The NANO Timeline

A BIG history of the very SMALL

Nanotechnology is the study of matter at an incredibly small scale, generally between one and 100 nanometers. The nanoscale is so tiny that a sheet of paper is about 100,000 nanometers thick. Nanotechnology could bring about the next wave of innovation in science and engineering—the possibilities are endless.

American Chemistry Council | Nanotechnology Panel

The global market for nanotechnology products will be $1 trillion, of which $800 billion will be in the U.S.*

9th-17th C

The vibrant colors of stained glass in the windows of Europe's medieval cathedrals are due to metallic nanoparticles.

13th-18th C

"Damascus" saber blades contain carbon nanotubes and cementite nanowires.

1875

Michael Faraday discovers colloidal "ruby" gold, demonstrating that nanostructured gold under certain lighting conditions produces different colored solutions.

1959

Richard Feynman of the California Institute of Technology gives what is considered to be the first lecture on technology and engineering at the atomic scale, "There's Plenty of Room at the Bottom."

1974

Tokyo Science University Professor Norio Taniguchi coins the term "nanotechnology."

1990s

Early nanotechnology companies begin to operate.

Scientists receive the 1996 Nobel Prize in Chemistry for their discovery of the buckyball, a soccerball-shaped carbon molecule approximately a nanometer in diameter.

2000

The National Nanotechnology Initiative launches to coordinate federal R&D efforts and promote commercialization of nanotechnology applications.

2005

The Nanotechnology Panel of the American Chemistry Council forms.

2012

The U.S. government recognizes the strategic importance of nanotechnology and plans to spend nearly $2 billion in research.

2015

2020

A study funded by the National Science Foundation estimates that six million nanotechnology workers will be needed worldwide by 2020, with two million of those jobs estimated to be in the United States.*

www.americanchemistry.com/nanotechnology

* Roco, Mihail C. 2011. Journal of Nanoparticle Research 13:427–445.