



## **Welcome to Vol. 8 No. 10 of Design Science News, the e- bulletin of the Buckminster Fuller Institute**

Design Science News brings you news from around the world related to humanity's option for success and comprehensive design science. It also features updates from BFI and periodic special offers for our members.

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### **The first Buckminster Fuller Challenge receives 250 entries!**



Catalyzing the vanguard of a design science revolution

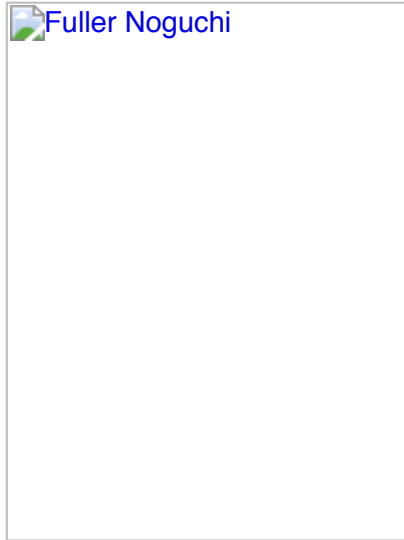
The Buckminster Fuller Institute is pleased to announce that we have received 250 entries to first The Buckminster Fuller Challenge, an international design science competition which seeks to confer a prize of \$100,000 to a single winning solution.

Prize monies will be awarded in June 2008 to support the development and implementation of a solution that has significant potential to solve humanity's most pressing problems in the shortest possible time while enhancing the Earth's ecological integrity.

To read the full press release, please visit the [Challenge website](#).

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## Best of Friends: Buckminster Fuller and Isamu Noguchi on view at The Henry Ford Museum



**November 3, 2007 through January 15, 2008**

R. Buckminster Fuller and Isamu Noguchi, two of the most highly regarded creative minds of the 20th century, might at first glance seem to have little in common: Fuller the 'Spaceship Earth' visionary, known for his geodesic domes and hours-long lectures to enraptured student audiences; and Noguchi the sculptor, whose creative vocabulary found a quiet but forceful voice in the sometimes graceful, sometimes aggressive shaping of stone, metal, water, wood and light into monuments, playgrounds, gardens, fountains, furniture and lamps. There is, however, a congruence, a deeper sense of shared concerns and values, that underlies their lives and their work, and it is this congruence that lies at the heart of Best of Friends: Buckminster Fuller and Isamu Noguchi.

This highly acclaimed exhibit features Fuller's 1934 three-wheeled Dymaxion Car, sculptures by Noguchi and dozens of rare documents, models and artifacts.

An exhibition organized by The Isamu Noguchi Foundation and Garden Museum. Exhibition Curator, Shoji Sadao. PHOTO: Isamu Noguchi (left) with Buckminster Fuller, 1971. Courtesy: Estate of Arnold Eagle.

[For more information, visit the Henry Ford Museum website](#)

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## BFI Network Directory now available to members of the Institute



The BFI Network Directory is now available! If you elected to receive the Network Directory in hard copy, it is on its way in the mail. For all other BFI members - if you would like to receive a digital, printer-friendly version of the Directory, please send an email to Will Elkins at [will \(at\) bfi \(dot\) org](mailto:will(at)bfi(dot)org)

Not a member of BFI? [Find out more about the benefits of membership](#)

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## TRENDS & PERSPECTIVES

### Power polymers fuel solar cell advances



It sure isn't easy being green. America launched major initiatives to ease dependence on oil in the 1970s after two oil price spikes orchestrated by Mideast oil powers. The big push for more fuel-efficient cars and alternative sources of energy quickly stalled, however, as oil prices dropped.

One of the big players on this roller coaster has been solar power, which still accounts for less than 1 percent of world energy production, mostly because its cost is often seven or eight times higher than coal-generated power. There is renewed interest now, with states such as California leading the push. Solar is a new darling of venture capital and major polymers companies, such as DuPont and Bayer MaterialScience, see significant potential.

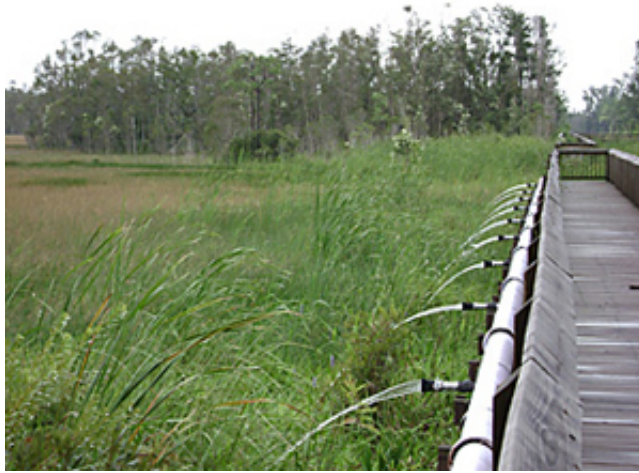
Another big driver now is the U.S. military, which wants to improve soldier mobility. Packs carried by soldiers weigh almost 100 lb, including a three-day supply of batteries to power their gear, weighing 20 lb. The Defense Research Projects Agency (DARPA) recently awarded \$12.2 million to the Very High Efficiency Solar Cell Consortium that includes

