BUCKMINSTER FULLER INSTITUTE
BFI.ORG

DESIGN SCIENCE NEWS

Welcome to Vol. 9 No. 1 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.

Twenty-four outstanding Challenge entries advanced to the next round of review!

Twenty-four standout entries to the Buckminster Fuller Challenge have been advanced to the next round of review and deliberation.

The entries present diverse solutions that range from a modular, carbon-neutral home; a comprehensive plan for regenerating the environment and economy of Appalachia; a simple and elegant plan for farm and ranchland sustainability; to a board and expansive new theory of energy and atomic structure.

The distinguished jury will engage in final deliberations in mid-March, 2008 and a winner will be selected in April. The $100,000 prize will be conferred at the Whitney Museum of American Art in New York City in June, 2008.

To read the full press release, please visit the Challenge website.

2008 Design Science Lab will focus on energy and climate change

With oil prices hovering around 100 USD a barrel, climate change nearing the point of no return, and the rise of massive new energy consumers like China and India, planning for a new model of energy production, distribution, and consumption has never been more vital to the survival of Spaceship Earth and everyone on board.

If you think you have what it takes, the 2008 Design Science Lab wants you! The Design Science Lab is an intensive training in Buckminster Fuller's design science problem-solving method. Past participants have included college and high school students, environmental and social entreprenuers, professionals, artists, designers, and global citizens interested in acquiring the tools and skills to solve complex problems. The Lab will take place from June 16th to June 23rd at the United Nations and United Nations International School in New York City, NY.

The Design Science Lab website will be re-launched soon for the 2008 Lab. For program details, please send an email to: mbarron (at) bfi.org

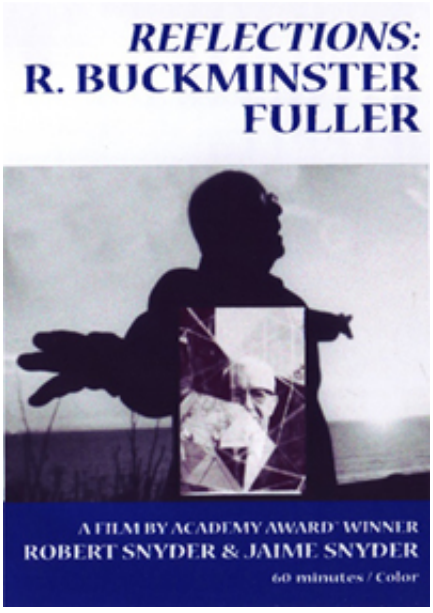
BFI Network membership renewal campaign underway

We would like to invite the readers of Design Science News to become contributing members of the BFI Network. BFI has a momentous year ahead of us in 2008 with the first Buckminster Fuller Challenge prize to be conferred in June, the opening of the Whitney Museum's retrospective on Fuller, and a number of other exciting opportunities. There has never been a more exciting time to become a supporting member and get involved!

Learn more about joining the BFI network

Join the network today!

NEW IN OUR ONLINE STORE: Reflections - R. Buckminster Fuller on DVD



Winner of the CINE Golden Eagle Award. This documentary contains footage of Bucky never seen before and never distributed in the U.S. Made for the U.S. Information Agency in 1977 by award-winning filmmaker Robert Snyder and Jaime Snyder. The film contains wonderfully intimate sequences with Fuller talking about his childhood, family and youth. One of the best films available on Bucky. Video. 60 minutes, DVD Video. Order your copy today!

TRENDS & PERSPECTIVES

A new model for green design

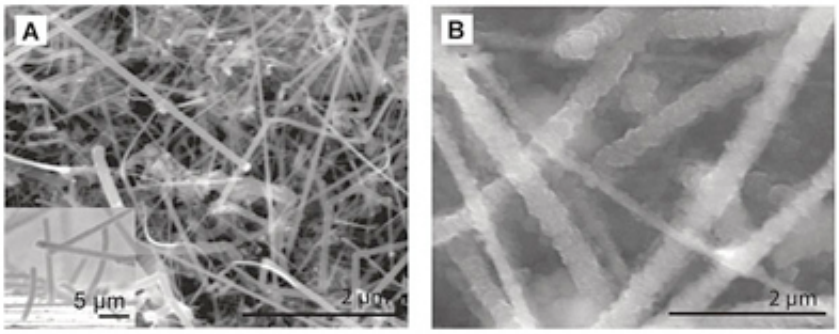
THE DESIGNERS ACCORD

Valerie Casey was on a cross-country flight - her third that month - when she had a crisis of conscience. The designer, who then worked at frog and is now at IDEO, had just pitched a packaging project to one of the world's largest delivery services, a company with a so-so environmental record. The film An Inconvenient Truth was still echoing through her mind, and yet she felt unsure of how to even begin a conversation about sustainability with her clients. In her frustration, she wrote what she called a "Kyoto Treaty" of design.

