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SILVER NEWS

- A Low-Cost Hobby Computer Produces Nanosilver
- Silver Conference Slated for December
- Silver Helps Produce Cannabis in Controlled Conditions
- PAMP and Coke, Again
- Silver Catalysts Create 'Smart Switch' for Generation of Electricity and Hydrogen
- China Wins Coin of the Year with Silver Bullion Entry
- Silver Lights Up Silicon for Cheap, Abundant Illumination
- A Simpler Way to Produce Hollow, Nanosilver Spheres for Solar and Environmental Applications

A Low-Cost Hobby Computer Produces Nanosilver Replaces Commercial Equipment Costing Thousands of Dollars

Nanotechnology applications are growing rapidly, but one hurdle to continued growth is the high fabrication cost of silver nanoparticles. Commercial equipment needed to produce nanoparticles can cost thousands of dollars.

However, Mexican scientists may have found a less expensive method.

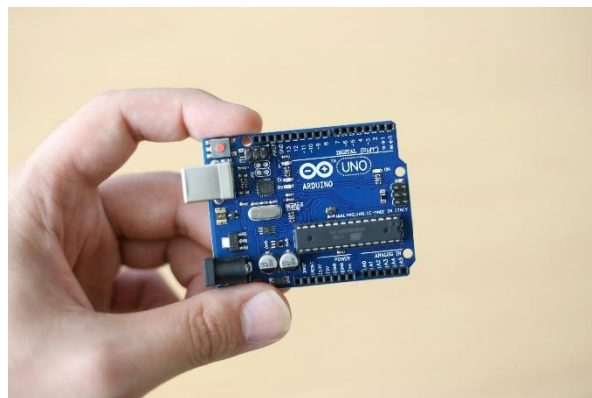
They were able to produce silver nanoparticles using a US\$30 open-source microcontroller called [Arduino](#), used by computer enthusiasts to bridge the gap between software and physical hardware. The software is free, and Do-It-Yourselfers often use Arduinos (and a few other common components) to read inputs like motion or temperature and then turn on fans or lights in response. Arduinos also help build robotic devices.

A research team, led by Marcos Luna Cervantes of [the Centro de Investigación en Micro y Nanotecnología, Universidad Veracruzana](#), took silver from silver nitrate and used the Arduino-based circuitry to shape it into tiny particles that can be used in any application where nanosilver is required, such as microscopic antennas, light amplifiers and chemical detectors.

One benefit of this method is that it produces nanosilver at low cost, speeding development of silver-based products because running several experiments will no longer be hampered by the need to buy multiple devices. This same low-cost technique will also lower barriers to manufacturing, allowing smaller companies with less funding to deliver new products.

In addition, this development could lead to more affordable medical tests and low-cost detection of environmental toxins. Another benefit is that the devices will allow students to learn about nanotechnology without schools having to spend thousands on traditional equipment. Moreover, this technique could also open doors to individual inventors with little financial backing to come up with new and novel applications.

The Mexican team has released into the public domain – through the peer-reviewed journal [HardwareX](#) – details of how to construct the device, the bill of materials and operating instructions.



This Arduino hobby computer and a few other components can replace high-cost equipment that produces nanosilver.

Source: Sahand Babali

Silver Conference Slated for December

Mark your calendar for the Silver Conference, December 3-4 in Washington, DC, where industry leaders, investors, and analysts will gather to examine the key forces shaping the silver market – from investment outlook and mine supply to digitized silver, silver's expanding role in AI and data centers, the post-election tariff policy landscape, and silver's case as a critical mineral at the heart of many clean technologies and new healthcare applications.

Details, including the current agenda, hotel information, and registration, can be found [here](#).

Silver Helps Produce Cannabis in Controlled Conditions Could Mean More Production, Greater Consistency, and No Pesticide Use

Large-scale cannabis production in conventional agriculture is often hampered by large land requirements, erratic weather changes, a need for irrigation, and expensive pesticides. This is why a lot of cannabis for medical use is grown in greenhouses, which are high-cost environments needing electricity and heating.

Now, scientists in Iran have discovered a way to grow medical marijuana in traditional outdoor agricultural settings by using silver nanoparticles.

The method starts with so-called ‘callus cultures’ which are masses of undifferentiated plant cells that help the plant grow and repair. Unlike mature cannabis flowers they don’t have certain structures like trichomes – tiny outgrowths on the surface of the plant – where cannabinoids are produced. However, when scientists exposed the cultures to silver nanoparticles, they found that it triggered cannabinoid production. Indeed, as they increased the amount of silver particles, the number of cannabinoids increased, too.

“This is the first report demonstrating the effectiveness of biogenic AgNPs [silver nanoparticles] in inducing cannabinoid biosynthesis in *C. sativa* L. callus cultures,” the authors from Alzahra University, Tehran, Iran, wrote in the journal [BMC Biotechnology](#).

Why this introduction of silver works is still being studied, but the authors suggest that the nanoparticles act as a trigger for young plants to produce THC, the main psychoactive compound found in cannabis plants, and CBD, the non-intoxicating active compound. Both are important in medical treatments, especially CBD, which is used in seizure treatments.

If this technique pans out for large-scale production, it could replace greenhouse cannabis farming with small outdoor lots without sacrificing consistency or quality.



Silver could help move cannabis farming outside to less expensive and smaller open fields.

