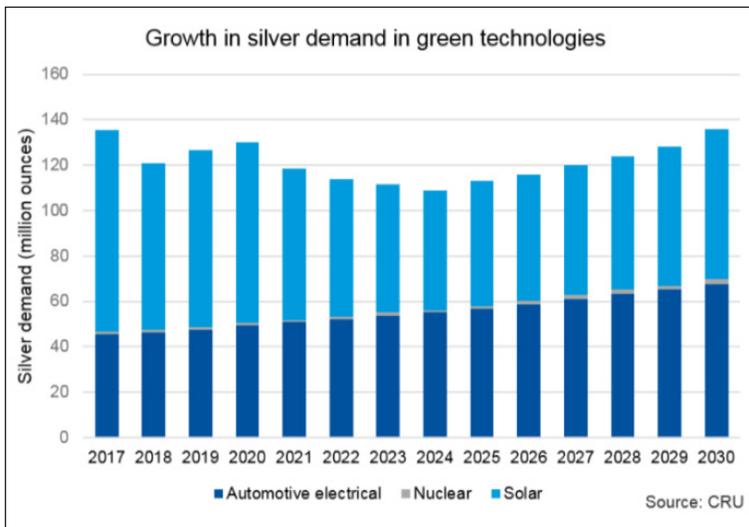


Silver News

- Over 1.5 Billion Ounces of Silver Forecast to be Consumed in Crucial Green Technologies Through 2030
- New Rolls-Royce Car Loaded with Silver
- HERO Bowl Keeps Your Pet’s Food and Water Fresh
- Silver Krugerrands Minted for First Time
- Navy Seeks Silver-Zinc Batteries for Underwater Vehicles
- University of Arkansas Researchers Delve Deeper in Silver’s Antimicrobial Effects
- Silver Promotion Service Ramping Up Outreach
- Silver Helps Produce Stealth Cloak
- 3D-printed Surgical Tools Need no Sterilization

Over 1.5 Billion Ounces of Silver Forecast to be Consumed in Crucial Green Technologies Through 2030



“BEVs (Battery Electric Vehicles) and PHEVs (Plug-in Hybrid Electric Vehicles) may collectively account for as much as 17% of global car sales while hybrids may account for an additional 20% of sales by 2030.”

The ongoing revolution in green technologies, driven by strong growth of new energy vehicles (NEVs) and continued investment in solar photovoltaic energy, should further boost global industrial demand for silver over the next decade and beyond. These sectors, along with silver demand in nuclear power, are explored in a new report, *The Role of Silver in the Green Revolution*, released by the Silver Institute.

The cost of solar photovoltaic (PV) systems has fallen rapidly relative to other electrical energy sources over the past two decades. This is expected to continue over the medium-term. It is estimated that roughly 820 million ounces (Moz) of silver will be utilized by global solar energy applications through 2030.

Recognizing an opportunity to curb pollution in urban areas, governments across the globe have provided financial incentives, as well as new regulations, that favor the development of electric and hybrid vehicles into their broader strategies to tackle climate change. China, the largest car market in the world, is gradually moving from encouraging consumers to buy electric vehicles to penalizing manufacturers who fail to offer New Energy Vehicles (NEV) models. Other nations have also made longer-term commitments to Electric Vehicles (EVs), including Norway, Germany, India, the Netherlands, the U.K. and France. “BEVs (Battery Electric Vehicles) and PHEVs (Plug-in Hybrid Electric Vehicles) may collectively account for as much as 17% of global car sales while hybrids account for an additional 20% of sales by 2030,” the report stated.

An often-overlooked application for silver is nuclear power, where silver is used in combination with other metals to produce the reactors’ control rods. One of the most-used materials is an alloy that is 80% silver, 15% indium and 5% cadmium. Though small in terms of expected offtake at 19 Moz of total silver demand through 2030, use of silver in this area could rise with future growth of nuclear reactors globally.

Authored by CRU, a global commodities consultancy, the 38-page report can be downloaded free at this link: [The Role of Silver in the Green Revolution.](#)

New Rolls-Royce Car Loaded with Silver

Rolls-Royce has taken styling from their original 1907 *Ghost* automobile and incorporated it into their new four-door model, part of the *Silver Ghost Collection*. They've also loaded the car with silver.