Just over a year later, her screed has evolved into a more formal set of principles now called the "Designers Accord," which has been signed by thousands of designers and counting. Its six-member advisory board includes Paul Hawken, best-selling author and founder of the Natural Capital Institute; IDEO CEO Tim Brown; and others. The Designers Accord has emerged at a time of increased interest in and demand for sustainable products, services, and business practices, but in an era of ongoing uncertainty about how to define or measure greenness and growing consumer impatience with corporate "greenwashing." While it is far too early to estimate its impact, the agreement has the potential to quite dramatically change both the practice of design and the business practices of the thousands of companies who work with design consultancies. (Source: Business Week)

http://www.businessweek.com/innovate/content/jan2008/id20080118_434274.htm

Nanowire battery can hold 10 times the charge of existing lithium-ion battery



Stanford researchers have found a way to use silicon nanowires to reinvent the rechargeable lithium-ion batteries that power laptops, iPods, video cameras, cell phones, and countless other devices.

The new technology, developed through research led by Yi Cui, assistant professor of materials science and engineering, produces 10 times the amount of electricity of existing lithium-ion, known as Li-ion, batteries. A laptop that now runs on battery for two hours could operate for 20 hours, a boon to

ocean-hopping business travelers.

“It’s not a small improvement,” Cui said. “It’s a revolutionary development.”

The breakthrough is described in a paper, “High-performance lithium battery anodes using silicon nanowires,” published online Dec. 16 in Nature Nanotechnology, written by Cui, his graduate chemistry student Candace Chan and five others.

The greatly expanded storage capacity could make Li-ion batteries attractive to electric car manufacturers. Cui suggested that they could also be used in homes or offices to store electricity generated by rooftop solar panels. (Source: Stanford Report)

http://news-service.stanford.edu/news/2008/january9/nanowire-010908.html

World’s greenest building going up in Paris

The home of the Eiffel Tower is getting a new architectural innovation - and a green one at that. The Energy Plus office building, to be located outside of Paris, is designed to consume no electricity other than that which it creates itself. This zero-energy building, according to the designers, will be the greenest office building ever created.

The 70,000 square meter building is designed by architecture uberfirm Skidmore, Owings & Merrill, who have also designed the Guandong Green Skyscraper and a proposed green skyscraper in San Francisco. The low-rise building will be located in the Gennevilliers area of Paris, near the Seine river. It is designed to house around 5,000 occupants.

How does this building achieve its goal? For starters, the building will be heavily insulated - enough to reduce its energy use to about 16 kilowatts per square meter, which is considerably lower than that of a standard building. Cold water from the Seine river will be pumped throughout the offices eliminating the need for a standard air conditioner unit. And to actively contribute to the highest standard of energy efficiency, designers have engineered the building to have the largest solar array in the world installed in the roof. It is this solar array which will provide all the energy needs of the building, as well as providing additional energy to be fed back into the grid. (Source: Inhabitat)

http://www.inhabitat.com/2008/01/21/paris-building-to-be-worlds-greenest/

What are we thinking when we (try to) solve problems?

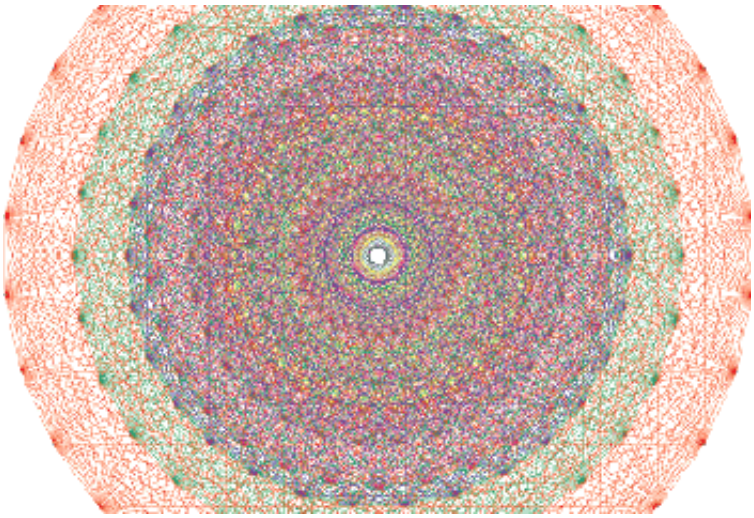
Researchers at Goldsmiths, University of London report in the journal PLoS ONE that they monitored action in the brains of 21 volunteers with electroencephalography (EEG) as they tackled verbal problems in an attempt to uncover what goes through the mind - literally - in order to observe what happens in the brain during an “aha!” moment of problem solving.

