

Complexity Digest 2007.12

19-Mar-2007

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1. **Relationships Among Scientific Paradigms, [SeedMagazine.com](#)** ↓

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Excerpts: This map was constructed by sorting roughly 800,000 published papers into 776 different scientific paradigms (shown as pale circular nodes) based on how often the papers were cited together by authors of other papers. Links (curved black lines) were made between the paradigms that shared papers, then treated as rubber bands, holding similar paradigms nearer one another when a physical simulation forced every paradigm to repel every other; thus the layout derives directly from the data.

- *Source:* [Relationships Among Scientific Paradigms](#), SeedMagazine.com, 07/03/07
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Research & Node Layout: Kevin Boyack and Dick Klavans (mapofscience.com); Data: Thompson ISI; Graphics & Typography: W. Bradford Paley (didi.com/brad); Commissioned Katy B?rner (scimaps.org)

2. **Use Your Playstation 3 To Help Science - Consoles Unravel Mysteries Of Biological Structures, [San Jose Mercury News](#)** ↓

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Excerpts: From the moment Sony introduced the PlayStation 3 video-game machine in November, you could use it to battle aliens and demons.

But by the end of this month, anyone with a broadband-connected PS3 can enlist in a real fight against diseases such as Alzheimer's, Parkinson's, Huntington's and a variety of cancers.

The PS3's computing power is so formidable that Sony employees realized it could provide a huge lift for Stanford University research that until now was reliant on help from an assortment of home computers around the world.

- *Source:* [Use Your Playstation 3 To Help Science - Consoles Unravel Mysteries Of Biological Structures](#), Mike Antonucci, San Jose Mercury News, 07/03/15

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1. Games Theory - Online Play Can Help Researchers Tackle Tough

Computational Problems, [Science News](#) ↓

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Excerpts: Most of the billions of images on the Web have incomplete captions or no labels at all, von Ahn says. Accurate labels would improve the relevance of image search results and make the information in images accessible to blind users. However, computers aren't good at looking at images and determining what's in them, and it's boring for a person to label images.



MATCH GAME. In the ESP Game, players come up with words that describe an image. A player gets points when his or her words match a partner's words.

von Ahn

"The ESP Game turns the tedious task of entering words that describe an image into something that's fun," von Ahn says.

- *Source:* [Games Theory - Online Play Can Help Researchers Tackle Tough Computational Problems](#), Ivars Peterson, Science News, 07/03/17
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3. Search Engine Spawned From Antiterrorism Efforts Finds Place In Business, [Computerworld](#) ↓

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Excerpts: Fetch uses AI technology to extract data from 'deep Web' (...)

"We can go to places and extract information where Google and Yahoo can't," Landes said. "The idea of how to cast this net, how to extract and aggregate information that [companies] can find useful from a commercial standpoint is where the company has really exploded."

For example, travel industry data aggregator Farelogix Inc. is using Fetch's technology to integrate fares, scheduling and related information from airlines, hotels and other travel destination sites, Landes said

- *Source:* [Search Engine Spawned From Antiterrorism Efforts Finds Place In Business](#), Heather Havenstein, Computerworld, 07/03/13

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1. **News That Sells: Media Competition And News Content, [Japanese J. Poli. Sc.](#)**



Excerpts: This paper explores the economic factors that influence news coverage and discusses the difficulties of determining the impact of news content (...). Evidence from the United States clearly shows how supply and demand concepts can be used to predict content in newspapers, television, and the Internet. To demonstrate how the concept of market-driven news extends beyond the US, I trace out hypotheses about how media content in many countries should vary depending on three factors in news markets: the motivations of media outlet owners, the technologies of information dissemination available, and the property rights that govern how information is created and conveyed. (...)

- *Source:* [News That Sells: Media Competition And News Content](#), J. T. Hamilton - jayth@pps.duke.edu, DOI: 10.1017/S1468109907002460, Japanese Journal of Political Science, Feb. 2007
- Contributed by Pritha Das - prithadas01@yahoo.com
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4. **The Fingers of Housing Instability, [Frontlinethoughts.com](#)** ↓



Excerpts: Relating this to our sandpile, the longer that a critical state builds up in an economy, or in other words, the more "fingers of instability" that are allowed to develop connections to other fingers of instability, the greater the potential for a serious "avalanche." (...)