The 'Cassiopeia Silver' paint is based on founder Sir Henry Royce's original Silver Ghost's color scheme and contains pure silver particles. It takes eight hours to paint one car. The hood ornament, known as the *Spirit of Ecstasy*, is also made of silver. The car pays homage to the original's black grille and the wheel caps say: "SILVER GHOST-SINCE 1907."

Inside, the tudor oak trim contains silver onlays.

Only 35 cars in this collection will be produced, and pricing has not yet been made public but observers suggest that the cars have already found buyers.

The original car traveled 14,371 miles in 1904, driven by Charles Rolls and Claude Johnson, and ushered in an era of automotive reliability and durability, company officials say.

"The extraordinary accomplishments of our marque's founding fathers are honored by the creation of this elegant *Silver Ghost Collection*," said Torsten Müller-Ötvös, CEO of Rolls-Royce Motor Cars. "The Rolls-Royce Bespoke Collective masterfully weave the rich narrative of the original *Silver Ghost* into just 35 motor cars, creating a contemporary homage to the original motor car."



ROLLS-ROYCE

Click image to see the silver-laden Rolls-Royce Ghost tribute car in action.

HERO Bowl Keeps Your Pet's Food and Water Fresh

The fourth germiest items in your home are your pet's food and water bowls,* according to a company that is raising money through crowdfunding to produce and sell pet bowls with silver-based [Biocote technology](#).

The HERO Bowl from UK-based pet care company HOWND is made from recyclable polypropylene and reduces by up to 99.99% such microbes as bacteria, mold and fungi, company officials say. Biocote is a proven antimicrobial technology that imbeds silver ions into materials including plastics, textiles, paints and ceramics, and is used in many consumer, healthcare and commercial applications.

The bowls come in various sizes and colors and are dishwasher safe. HOWND is hoping to raise US\$50,000 to market and promote this product line.

(*Germiest items in your home: 1- kitchen sponge, 2- kitchen sink and 3- toothbrush holder.)



Click image to learn about the antibacterial HERO brand of pet food and water bowls.

Silver Krugerrands Minted for First Time

For the first time, South Africa's iconic Krugerrand is being minted in silver.

Unveiled in 1967, gold Krugerrands are one of the world's most popular 1-ounce gold bullion coins, selling over 60 million units. The silver edition is composed of one ounce of 99.9% fine silver. Each coin is dated 2018 and has a face value of 1 Rand. The selling price will be pegged to the daily silver price. The coin is a joint venture between Rand Refinery and the South African Mint. Mintage amounts will be based on customer demand.

Similar to its gold counterpart, the obverse side shows a bust of Stephanus Johannes Paulus "Paul" Kruger, a prominent political and military figure in 19th-century South Africa. The reverse shows a springbok, a medium-sized antelope found mainly in southern and southwestern Africa.

Sales began on August 1.



Navy Seeks Silver-Zinc Batteries for Underwater Vehicles

Two companies are competing to provide the U.S. Navy with silver-zinc batteries for various deep sea vehicles.

Silver-zinc batteries offer very high energy-to-weight ratios and are often found in button sizes for watches, hearing aids and other small devices. In large sizes they are often used in military applications such as torpedoes, submarines and other undersea devices.

The Navy is working with BST Systems Inc. in Plainfield, Connecticut, and EaglePicher Technologies LLC in Joplin, Missouri, to provide 750 Amp/hour cells. The companies will compete over the next five years for a potential US\$12.5 million combined contract for the cells, spare parts kits and engineering support services related to the silver-oxide zinc cells. The batteries will be rechargeable.



HBL

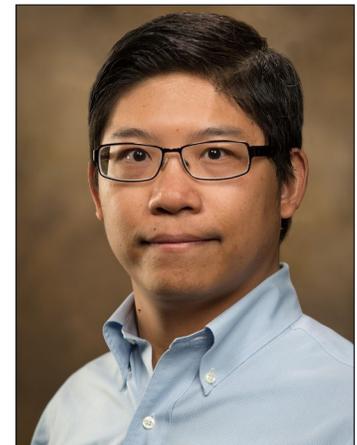
This high energy-to-weight rechargeable silver-zinc battery is used in aircraft.

