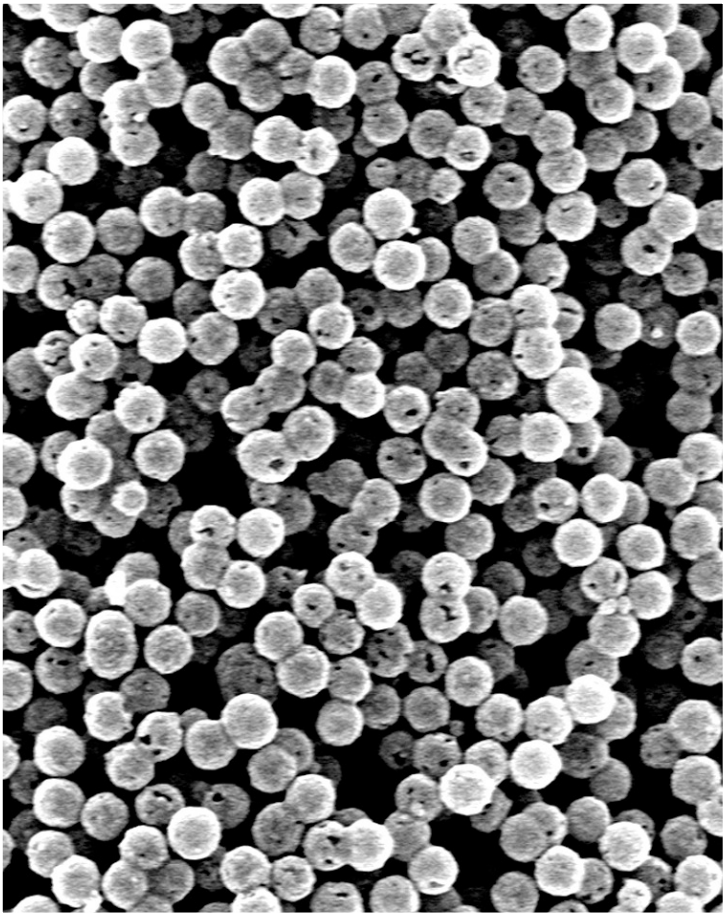
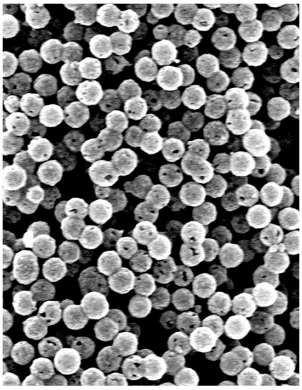
NanoDays

Gold nanoshells



G.Koeing / University of Wisconsin-Madison

Gold nanoshells could be used to fight cancer.