PAMP and Coke, Again

PAMP Suisse has introduced its 2026 series of Coca-Cola licensed silver products including:

- A Diet Coke 1-oz. silver can-shaped coin with details such as a pull tab and condensation effects. The .9999 fine silver coin was limited to 4,000 pieces worldwide.
- A Coca-Cola USA "Americana" 1-oz. Silver Round featuring a classic contour bottle with a red, white and blue emblem bearing the date 1776, the birth of the US, and 1886, the beginning of Coke production. Its mintage is 10,000.
- A Coca-Cola "Americana" 1-oz. Silver Bar colorized, retro Americana theme celebrating the classic Coca-Cola heritage. The mintage is 10,000.



[Click the image to watch the video.](#)

PAMP is a pioneer in the world of adding artistic designs to investment-grade precious metal bars, and they have worked with Coke for several years, bringing licensed products to dealers and the public.

Silver Catalysts Create ‘Smart Switch’ for Generation of Electricity and Hydrogen

Discovery Could Lead to Greener Energy and Lower Electric Bills

Silver catalysts can help a solid oxide fuel cell generate electricity or split water to produce hydrogen. Scientists at [Seoul National University \(SNU\)](#), South Korea, say this finding can be used to build cleaner and more efficient electric power generation as well as making hydrogen more energy efficient when it's used as an alternative to fossil fuels.

By manipulating the amount, size and shape of silver nanocatalysts, the particles act as a kind of ‘smart switch,’ telling the solid oxide cells whether to produce electricity or hydrogen.

This discovery, published in the journal [Energy & Environmental Science](#), could benefit industry by maximizing energy device performance, reducing

electricity generation costs for manufacturing and other processes. In addition, it can produce a ‘reversible’ cell that offers a seamless change between producing hydrogen or electricity.

While many believe that hydrogen can be the fuel of the future – because it burns cleanly leaving only water as a byproduct – it is expensive to produce. This discovery could make hydrogen production cheaper and more available.

As scientists learn more about the power of silver catalysts and how to use them for this application, it could enable large-scale deployment in apartment or office buildings and reduce electricity and heating costs.

China Wins *Coin of the Year* with Silver Bullion Entry

For the first time, China has won *Coin of the Year* with its Chinese Dragon 10-Yuan silver bullion coin entry. The prize was presented in August at the [American Numismatic Association's](#) World's Fair of Money in Pittsburgh. This accolade is significant, because it is only the second ongoing silver bullion coin series from China other than the Chinese Panda series which was first offered 40 years ago.

The 1-ounce .999 fine silver coin was minted by the [Shenzhen Guobao Mint in Shenzhen, China](#), on behalf of the People's Bank of China. The coin has a mintage cap of 2 million coins annually. The obverse shows a stylized image of the Great Wall of China, and the reverse shows a dragon in the clouds.

The Coin of the Year (COTY) program is presented by *World Coin News* and co-sponsored by [The Journal of East Asian Numismatics](#), the [World's Fair of Money](#) (hosted by the American Numismatic Association), and the [Numismatic Guaranty Company](#) (NGC).



Source: Numismatic News

Silver Lights Up Silicon for Cheap, Abundant Illumination

Silicon is the second most abundant element in Earth's crust – about 28 percent by weight – behind oxygen, and it has many uses especially in electronic components, but engineers would like it to do more.

In particular, they would like it to glow when electricity is applied like some other semiconductors inside Light-Emitting Diodes (LEDs). If this could be accomplished, it would bring a new world of light sources that use little power and offer abundant illumination at low cost. “It is noteworthy to study the photoluminescence of Si [silicon] nanowires to gain deeper insight into the underlying mechanisms and to assess their potential for practical applications,” noted Sovan Kumar Panda, Department of Electronics, Bidhan Chandra College, West Bengal, India, in the journal [Discover Chemistry](#).

Experiments with silicon and silver may help accomplish this feat. In short, silver has been found to act as a nanoscale catalyst that reshapes silicon, giving it the ability to shine when electricity is applied.

Better still, this method needs only simple, single-step etching without the need for cleanrooms or special production protocols. In addition, because this technique uses standard silicon it can be made at current chip-making facilities.

Consumers may benefit with the growing use of light pulses instead of electricity to carry information faster than current technology. This will also lead to longer battery life as light-carried information uses less electric power.

A Simpler Way to Produce Hollow, Nanosilver Spheres for Solar and Environmental Applications

[The Central University of South Bihar](#) (CUSB) has received a patent for a technology that produces tiny, hollow silver shells that can be used to gather more sunlight for solar applications and may even help reduce pollution.

Usually, producing hollow nanosilver spheres requires high-speed stirring to keep the material from collapsing during manufacture. This new method does not need any stirring to keep its shape, which saves production costs.

The sun produces many different rays some of which we can see and some that we can't see. Engineers found that they could 'tune' a shell's surface in a way that lets more of a specific infrared ray (we can't see these) from the sun to be absorbed or allow others to pass through. This allows the nanoshells to absorb and gather sunlight that might normally be wasted while rejecting any undesired parts of sunlight.

“These tiny silver shells have special optical properties that allow them to absorb sunlight, particularly in the near-infrared range. This could make them useful in solar-energy applications and certain medical technologies,” said team leader Amiya Priyam of the university’s department of chemistry, quoted in [ETEnergyworld](#).

The hollow shells also make silver catalysts more efficient, because the shape offers more surface area and therefore better catalytic performance.

Another benefit of silver hollow shells is that electromagnetic fields concentrate ‘hotspots’ on the surface. These areas of high electromagnetism can rapidly break down some polluting industrial dyes like methyl orange (which is used in factories to monitor chemical manufacturing) using only minimal external energy.

In addition, near-infrared light safely penetrates human skin so medical specialists can more accurately target deep tissues with cancer diagnoses and treatments.

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