DuPont and the University of Delaware. DARPA wants researchers to develop solar rechargers that could be integrated into battlefield gear such as radios, GPS navigation systems and night-vision goggles. (Source: [Design News](#)) \*Special thanks to Design Science News reader Brad Twoomey for alerting us to this story!

[http://www.designnews.com/article/CA6485775.html?nid=2334&rid=1282715123#\\_self](http://www.designnews.com/article/CA6485775.html?nid=2334&rid=1282715123#_self)

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## Water reuse: a solution to drought in the Florida wetlands



South Florida is one of the wettest regions in the country, but this year it's caught in a drought. A leading indicator of the dryness - Lake Okeechobee - dropped to a record low of 8.8 feet in July. Now just below 10-1/2 feet, it is still five feet shallower than average.

The region has tried to compensate. Its water-management district instituted the toughest usage restrictions in history last spring, allowing lawn irrigation or car washing only during certain narrowly defined times. 'Water cops' were deployed to ticket scofflaws who misuse the water.

But it's not enough, experts say. At stake is not only the drinking supply for more than 5 million people, but also the health of the Everglades and agricultural production.

That's why South Florida is turning to another solution: water reuse.

Already, since the mid-1990s, the region has more than doubled water reuse - to some 230 million gallons per day in 2005, according to the South Florida Water Management District. That's 28 percent of the water cycled back through public-treatment systems - but only a small share of the total 3.4 billion gallons a day that gets used, most of it devoted to agriculture or otherwise lost to lawn irrigation or other uses.

One of the most innovative ways to reclaim wastewater is to treat it to the point where it's nearly potable and then to let land - a natural filter - finish the job. (Source: [The Christian Science Monitor](#))

<http://www.csmonitor.com/2007/1107/p02s04-usgn.html>

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## Pollution-busting plants



A French hybrid of an aspen tree may one day rid water supplies of the industrial degreaser - and human carcinogen - trichloroethylene (TCE), one of the most common contaminants at toxic waste sites in the U.S. And the tiny, but tractable, *Arabidopsis* plant may mop up the residue of RDX, a military explosive blasted into the soils at firing ranges.

"Plants are a good method for remediating soil and water," says Stuart Strand, an environmental engineer at the University of Washington who has worked on creating the genetically modified pollution-gobbling aspen tree. Even in their natural state, such trees and plants absorb environmental contaminants and break them down into harmless components - all with the power of the sun.

To boost this natural process, researchers introduced a cytochrome known as P450 2E1, an enzyme that ordinarily breaks down many contaminants in the livers of humans and other mammals, allowing them to be harmlessly excreted in urine. The problem is that this breakdown can precipitate the formation of so-called free radicals or ionized molecules, which can cause damage in the liver and elsewhere that may lead to cancer. "We figured we would put [P450 2E1] into plants and let it happen outside our bodies," Strand says. (Source: [Scientific American](http://www.sciam.com/article.cfm?articleID=A5B6ED51-E7F2-99DF-30AEE27247438296&chanID=sa003))

<http://www.sciam.com/article.cfm?articleID=A5B6ED51-E7F2-99DF-30AEE27247438296&chanID=sa003>

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## Grass-munching bugs could charge rural phones





A bacteria-powered cellphone charger could keep people in developing countries talking, even when they live far from the grid.

Cellphones are increasingly vital to everyday life, and the economy of many developing countries. But in some areas electricity to charge them can be hard to come by.

In rural Uganda, for example, less than 1% of households have access to an electrical grid, so they typically power lights and other devices using car batteries.