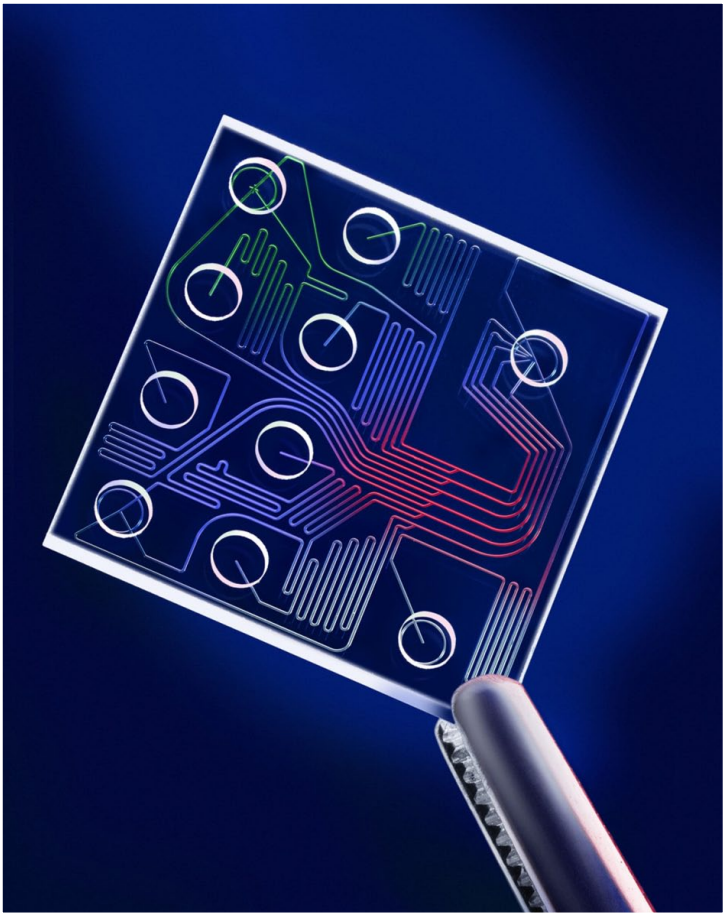


Gold nanoshells

In the future, nanotechnology might lead to new methods for detecting and treating diseases. For example, doctors might be able to use tiny silica spheres coated with gold to fight cancer. In an experimental treatment, gold nanoshells and near-infrared light can destroy tumors without harming healthy tissue.

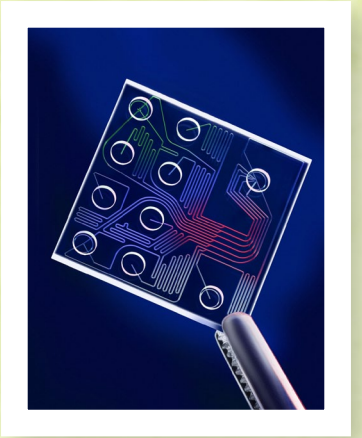
NanoDays

Lab on a chip



Courtesy of Agilent

Tiny chips might quickly screen for diseases.



Lab on a chip

In the future, small chips the size of a postage stamp could run a variety of medical tests, using only a drop of blood and taking just a few minutes. These “labs on a chip” will owe their efficiency to their micro-sized channels and nano-sized sensors. Patients could quickly learn if they have infectious diseases or have been exposed to toxic chemicals.

NanoDays

Tea bag water filter

Stellenbosch University Water Institute, www.sun.ac.za

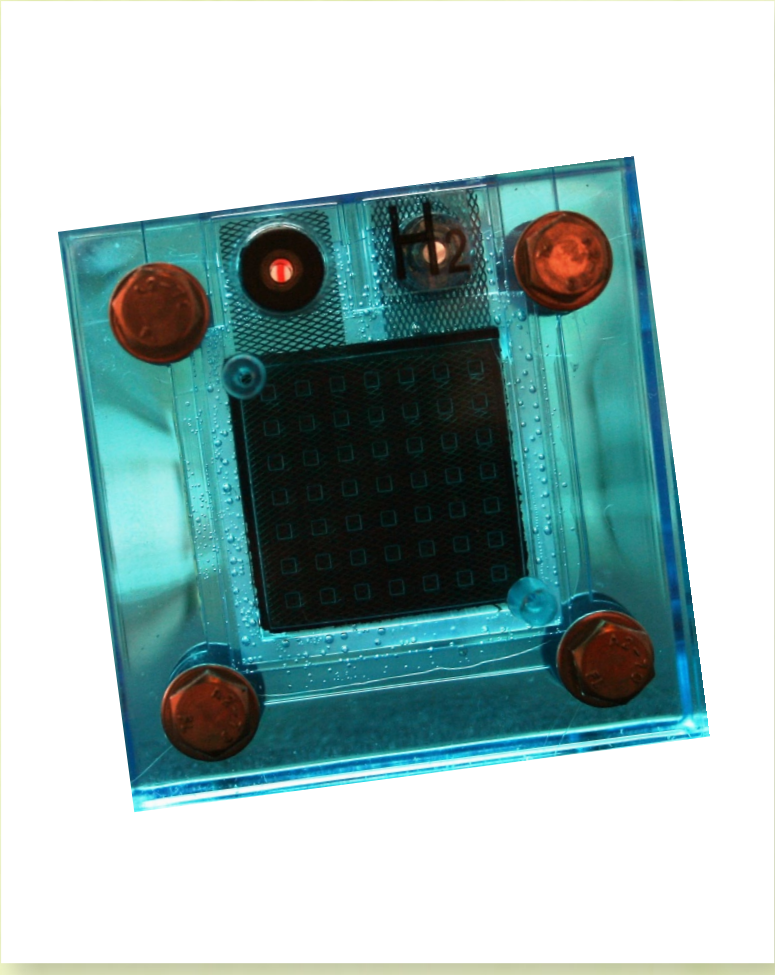
Portable nanofiber filters will purify water.

