Reducing Size

Relative Process Technology Scaling from i4004 - Core Solo

Single Molecule Transistors


Nature 417, 725-729 (13 June 2002)

www.physics.mcgill.ca
**Nanotube/nanowire Transistors**

Tans, SJ; Verschueren, ARM; Dekker, NATURE 393 49-52
Published: MAY 7 1998

Science 9 November 2001, Lieber et al.

**Electrical Properties of Polymers**

http://www-materials.eng.cam.ac.uk/mpsite/interactive_charts/resistivity-cost/NS6Chart.html

Chapter 1 - Polymer Solar Cells


Swallowing the surgeon

………although it is a very wild idea, it would be interesting in surgery if you could swallow the surgeon

Kim, P; Lieber, SCIENCE, 286 , 2148-2150

Published: DEC 10 1999

PNAS July 19, 2005 vol. 102 no. 29 10029-10034
Chapter 1 - Swallowing the Surgeon


Chapter 1 - Arranging Atoms

But I am not afraid to consider the final question as to whether, ultimately—in the great future—we can arrange the atoms the way we want:

Xenon on Nickel (110) www.iap.tuwien.ac.at

Carbon Monoxide on Platinum (111) www.almaden.ibm.com

Iron on Copper (111)
Chapter 1 - Quantum Corrals

Crommie, Lutz, Eigler
www.almaden.ibm.com
Iron on Copper (111)

Manoharan et al., Nature (2000)

Ultimately, we can do chemical synthesis

The chemist does a mysterious thing when he wants to make a molecule. He sees that it has got that ring, so he mixes this and that, and he shakes it, and he fiddles around. And, at the end of a difficult process, he usually does succeed in synthesizing what he wants.

nanocars

Quantum dots

Science 315, 358-361 (2007)

http://www.jmtour.com