Of course, falling home prices and tighter lending standards will reduce home mortgage equity withdrawals, and that, along with the negative wealth effect, is going to slow consumer spending.

- *Source:* [The Fingers of Housing Instability](#), John Mauldin, Frontlinethoughts.com, 07/03/16
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1. **Territories, Corridors, And Networks: A Biological Model For The Premodern**

State, [Complexity](#) ↓

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Excerpt: When depicted on maps as homogenous territorial wholes, ancient states are visually summarized as static entities in a way that conceals the highly fluid dynamics of polity formation, maintenance, and growth. Models derived from studies of animal behavior show that territory does not consist of an undifferentiated use of the landscape. Instead, the concept of territory can be parsed into a series of resource-rich nodes linked by corridors of access, surrounded by unutilized regions and boundaries marked at points of competition. Ancient human groups also can be analyzed as having perceived and occupied landscapes through strategies of flexible networks (...).

- *Source:* [Territories, Corridors, And Networks: A Biological Model For The Premodern State](#), M. L. Smith - smith@ucla.edu, DOI: 10.1002/cplx.20173, Complexity, Mar.-Apr. 2007, Online 2007/03/14
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5. **Synthetic Biology: Caught between Property Rights, the Public Domain, and the Commons,** [PLoS Biol](#) ↓

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Excerpts: Novel artificial genetic systems with twelve bases instead of four [1]. Bacteria that can be programmed to take photographs [2] or form visible patterns [3]. Cells that can count the number of times they divide [4]. A live polio virus “created from scratch using mail-order segments of DNA and a viral genome map that is freely available on the Internet” [5]. These are some of the remarkable, and occasionally disturbing, fruits of “synthetic biology,” the attempt to construct life starting at the genetic level. (...)

There is, however, one area that has been largely unexplored until this point—the relationship of synthetic biology to intellectual property law. (...)

- *Source:* [Synthetic Biology: Caught between Property Rights, the Public Domain, and the Commons](#), Arti Rai, James Boyle, DOI: 10.1371/journal.pbio.0050058, PLoS Biol 5(3): e58, 2007/03/13
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6. **Mathematicians Finally Map 248-Dimension Structure,** [New Scientist](#) ↓

