



Owen Loh <owenloh2008@u.northwestern.edu>

## Oct 17: Teaching Nano to Swim, Hunt for Superbug Drugs, Nanofridge for Microchips

nanonews@nilt.com <nanonews@nilt.com>

Fri, Oct 17, 2008 at 12:58 AM

Reply-To: nanonews@nilt.com

To: o-loh@northwestern.edu

If you no longer wish to receive this newsletter, or if this newsletter has been forwarded to you from elsewhere and you wish to un-subscribe, please [click here](#) - Receiving email [o-loh@northwestern.edu](mailto:o-loh@northwestern.edu)

### Nano & NIL Newsletter - stay in front of development with NIL Technology



Dear Colleagues,

Following a successful exhibition at the NNT conference in Kyoto, I bring you the **8 most interesting nanonews of the week**. Here, you can among others learn about swimming nanomotors developed by Ayusman Sen and colleagues at Penn State University. The nanomotors are made of 2  $\mu\text{m}$  long platinum-gold nanorods and the fluid in which the nanomotors swim is a diluted solution of hydrogen peroxide. The hydrogen peroxide is catalytically oxidized by the platinum tip of the nanorod resulting in the formation of oxygen, electrons and protons. The electrons move to the back inside the nanorods while the protons move to the back in the fluid outside the nanorods. At the back the electrons and protons catalytically reduce hydrogen peroxide to water. The protons flowing from the front to the back function as paddles, propelling the nanorods forward in the direction of the platinum tip. The group knows how to make the motors, attach cargo to them, and transport them to designated points by magnetism, chemistry, or light but off-loading remains a problem which the group tries to solve by the use of photosensitive linker molecules when attaching the cargo to the motors. Read this and the 7 other very interesting news below.

*Editor, CTO*  
[Brian Bilenberg](#)

### The 8 most important Nano & NIL News globally the past week

#### [Teaching Nano to Swim](#)

Ayusman Sen, head of the Department of Chemistry at Penn State, makes tiny, metallic objects do something extraordinary -- he makes them swim. Sen's work is driven by catalysis, the chemical phenomenon whereby a substance accelerates a chemical reaction but emerges unchanged at the end of the process.

[\[Physorg.com\]](#)

### [Nano-Levers could Speed up Hunt for Superbug Drugs](#)

A new nanoscale cantilever could speed up the screening of potential new antibiotics, aiding the search for ways to beat the growing numbers of drug-resistant "superbugs".

[[Newscientist.com](#)]

### [A New Material could act as a Nanofridge for Microchips](#)

In the past few years, the design and manufacturing of circuits at nanoscopic scale for integrated devices has become one of the frontier fields in new material science and technology. In the past few years, the design and manufacturing of circuits at nanoscopic scale for integrated devices has become one of the frontier fields in new material science and technology.

[[Eurekalert.org](#)]

---

### [New Silicon Grating Stamps](#)

In stock stamps

Shipment within 2 business days

Attractive price

**Price EUR 2,750**



---

### [Nanobubbles - Something of a Mystery](#)

Scientists are puzzled by the nanobubbles that can develop on surfaces under water. It should be impossible for them to exist but nevertheless they remain intact for hours.

[[Azonano.com](#)]

### [Mimicking Gecko Feet: Dry Adhesive based on Carbon Nanotubes gets Stronger](#)

The race for the best "gecko foot" dry adhesive got a new competitor this week with a stronger and more practical material reported in the journal Science by a team of researchers from four U.S. institutions.

[[Sciencedaily.com](#)]

### [Scientists Engineer Superconducting Thin Films](#)

One major goal on the path toward making useful superconducting devices has been engineering materials that act as superconductors at the nanoscale - the realm of billionths of a meter. Such nanoscale superconductors would be useful in devices such as superconductive transistors and eventually in ultrafast, power-saving electronics.

[[Smalltimes.com](#)]

---

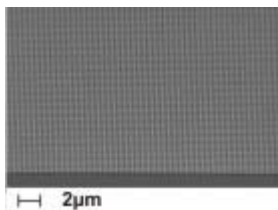
### [Photonic Stamp](#)

Anti-reflective structures

Photonic crystal structures

Large patterned areas

**Price EUR 9,900**



### **Researchers Write Nanoscale Protein Arrays using a Nanofountain Pen and Electric Fields**

Nanotechnology offers unique opportunities to advance the life sciences by facilitating the delivery, manipulation and observation of biological materials with unprecedented resolution. The ability to pattern nanoscale arrays of biological material assists studies of genomics, proteomics and cell adhesion, and may be applied to achieve increased sensitivity in drug screening and disease detection, even when sample volumes are severely limited.

[[Newsguide.us](#)]

### **[A Novel Technique for making Highly Efficient Biomimetic Devices](#)**

The conformal-evaporated-film-by-rotation technique generates synthetic, faithful replicas of biological structures, with broad potential application.

[[SPIE.org](#)]

---

### **[Are you experiencing the limitations to UV lithography?](#)**

In less than 10 minutes cleanrooms can now change a regular UV-aligner into an UV nanoimprint lithography tool. To learn more:

Click [here](#) for specifications

Click [here](#) to read SPIE article

Click [here](#) to watch demo video



---

**If you no longer wish to receive this newsletter, or if this newsletter has been forwarded to you from elsewhere and you wish to un-subscribe, please [click here](#)**