Tea bag water filter

This water filter can be taken anywhere in the world and stuffed into the neck of an ordinary water bottle for use. The tea bag is coated with nano-sized antimicrobial fibers and filled with activated charcoal. Together, the fibers and charcoal trap and kill harmful bacteria and toxic chemicals. Each filter costs less than five cents and can produce one liter of clean water.

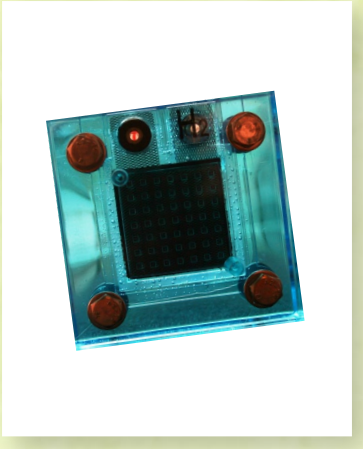
NanoDays

Nanoparticle fuel cells



iStockphoto

Nanoparticle catalysts could generate clean energy for cars.

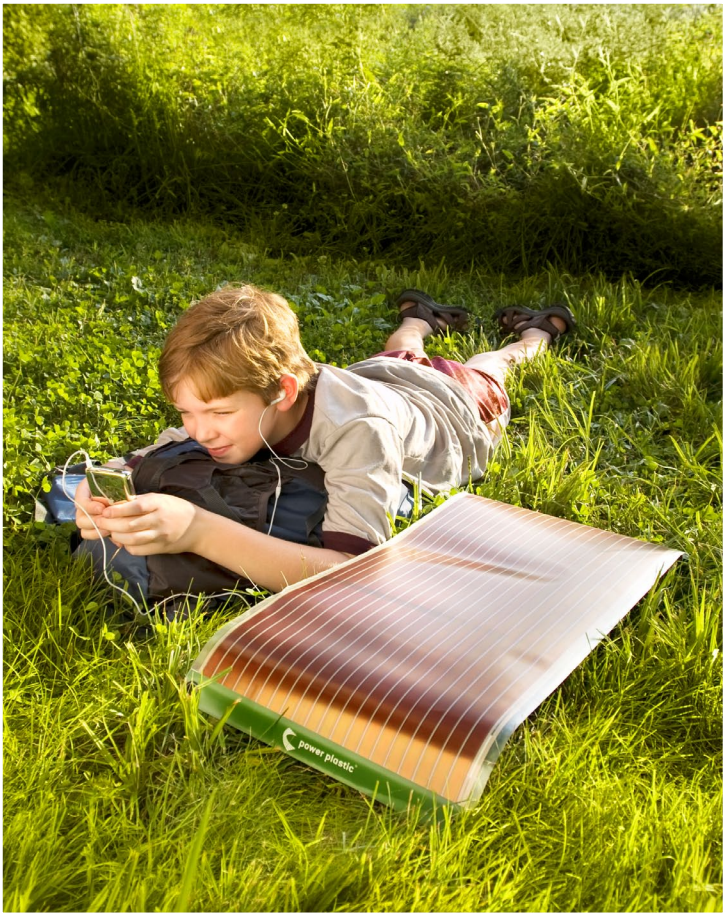


Nanoparticle fuel cells

Fuel cells are a clean, efficient way to generate power. They work by converting chemical energy into electrical energy without combustion. Nanotechnology researchers are working to make fuel cells smaller, lighter, and cheaper. As more efficient nanoparticle catalysts are developed, the use of fuel-cell cars may become more widespread.

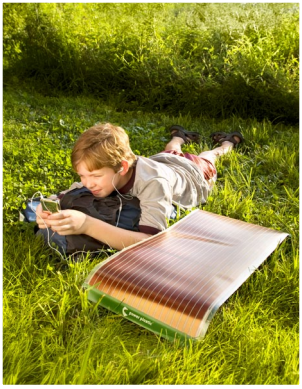
NanoDays

Flexible solar panels



Courtesy of Konarka

Portable solar panels can provide energy anywhere.



Flexible solar panels

Thin-film solar panels are made of bendable nano-layers of material. They produce almost as much electricity as traditional photovoltaic panels, but they're lighter and more durable. They're designed to be rolled up so they can be easily transported for use in different locations. These small, portable panels can provide a personal power source anywhere in the world.