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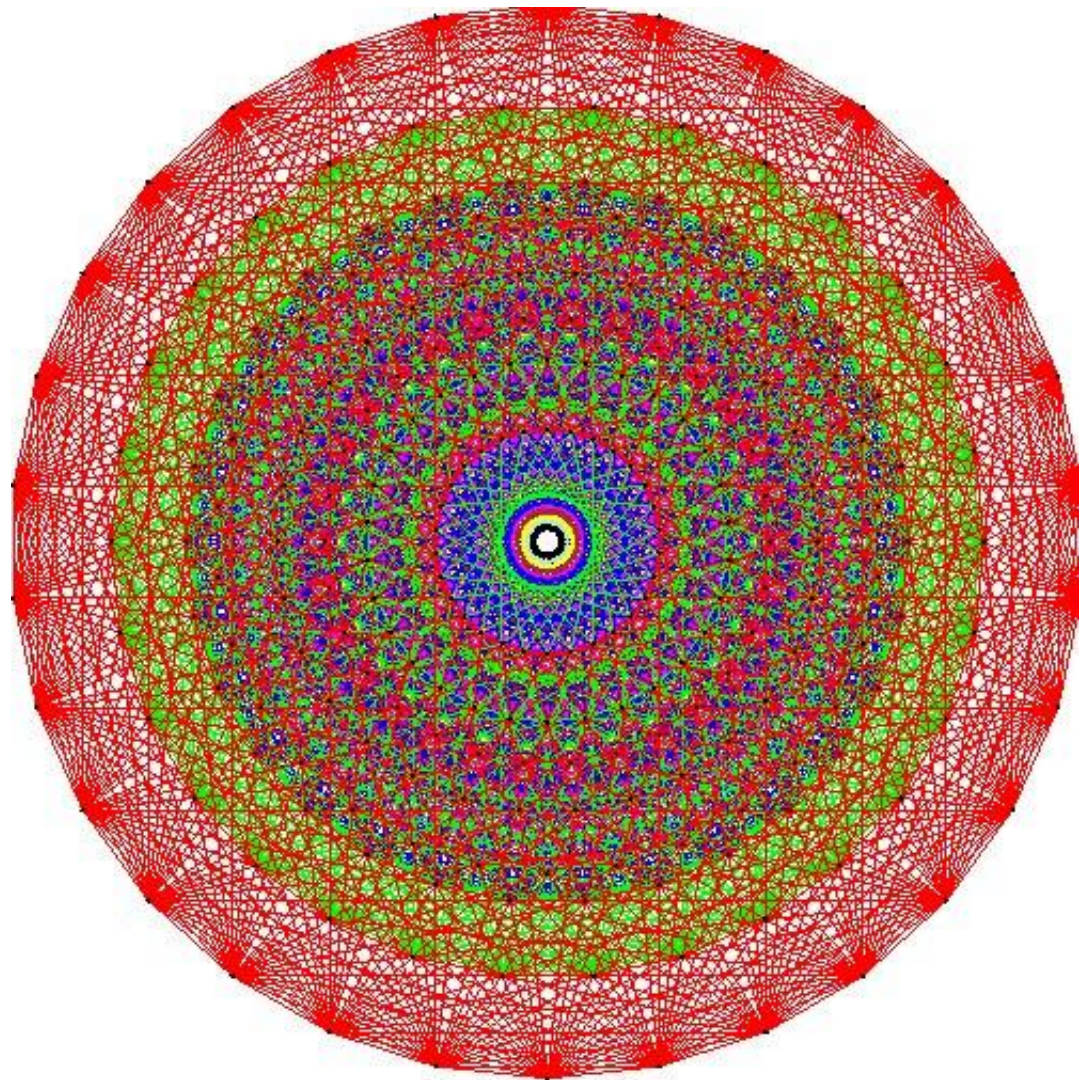
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Excerpts: A

fiendishly
complicated
mathematical
challenge has finally
been conquered by
mathematicians.

The team has
exhaustively
explored an esoteric
248-dimension
structure called E8
and the results take
up 60 gigabytes of
data. (...)

The group E8
encapsulates the
symmetries of a
geometric object like
a sphere, cylinder or
cone, but in 57
dimensions. E8 itself
has 248 dimensions.



The E8 root system consists of 240 vectors in an eight-dimensional space. These vectors are the corners of an eight-dimensional object called the Gosset polytope $4_2 21$ represented here in two dimensions (Image: John Stembridge, based on a drawing by Peter McMullen)

o *Source:*

- o [Mathematicians Finally Map 248-Dimension Structure](#), Hazel Muir, NewScientist.com, 07/03/19
- o [Discuss Article in Forum](#)
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7. Sleep Found To Repair And Reorganize The Brain - Why Mice Sleep Longer Than Humans, [Harvard University Gazette Online](#) ↓

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Excerpts: Most of us do it every night but we don't know why. If you miss too many nights, it might kill you.

We know why we eat, drink, breathe, and move around, but no one can explain why we need to sleep. What does seven or eight hours of snoozing really do for us? Van Savage at the Harvard Medical School and Geoffrey West of the Santa Fe Institute in New Mexico believe they have found a good answer.

- *Source:* [Sleep Found To Repair And Reorganize The Brain - Why Mice Sleep Longer Than Humans](#), William H. Cromie, Harvard University Gazette Online, 07/03/15
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1. **Making Memories That Last A Lifetime**, [PhysOrg.com](#) ↓

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Excerpts: Neurobiologists have discovered a mechanism by which the constantly changing brain retains memories from that dog bite to that first kiss. They have found that the brain co-opts the same machinery by which cells stably alter their genes to specialize during embryonic development.