“This insight is at the core of human intelligence, this is a key cognitive function that the human can boast to have,” says Joydeep Bhattacharya, an assistant professor in Goldsmiths’s psychology department. “We’re interested [in finding out] whether - there is a sudden change that takes place or something that changes gradually [that] we’re not consciously aware of,” he says. The researchers believed they could pin down brain signals that would enable them to predict whether a person could solve a particular problem or not.

In many cases, the subjects hit a wall, or what researchers refer to as a “mental impasse.” If the participants arrived at this point, they could press a button for a clue to help them untangle a problem. Bhattacharya says blocks correlated with strong gamma rhythms (a pattern of brain wave activity associated with selective attention) in the parietal cortex, a region in the upper rear of the brain that has been implicated in integrating information coming from the senses. The research team noticed an interesting phenomenon taking place in the brains of participants given hints: The clues were less likely to help if subjects had an especially high gamma rhythm pattern. The reason, Bhattacharya speculates, is that these participants were, in essence, locked into an inflexible way of thinking and less able to free their minds, and thereby unable to restructure the problem before them. (Source: Scientific American)

http://www.sciam.com/article.cfm?id=what-are-we-thinking-when

Surfer dude stuns physicists with theory of everything



An impoverished surfer has drawn up a new theory of the universe, seen by some as the Holy Grail of physics, which has received rave reviews from scientists.

Garrett Lisi, 39, has a doctorate but no university affiliation and spends most of the year surfing in Hawaii, where he has also been a hiking guide and bridge builder (when he slept in a jungle yurt).

Despite this unusual career path, his proposal is remarkable because, by the arcane standards of particle physics, it does not require highly complex mathematics.

Even better, it does not require more than one dimension of time and three of space, when some rival theories need ten or even more spatial dimensions and other bizarre concepts. And it may even be possible to test his theory, which predicts a host of new particles, perhaps even using the new Large Hadron Collider atom smasher that will go into action near Geneva next year.

The new theory reported today in New Scientist has been laid out in an online paper entitled “An Exceptionally Simple Theory of Everything” by Lisi, who completed his doctorate in theoretical physics in 1999 at the University of California, San Diego.

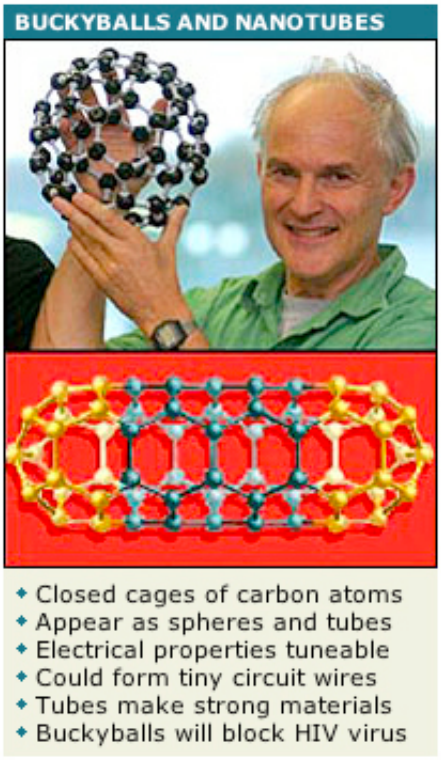
He has high hopes that his new theory could provide what he says is a “radical new explanation” for the three decade old Standard Model, which weaves together three of the four fundamental forces of nature: the electromagnetic force; the strong force, which binds quarks together in atomic nuclei; and the weak force, which controls radioactive decay.