University of Arkansas Researchers Delve Deeper in Silver's Antimicrobial Effects

Researchers at the University of Arkansas have received a grant of \$498,983 from the National Science Foundation to study the antimicrobial mechanisms of silver nanoparticles and learn more about how they kill microbes.

The team will use an advanced imaging technique called 'super resolution fluorescence microscopy,' which is ten times more powerful than conventional light microscopes, to observe the effects of silver nanoparticles on *E. coli* bacteria.

Professors Yong Wang, Jingyi Chen and Mark Smeltzer will focus on the interaction of silver with proteins, DNA and cell membranes of the bacteria. "Previously, it's been hard to visualize how the proteins in bacteria are arranged and how they move," Wang said in a prepared statement. The team will also explore ways to increase the antibacterial powers of silver by changing particle size, surface and shape.



Yong Wang

Silver Promotion Service Ramping Up Outreach

The Silver Institute's [Silver Promotion Service](#), whose mission is to enhance the image of and stimulate demand for silver jewelry in major international markets, will be implementing two new initiatives, according to Director Michael Barlerin.

"The first has to do with our business-to-business communications, primarily in the US, where we have identified three strategic silver jewelry message categories," he says. "One is the large and growing female self-purchase market, the second is the importance of the bridal wedding category, and the third is marketing to millennials." Barlerin notes that SPS is planning to communicate these strategic messages with an increased use of editorials or advertorials in trade publications and by offering more presentations and seminars at major trade shows.

The second initiative is changing the 'Designers of Distinction from Mexico' classification on the Savor Silver website to 'International Designers of Distinction (IDOD)'. "By originally having it so country-specific, it hindered our ability, for example, to bring in a single designer from Peru or one from India." Barlerin adds that SPS will be participating in major September trade shows in the U.K. and China to identify potential IDOD participants. SPS's website will provide the selected jewelry designers and brands that do not have a presence in the U.S. the opportunity to showcase their products on-line in the 'International Designers of Distinction' section. Selected participants will also be able to use the Silver Mark in promotional materials in their respective markets.

The Silver Promotion Service was introduced in 2008 by the Silver Institute.



SPS

The Silver Mark is used in all Silver Promotion Service communications and by all designers and manufacturers selected to be part of the Savor Silver program.

Silver Helps Produce Stealth Cloak

Military strategists have long sought ways to be invisible from infrared cameras that find anything emitting heat -- humans or machines. A University of Wisconsin-Madison scientist may have a solution and it employs a cloaking material that uses silver.

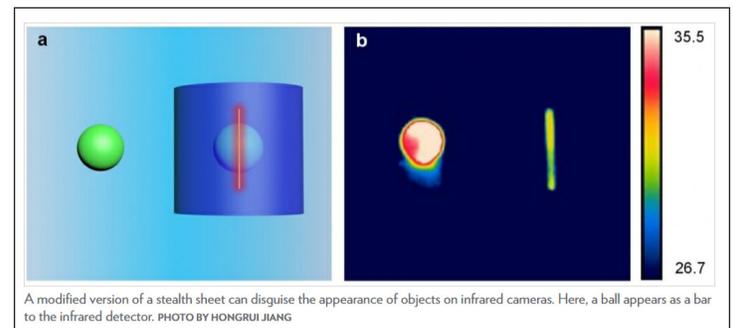
"What we have shown is an ultrathin stealth 'sheet.' Right now, what people have is much heavier metal armor or thermal blankets," said Hongrui Jiang, professor of electrical and computer engineering at the University of Wisconsin-Madison. "It's a matter of the weight, the cost and ease of use," said Jiang, in prepared statement.

The sheet is less than one millimeter thick and absorbs about 94 percent of the infrared light it encounters. Trapping so much light means that warm objects beneath the cloaking material become almost completely invisible to infrared detectors, he said. Moreover, the material absorbs light in the mid and long wavelength range, the type of radiation emitted by humans.

Jiang also included heating elements into the stealth sheet, which creates a false heat signature so a tank, for example, might appear similar to a highway guardrail.

The stealth sheet is mainly composed of black silicon, a substance used in solar cells, that absorbs light by ping-ponging it among microscopic needles facing upward on the surface, essentially trapping the light until it dissipates. Jiang and his team made the absorption rate faster and more efficient by using silver nanoparticles to help dig into the silicon base resulting in taller needles. As a bonus, the silver particles also help absorb infrared light.