Their studies aimed at exploring whether a process called DNA methylation plays a role in forming memories. In this process, molecules called methyl groups are attached to genes, which switches them off. Conversely, lack of methyl groups enables the genes to remain activated.

- *Source:* [Making Memories That Last A Lifetime](#), PhysOrg.com, 07/03/14
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2. **Associative Memory -- Learning At All Levels**, [ScienceDaily](#) ↓

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Excerpts: "Green" means "go," but what does "red" mean? Just about everybody says "stop" since we all have learned to imbue certain colors with meaning (or we would be road kill by now). Long thought to be limited to higher levels of information processing, researchers (...) successfully traced this type of associative learning to early stages of the visual processing pathway. "Sensory neurons in the visual cortex that handle incoming information are very plastic and what they 'see' is determined by our experience in the world," (...). Human memory relies mostly on association and objects frequently seen together to become linked in our mind; (...).

- *Source:* [Associative Memory -- Learning At All Levels](#), ScienceDaily & Salk Institute,

2007/03/15

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8. Full-Mental Nuditythe Arrival Of Mind-Reading Machines., [Slate](#) ↓

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Excerpts: Years ago, Woody Allen used to joke that he'd been thrown out of college as a freshman for cheating on his metaphysics final. "I looked within the soul of the boy sitting next to me," he [confessed](#).

Today, the joke is on us. Cameras follow your car, GPS tracks your cell phone, software monitors your Web surfing, X-rays explore your purse, and airport scanners [see through your clothes](#). Now comes the final indignity: machines that look into your soul.

- *Source:* [Full-Mental Nuditythe Arrival Of Mind-Reading Machines.](#), William Saletan, Slate, 07/03/17
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1. The Structure Of Consciousness, [Nature](#) ↓

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Excerpts: Subjective awareness may depend on neural networks in the brain supporting

complex wiring schemes and dynamic patterns of activity. (...)

The architecture of different brain regions determines the kinds of computations that can be carried out, and may dictate whether a particular region can support subjective awareness. Also, the degree of architectural complexity may determine susceptibility to neurological and psychiatric diseases (...). Understanding how such structure-function relationships govern brain operations requires a systems-level approach that explores how local computation relates to global patterns of neural activity.

- *Source:* [The Structure Of Consciousness](#), Gyorgy Buzsaki, DOI: 10.1038/446267a, Nature 446, 267, 07/03/15
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9. **The Next Generation: Intel Science Talent Search Honors High School Achievers,** [Science News](#) ↓ Like Tweet [g+1](#) [SHARE](#)

Excerpts: Scientists use the Raman method to measure the vibrational energy of molecules. Masterman put together a \$300 system consisting of a laser, a digital camera, a variety of lenses, and a prislime object that disperses light. She tested it on acetone, toluene, and a few household items. Most of her measurements matched those obtained by commercial systems, which can cost up to \$100,000. That sum is equal to the scholarship Masterman won for her first-place finish. (...)



WINNING WAY. Mary Masterman of Oklahoma City measured the vibrational energy of molecules with a homemade instrument. For her work, she won the top prize \$100,000 dollar scholarship \$ at the Intel Science Talent Search. T. Roberts

- *Source:* [The Next Generation: Intel Science Talent Search Honors High School Achievers](#), Aimee Cunningham, Science News, 07/03/17
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10. **Mouth-To-Mouth CPR Not So Helpful?,** [WebMD](#) ↓

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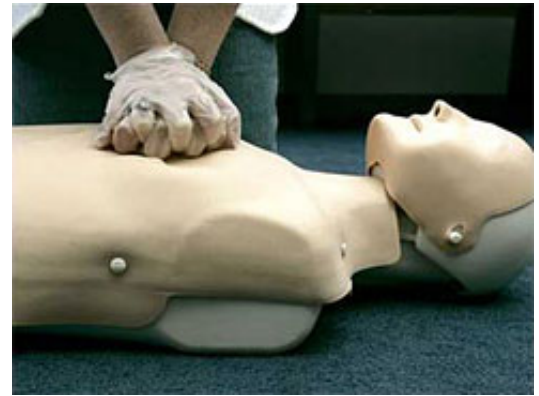
Excerpts: For adults who suddenly collapse, CPR is more

effective if rescuers focus on chest compression over mouth-to-mouth ventilation.