The reason for the excitement is that Lisi’s model also takes account of gravity, a force that has only successfully been included by a rival and highly fashionable idea called string theory, one that proposes particles are made up of minute strings, which is highly complex and elegant but has lacked predictions by which to do experiments to see if it works. (Source: Telegraph UK)

http://www.telegraph.co.uk/earth/main.jhtml;jsessionid=F0YJY143DPFBXQFIQMGSFFWAVCBQWIV0?xml=/earth/2007/11/14/scisurf114.xml&page=1

Special thanks to new BFI Board member David McConville for submitting this item!

Darkest ever material created



The “darkest ever” substance known to science has been made in a US laboratory.

The material was created from carbon nanotubes - sheets of carbon just one atom thick rolled up into cylinders.

Researchers say it is the closest thing yet to the ideal black material, which absorbs light perfectly at all angles and over all wavelengths. The discovery is expected to have applications in the fields of electronics and solar energy.

A team led by Dr Pulickel Ajayan, who is presently at Rice University in Houston, Texas, built an array of vertically aligned, low-density carbon nanotubes. Dr Shawn Lin measured the optical properties.

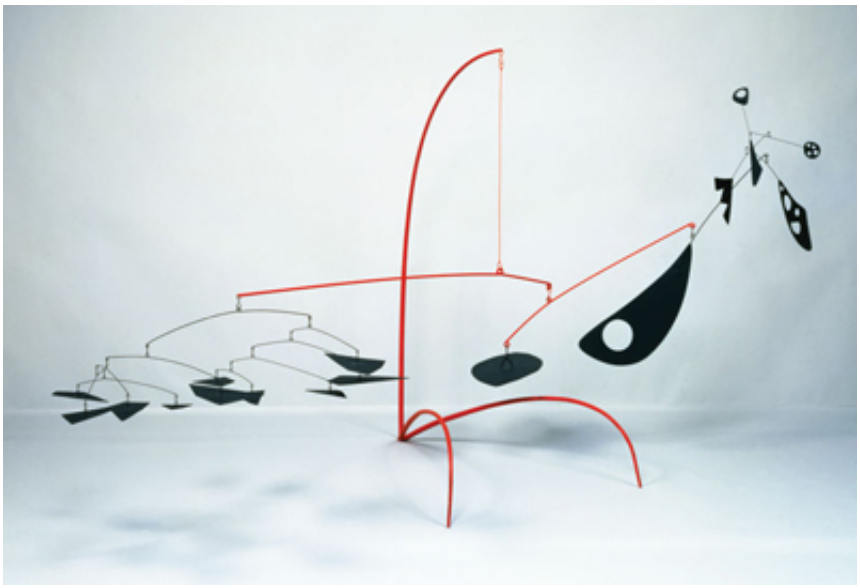
Experiments showed that this “forest” of carbon nanotubes was very good at absorbing light, and very poor at reflecting it.

Reporting their findings in the journal Nano Letters, Dr Ajayan, Dr Lin and colleagues say the reflectance of the material is three times lower than previously achieved. This makes it the “darkest man-made material ever”. (Source: BBC News)

http://news.bbc.co.uk/2/hi/science/nature/7190107.stm#graphic

RESOURCES

The future of science, is art?



It's hard to believe that a work of abstract art might have actually affected the history of science. Cubism seems to have nothing in common with modern physics. When we think about the scientific process, a specific vocabulary comes to mind: objectivity, experiments, facts. In the passive tense of the scientific paper, we imagine a perfect reflection of the real world. Paintings can be profound, but they are always pretend.

This view of science as the sole mediator of everything depends upon one unstated assumption: While art cycles with the fashions, scientific knowledge is a linear ascent. The history of science is supposed to obey a simple equation: Time plus data equals understanding. One day, we believe, science will solve everything.

But the trajectory of science has proven to be a little more complicated. The more we know about reality - about its quantum mechanics and neural origins - the more palpable its paradoxes become. As Vladimir Nabokov, the novelist and lepidopterist, once put it, "The greater one's science, the deeper the sense of mystery." (Source: Seed Magazine)

http://www.seedmagazine.com/news/2008/01/the_future_of_scienceis_art.php

Periodic table printmaking project

Ninety-six printmakers of all experience levels, have joined together to produce 118 prints in any

medium; woodcut, linocut, monotype, etching, lithograph, silkscreen, or any combination. The end result is a periodic table of elements intended to promote both science and the arts. View the table: http://azuregrackle.com/periodictable/table/