NanoDays

High-tech military clothing

iStockphoto

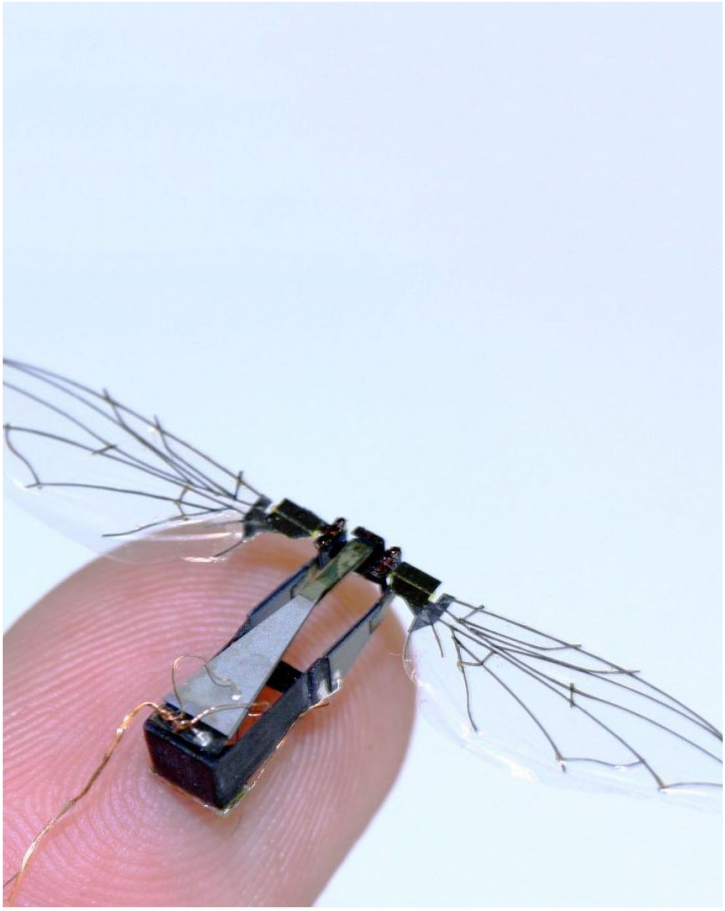
Nanotech clothing could provide camouflage and repel bullets.

High-tech military clothing

In the future, military clothing might incorporate many nanotechnologies to protect soldiers. Nano-sized machines could control the temperature inside battle fatigues, provide life-support systems under water, and enhance the user's ability to run and jump. The skin of the clothing might protect from bullets and shrapnel, and provide camouflage.

NanoDays

Mini drone robots



Ben Finio / Harvard Microrobotics Lab

Small spy drones will be used in warfare.

Mini drone robots

Military surveillance drones are becoming smaller, thanks to the use of nanotechnology. In the near future, armies may deploy nano-enabled mini drones with a wingspan the size of a dime. These drones will send real-time images and other data back to soldiers positioned safely away from the field of battle—or even officers on the other side of the world.

NanoDays

Invisibility
cloak

iStockphoto

Nano-sized structures could make objects invisible.

Invisibility cloak

In the future, nanotechnology could make invisibility cloaks possible! Researchers have already designed a small cloak that uses nano-sized structures to refract (bend) light around an object, making it disappear into its background. Using this concept, one day we might be able to make objects as large as airplanes invisible.

NanoDays

Space elevator

Pat Rawling / NASA

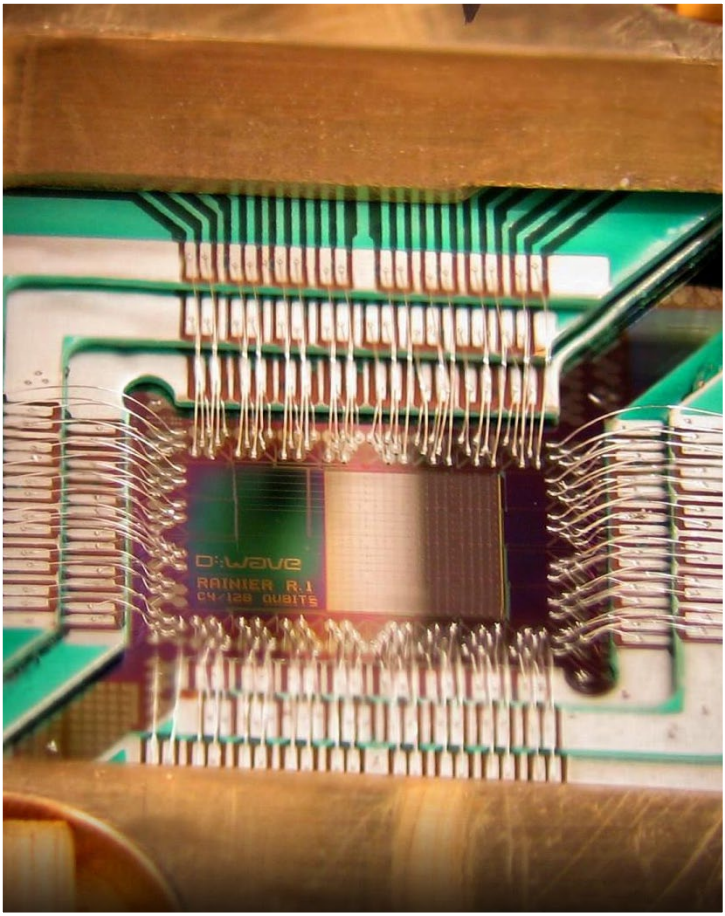
An elevator could bring people and materials to outer space.