CPR stands for cardiopulmonary resuscitation. It's used on people whose hearts suddenly stop beating. Using this emergency technique, you can keep a person alive until professional help arrives.

Currently, CPR includes two techniques. The first is mouth-to-mouth resuscitation, the so-called breath of life. The other is chest compression: pushing down hard on a victim's chest, more than once a second, pressing it down at least an inch and a half before releasing.

- *Source:* [Mouth-To-Mouth CPR Not So Helpful?](#), Daniel DeNoon, WebMD, 07/03/16
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(AP)

Quote "This circulation you get from pushing on the chest is barely enough to keep the brain alive. If you stop for anything, like so-called 'rescue breathing,' which is an oxymoron, it is not good." Gordon A. Ewy, M.D., Director, Sarver Heart Center

1. **Personalized Medical Monitors, [Technology Review](#)** ↓

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Excerpts: John Guttag says using computers to automate some diagnostics could make medicine more personal. (...)

The ripest challenge, Guttag says, is analyzing the huge amounts of data generated by medical tests. Today's physicians are bombarded with physiological information--temperature and blood pressure readings, MRI scans, electrocardiogram (EKG) readouts, and x-rays, to name a few. Wading through a single patient's record to determine signs of, say, a heart attack or stroke can be difficult and time consuming. Guttag believes computers can help doctors efficiently interpret these ever-growing masses of data.

- *Source:* [Personalized Medical Monitors](#), Jennifer Chu, Technology Review, 07/03/12
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11. **GM Mosquito 'Could Fight Malaria', [BBC News](#)** ↓

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Excerpts: A genetically-modified (GM) strain of malaria-resistant mosquito has been created that is



A transgenic mosquito carrying a gene that confers resistance to the malaria parasite. These mosquitoes had another gene inserted into them to make their eyes fluoresce, to distinguish them from the ordinary strain. (Image: PNAS)

better able to survive than disease-carrying insects.

It gives new impetus to one strategy for controlling the disease: introduce the GM insects into wild populations in the hope that they will take over.

The insect carries a gene that prevents infection by the malaria parasite.

- *Source:* [GM Mosquito 'Could Fight Malaria'](#), BBC News, 07/03/19
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12. Look Who's Talking: Communication And Quorum Sensing In The Bacterial World, [Phil. Tran. Biol. Sc.](#) ↓

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Excerpt: For many years bacteria were considered primarily as autonomous unicellular organisms with little capacity for collective behaviour. However, we now appreciate that bacterial cells are in fact, highly communicative. The generic term 'quorum sensing' has been adopted to describe the bacterial cell-to-cell communication mechanisms which co-ordinate gene expression usually, but not always, when the population has reached a high cell density. Quorum sensing depends on the synthesis of small molecules (often referred to as pheromones or autoinducers) that diffuse in and out of bacterial cells. As the bacterial population density increases, so does the synthesis of quorum sensing signal molecules, (...). organisms.

- *Source:* [Look Who's Talking: Communication And Quorum Sensing In The Bacterial World](#), P. Williams, K. Winzer, W. C. Chan, M. C.◊mara, DOI: 10.1098/rstb.2006.2039, Philosophical Transactions: Biological Sciences, 2007/03/13
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1. **An Architectural Plan Of The Cell**, [ScienceDaily](#) ↓

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Excerpts: Like our body every cell has a skeleton that provides it with a shape, confers rigidity and protects its fragile inner workings. The cytoskeleton is built of long protein filaments that assemble into networks whose overall architecture and fine detail can only be revealed with high resolution electron microscopy images. Researchers (...) have now obtained the first 3D visualisation of a complete eukaryotic cell (...) to resolve the cytoskeleton's precise architectural plan in fission yeast. The image of this unicellular (...) reveals remarkable insights into the fine structure of the cytoskeleton as well as its interactions with other parts of the cell. (...)