EVENTS

Design Heroix

DESIGN HEROIX

Wednesday, February 20th, 2008, 12:00–2:00pm
Organized by: Center for Architecture; NYU; Buckminster Fuller Institute
Sponsored by: Co-sponsored by: Center for Architecture; Environmental Health Center Center for Architecture; Environmental Health Clinic, NYU; Buckminster Fuller Institute
Location: Center for Architecture, 536 LaGuardia Place
Price: Free
CES LUs: 1.5, CES HSW: 1.5
Contact: Sara Romanoski

The speakers in this grand rounds series treat design as the critical opportunity to address one or several challenging contemporary technical issues. While working in different material realms their entrepreneurial activity draws designability into realms that have been closed to reimagination - thought solved or inevitable. These speakers have individually reinvented the laptop, the window, the map, fundamental electrical connections, the structure of competitive markets and other devices that previously seemed so complete and unchangeable. In so doing, they explore the opportunities for social change that technical changes present, change the scope of design and our chance at significantly redesigning our urban environmental future.

Laura Kurgan, Faculty, Columbia Graduate School of Architecture, Planning and Preservation
Respondent: **Stephen Zacks**, Associate Editor, Metropolis Magazine

Laura Kurgan teaches architecture at Columbia University's Graduate School of Architecture, Planning and Preservation, where she is Director of Visual Studies and the Director of the Spatial Information Design Lab (SIDL). SIDL is currently collaborating with the Justice Mapping Center on a project called "Graphical Innovations in Justice Mapping" in selected states - Arizona, Kansas, Los Angeles County, Louisiana, New York, and Rhode Island. She has followed the declassification of satellite imagery and GPS technology in a series of research projects across the significant political events of the last decade. This work, which has been exhibited internationally, is collected in You Are Here: Post-Military Technology and the New Landscape of Satellite Images, forthcoming from Zone Books.

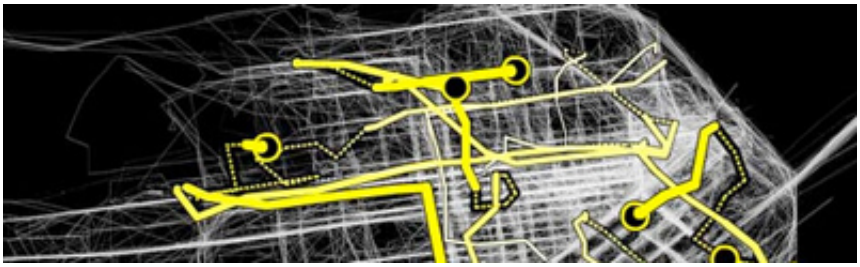
Stephen Zacks is an editor at Metropolis Magazine and a graduate of Liberal Studies at the New School's Graduate Faculty of Political and Social Science. He has reported on architecture, design, and urbanism in Abuja, Ramallah, Beirut, Panama City, Vilnius, Bucharest, Belgrade, Sarajevo, Pristina, Nicosia, and Dubai, as well as Baltimore, Omaha, Oklahoma City, Nashville, Denver, and Kansas City.

The series will conclude in June 2008 with a "Redesigning Design" panel intended to address the changing terms of design.

Podcasts of past presentations as well as opportunities for extended discussion around topics addressed during and related to the series will be available online at: http://www.environmentalhealthclinic.net/category/news/blogs/designheroix/

For more information, visit: http://aiany.org/calendar/event.php?id=1005114

Nextcity: the art of the possible



Friday, Feb. 8, 2008, 7:00 PM

New Museum
235 Bowery, New York, NY 10002
212.219.1222
$8 General Public, $6 Members

Rhizome's New Silent Series looks at the ways digital technologies have fundamentally altered our lives and experiences of urban space. Featured projects by Stamen Design, J. Meejin Yoon, and Christian Nold blur the boundaries between art, design and technological development. Moderated and introduced by Everyware author Adam Greenfield.

Emergent digital technologies are rapidly changing both the face of our cities and our daily experience of them, whether invoked in the production of architectural form, the representation of urban space, or our interface to the locative and other services newly available there. Dynamic maps update in real time; garments and spaces deform in response to environmental, biological and even psychological conditions. We find our very emotions made visible, public, and persistently retrievable. Somewhere along the way, we find our notions of public space, participation, and what it means to be urban undergoing the most profound sort of change.

For more info about the show, visit: http://www.newmuseum.org/events/124

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

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!