To tackle the problem, a team of students from Massachusetts Institute of Technology, Boston, US, has designed a microbial fuel cell (MFC) that runs on plant waste. Their prototype won the \$5,000 first prize in a contest called MADMEC, which was sponsored by Dow Chemical to encourage new uses of materials that allow alternative or non-traditional sources of energy. (Source: [New Scientist](http://technology.newscientist.com/article/dn12731-))

<http://technology.newscientist.com/article/dn12731->

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## RESOURCES

**Putting smart design where it is needed most - an interview with Cameron Sinclair**



Co-founder of the charitable organization Architecture for Humanity, Sinclair and his co-founder Kate Stohr literally help re-build broken communities by promoting innovative and sustainable architecture and design. With the signature line "Design like you give a damn," Architecture for Humanity creates opportunities for architects around the world to make a difference through design initiatives, forums, workshops and competitions. The organization is, for example, helping to reconstruct the parts of India and Sri Lanka that were devastated by the 2004 tsunami, and is re-building parts of the U.S. gulf coast affected by Hurricane Katrina. They have also built a mobile health clinic to combat HIV/AIDS in Sub-Saharan Africa.

In addition, Architecture for Humanity advises and consults governments around the world in their ongoing design projects. They are, for instance, helping Afghanistan build refugee housing and working with Turkey to construct earthquake resistant buildings. Sinclair and Stohr recently published a new book, *Design Like You Give a Damn: Architectural Responses to Humanitarian Crises*, which has received critical acclaim as the first ever compendium of sustainable architecture efforts around the world.

This year, the organization opened an online open source architecture community called the Open Architecture Network to improve living conditions through design. In September, the Network launched an international competition - open to everyone, including non-architects - called the Open Architecture Challenge, which seeks to bring affordable Internet access to half of the world by 2015 (right now, only a fifth of the world can surf the web). Three winning design teams, to be announced next year, will work with Architecture for Humanity to implement their plans in South America, Africa and Asia, respectively.

Sinclair was one of the recipients of last year's esteemed TED prize, which honors visionaries who inspire others to do great things for the world.

Check out this video interview with Sinclair, from PBS's Wired Science

[Wired Science](#)

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**Video from 2005 "Synergetics in the Arts Symposium" now online**



Caspar Schwabe's talk on "Synergy Serendipity Synchronicity" from the Synergetics Collaborative's Fall 2005 Symposium on "Synergetics in the Arts" at the Noguchi Museum (large 10 MB QuickTime video): [Watch the video \(10mb\)](#)

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## EVENTS

### Dome School 2007



DOME SCHOOL 2007 - HURRICANE HOME SEMINAR

Tampa Convention Center - Tampa, FL

November 17&18, 2007

TAMPA, FL. The 2007 Dome School dates have been announced. This annual one day event will be held twice at the Tampa Convention Center, downtown Tampa, FL. on November 17 & 18, 2007. Included in the intensive one day seminar is a dome home tour, construction of an actual Hurricane dome frame, and the Gulf Coast Hurricane Edition of the Dome School Book. The book has a reference guide to every type of dome building and identifies them by type and class. There are over 100 pages of dome home floor plans, with sections on materials, and construction details. Dome School is a guide for individuals who build from scratch, to homeowners and their licensed general contractors, and everyone between. The indestructible dome out-performs every



home in hurricane wind resistance and sustainability. The Dome School agenda includes 1000 power points of existing domes and details. Participants will receive the latest Gulf Coast Hurricane Edition of the Dome School Book. The school will tour an existing 6500 square foot, 50' diameter dome home that has a beautiful panoramic view overlooking the Gulf of Mexico.

Blair F. Wolfram will be the featured speaker. He has built over 425 domes, 125 have been dome homes as primary residences. On September 4, 2007 U.S. Patent Application #11/849,663, Connector for Geodesic Dome Structures was issued to Wolfram. On 8-29-07, another milestone for his dome work since 1982, was realized when the engineering document for the "New 48 Foot Dome- Wood and Structural Steel Tubing for Miami-Dade, Florida Hurricane Requirements" was signed by licensed FL engineer, Paul Durand P.E., S.E.

"A dome is the single greenest housing, and the most sustainable building. Whether your environment is extreme heat or cold, hurricane winds, heavy snows or earthquakes, a dome has advantages over every other style of building," says Wolfram.

The cost for the seminar is \$195 per couple, or \$150 individual, and includes the Gulf Coast Hurricane Edition of the Dome School Book, all day class, lunch, building of the Hurricane Katrina Cottage, and the dome home tour. Seminar hours 9 AM to 5 PM.

Sunday's class is a half day, and cost is \$125 per couple. Class includes the Dome Book and the same agenda as Sunday, but no building of the Hurricane Katrina Dome. Class Times 1 PM to 5 PM.

Reservations are suggested.

Contact:  
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[Dome Incorporated](#)

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Have you come across interesting Design Science news articles, resources, or events?

We invite you to forward them so we can consider them for inclusion in future e-bulletins. Send them to: [designsciencenews \(at\) bfi.org](mailto:designsciencenews(at)bfi.org)

If we use your suggestion for future e-bulletins and you would like to be credited by name, please indicate it in your e-mail.

**Thank You!**

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