Space elevator

New nanotechnologies and materials such as carbon nanotubes could make it possible to build an elevator to space. Teams around the world are designing space elevators that would depart from a base station on Earth and climb up a cable into space. If we could take an elevator, it might be affordable for ordinary people to travel into space!

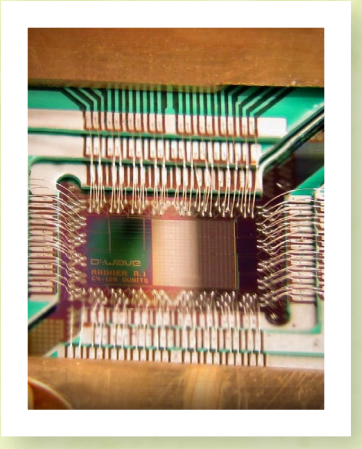
NanoDays

Quantum computer



Courtesy of D-Wave

Quantum bits could process information a million times faster.



Quantum computer

Today's computers use a binary system, where every bit of information is represented as either a 0 or a 1. We might be able to greatly increase computer memory and processing power by using quantum bits, which can exist in more than one state simultaneously (both a 0 and a 1, for example). Quantum computers could solve problems in seconds that would currently take years.

NanoDays

Mother in Mozambique

iStockphoto

Belita lives in Mozambique with her family of five. They live in a rural village with no electricity. Belita is pregnant, but she has no transportation to take her to a health clinic. She makes about $2,000 a year farming and selling crafts to an online merchant.

NAME: Belita
AGE: 33
JOB: Farmer/craftswoman
SALARY: $2,000/year

NanoDays

Iraqi soldier

Jassim works as a soldier in the Iraqi military. He patrols the area around his village. Food and drinkable water are in short supply, but local people help him find what he needs. Much of his equipment was originally made for American soldiers and imported to Iraq.

NAME: Jassim
AGE: 22
JOB: Soldier
SALARY: $5,500/year

NanoDays

South African businesswoman

iStockphoto

Anna runs a variety of businesses in South Africa. She is concerned about her ecological footprint and is looking for ways to reduce the amount of coal-based electricity used in her factories.

NAME: Anna
AGE: 48
JOB: Entrepreneur
SALARY: $500,000/year

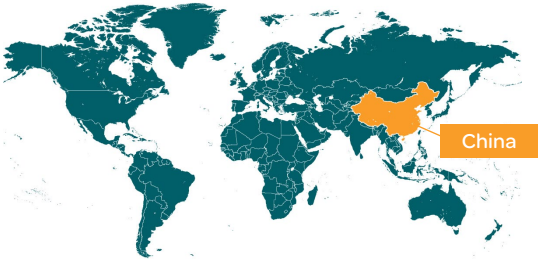
NanoDays

Chinese government official

iStockphoto

Jian has been a loyal member of the Communist Party of China, and he expects his position in the government to improve. He lives in a small village, but one day he might move to Beijing. Jian is proud that China is a world leader in technology, and he supports innovation and industry.

NAME: Jian
AGE: 32
JOB: Government official
SALARY: $8,000/year



NanoDays

Chilean salmon fishery worker

Juanita works at a large salmon farm in Chile. She prepares food for the salmon by mixing antibiotics with ground wild fish. She also uses pesticides to combat sea lice. Juanita's daughter is concerned about all the chemicals her mother uses at the fish farm.

NAME: Juanita
AGE: 50
JOB: Fish farmer
SALARY: $6,000/year