"We didn't completely reinvent the whole process, but we did extend the process to much taller nanowires," said Jiang, who developed the material in National Science Foundation-supported facilities at UW-Madison. Jiang and his colleagues received a U.S. patent for the material's use in stealth.



A modified version of a stealth sheet can disguise the appearance of objects on infrared cameras. Here, a ball appears as a bar to the infrared detector. PHOTO BY HONGRUI JIANG

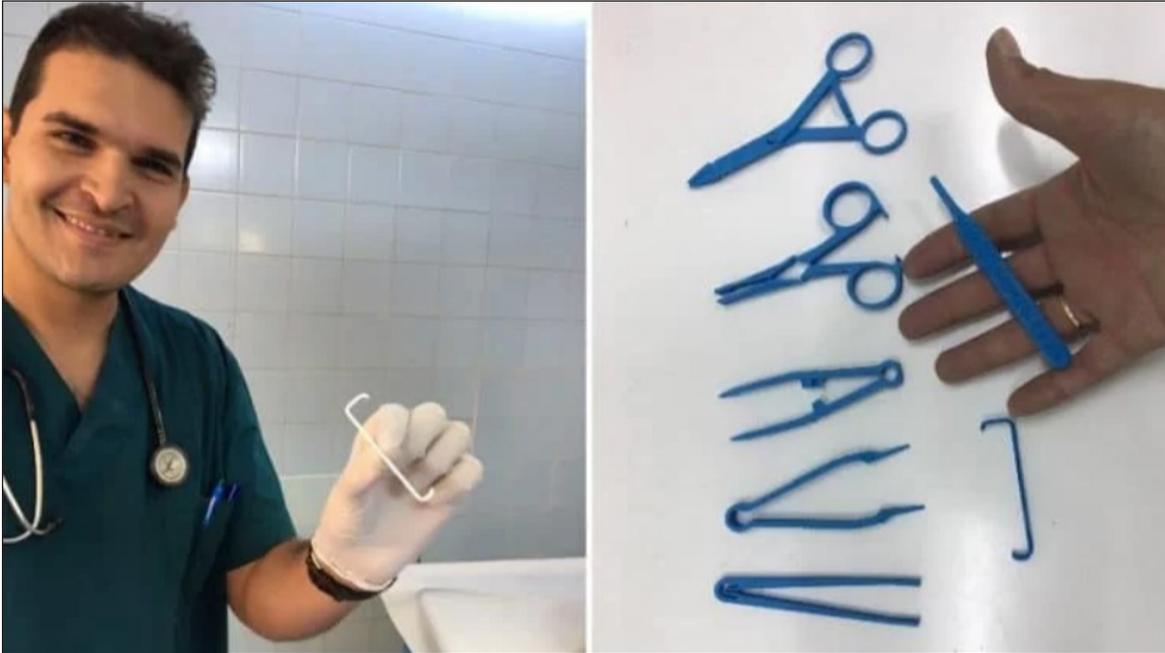
3D-printed Surgical Tools Need no Sterilization

A Greek surgeon is producing silver-imbedded surgical tools using a 3D printer.

Dr. Petros Bangeas introduced his antibacterial inventions at a recent trauma seminar titled ABCS3-Applied Basic Clinical Seminar with Scenarios for Students, held in Thessaloniki, Greece's second largest city. Bangeas is resident surgeon at the Aristotle University of Thessaloniki, Department of Surgery.

"These tools are cut and sewn to the measure we want them to be," said Bangeas, quoted in the [Greek City Times](#). "Three-dimensional printed surgical instruments have been used by Americans during the war in Afghanistan. The originality of our own tools though is that they do not need sterilization because they are coated with silver nanoparticles that have antimicrobial properties."

Bangeas believes these instruments will find uses in areas of mass catastrophes where sterilization is not possible.



GREEK CITY TIMES

These silver-ion imbedded instruments produced by a 3D printer do not need sterilization.

Larry Kahaner
Editor

www.silverinstitute.org
[@SilverInstitute on Twitter](#)

THE
SILVERINSTITUTE

1400 I Street, NW, Suite 550
Washington, DC 20005
T 202.835 0185
F 202.835 0155