nanotechnology, including its technological and economic drivers, the major players, the business promise, and the social, ethical, and regulatory challenges raised by nano applications.



Nanofuture: What's Next for Nanotechnology.

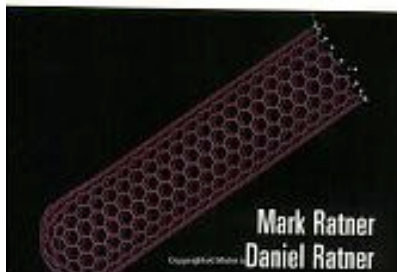
J. Storrs Hall, PhD (2005)
 Amherst, NY: Prometheus Books
 333 pages
 ISBN-10: 1591022878
 ISBN-13: 978-1591022879

This somewhat academic introduction to nano includes descriptions of nanoscale science; nanobiotechnology; molecular machines; and nanotechnology applications in information science, consumer goods, transportation, space flight, robotics, and medicine. Assess the hype in most of these fields and the social/ethical implications of the applications discussed. A useful introduction for someone with some science background or a motivated lay reader.

"Nano-scale science and engineering most likely will produce the strategic technology breakthroughs of tomorrow. Our ability to work at the molecular level, atom by atom, to create something new, something we can manufacture from the 'bottom up,' opens huge vistas for many of us."
 —David Tanin, Senior VP of Engineering and Technology, Boeing

Nanotechnology

A GENTLE INTRODUCTION TO THE NEXT BIG IDEA



Nanotechnology: A Gentle Introduction to the Next Big Idea

Mark A. Ratner & Daniel Ratner (2003)

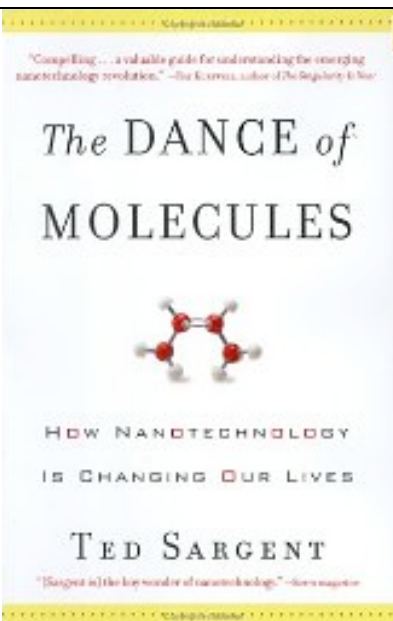
Upper Saddle River, NJ: Prentice Hall

208 pages

ISBN-13: 9780131014008

ISBN: 0131014005

Chemistry professor Mark Ratner and entrepreneur Daniel Ratner explain the science and tools of nanotechnology and the impacts of nano applications in materials, sensors, biostructures, energy, optics, magnets, fabrication, electronics, and modeling. A useful introduction for someone with some science background or a motivated lay reader.



The Dance of Molecules: How Nanotechnology is Changing Our Lives

Ted Sargent (2006)

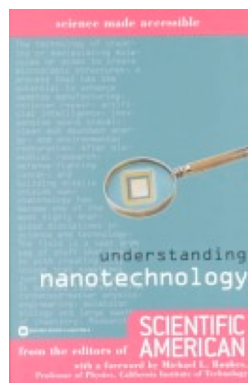
NY: Thunder's Mouth Press

304 pages

ISBN-10: 1560258098

ISBN-13: 978-1560258094

A somewhat poetic introduction to nanotechnology and the transformations it may bring to health, the environment, and the information sector.



Understanding Nanotechnology: From the Editors of Scientific American

Scientific American (2002)

NY: Warner Books

160 pages

ISBN-10: 0446679569

ISBN-13: 978-0446679565

This collection of essays by noted nanotechnology researchers and engineers discusses nano in medicine, space exploration, communications, and manufacturing. Most of the essays include some discussion of the background science, the possible applications, and the obstacles that must be overcome to make those applications possible.



Nanotechnology Demystified: a self-teaching guide

Linda Williams and Wade Adams (2007)

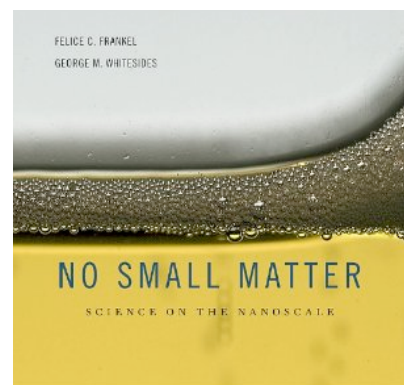
NY: McGraw-Hill

343 pages

ISBN-10: 0071460233

ISBN-13: 978-0071460231

This is a very readable introduction to nanoscale science, technology, applications, and social and environmental impacts. Each chapter has a short quiz at the end, with answers at the back of the book. Appropriate for interested readers with no science background.



No Small Matter: Science on the Nanoscale

Felice C. Frankel and George M. Whitesides (2009)

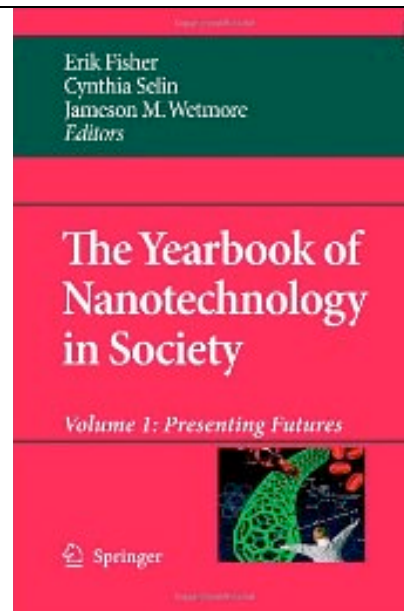
Harvard University Press

192 pages

ISBN-10: 0674035666

ISBN-13: 978-0674035669

This book uses images and evocative descriptions to reveal the virtually invisible realities and possibilities of nanoscience. An introduction to the science and technology of small things, it explains science on the nanoscale and considers both the benefits and risks of nano/microtechnology.



The Yearbook of Nanotechnology in Society

Erik Fisher, Cynthia Selin, and Jameson Wetmore (2010)

NY: Springer

310 pages


ISBN-10: 9048178754

ISBN-13: 978-9048178759

This yearbook offers a series of starting points for exploring the role of the future in the present - how contemporary cultural conceptions about science, technology, and society are created and ultimately influence our own cognitive frames, social contests, and material practices. It is designed to give social scientists, natural scientists, and the general public an opportunity to explore, reflect on, and ultimately critique the various approaches to these futures.

Susan E. Cozzens
Jameson M. Wetmore
Editors

Nanotechnology and the Challenges of Equity, Equality and Development

 Springer



Nanotechnology and the Challenges of Equity, Equality and Development

Susan E. Cozzens and Jameson Wetmore (2010)

NY: Springer

475 pages

ISBN-10: 9048196140

ISBN-13: 978-9048196142

Nanotechnology is enabling applications in materials, microelectronics, health, and agriculture, which are projected to create the next big shift in production, comparable to the industrial revolution. Such major shifts always co-evolve with social relationships. This book focuses on how nanotechnologies might affect equity/equality in global society.