- *Source:* [An Architectural Plan Of The Cell](#), ScienceDaily & European Molecular Biology Laboratory, 2007/03/09
- Contributed by Atin Das - dasatin@yahoo.co.in
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13. **Surprising Activity Discovered at Yellowstone Supervolcano**, [LiveScience](#) ↓

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Excerpts: Supervolcanoes can sleep for centuries or millennia before producing incredibly massive eruptions that can drop ash across an entire continent. One of the largest supervolcanoes in the world lies



Wyoming's Teton Range

beneath Yellowstone National Park, which spans parts of Wyoming, Montana and Idaho.

Though the Yellowstone system is active and expected to eventually blow its top, scientists don't think it will erupt any time soon.

Yet significant activity continues beneath the surface. And the activity has been increasing lately, scientists have discovered. In addition, the nearby Teton Range, in a total surprise, is getting shorter.

looms behind a Global Positioning System (GPS) antenna in Jackson Hole. Credit: Jamie Farrell, University of Utah.

- *Source:* [Surprising Activity Discovered at Yellowstone Supervolcano](#), Sara Goudarzi, LiveScience, 07/03/14
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14. **Could Lasers Zap Away Dangerous Asteroids?**, [New Scientist](#) ↓

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Excerpts: To detect and begin deflecting dangerous asteroids as early as possible, the lasers could be placed on a fleet of eight spacecraft that would patrol the asteroid belt at different locations. (...)

There is a small chance such a life-saving laser would be needed in 2029, when the asteroid Apophis will make a close swing by Earth. If it passes through a specific region of space just 600 metres across at that time, there is a 1 in 45,000 chance it could hit Earth - perhaps slamming into the Pacific Ocean - on 13 April 2036.



Lasers could bore into a centimetre-sized spot on an asteroid, ejecting tiny bits of material that would push the space rock off course and away from Earth (Illustration: Don Davis/NASA)

- *Source:* [Could Lasers Zap Away Dangerous Asteroids?](#), Kelly Young, NewScientist.com, 07/03/19
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15. **Catalyst Could Help Turn CO₂ Into Fuel**, [New Scientist](#) ↓

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Excerpts: A new catalyst that can split carbon dioxide gas could allow us to use carbon from the atmosphere as a fuel source in a similar way to plants.

"Breaking open the very stable bonds in CO₂ is one of the biggest challenges in synthetic chemistry," says Frederic Goettmann, a chemist at the Max Planck Institute for Colloids and Interfaces in Potsdam, Germany. "But plants have been doing it for millions of years." (...)

- *Source:* [Catalyst Could Help Turn CO₂ Into Fuel](#), Tom Simonite, NewScientist.com, 07/03/15
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16. **Physical Chemistry: The Peripatetic Proton, [Nature](#)** ↓

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Excerpts: The way in which protons are transferred between acids and bases has been known in general terms for decades. But the details of the process are complex, and only now is the full proton itinerary becoming clear.

Proton transfer is a headline player in many arenas of chemistry and biology. To name just a few, the process lies at the heart of the chemistry of acids and bases in solution, the workings of enzymes, and transport mechanisms in biological membranes and photosystems.

- *Source:* [Physical Chemistry: The Peripatetic Proton](#), James T. Hynes, DOI: 10.1038/446270a, Nature 446, 270-273, 07/03/15
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17. **Quantum Physics: Total Surveillance, [Nature](#)** ↓

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Excerpts: Trapped by mirrors, a photon can be monitored from birth to death by a stream of passing atoms. The technique could also be used to entangle the quantum states of many atoms - a possible boon for quantum computing.(...)

This involves a stream of atoms crossing the box in which the photon is trapped. Light is an electromagnetic wave, and the electric field of the photon shifts the energy levels of the atom, but without giving the atom a chance to absorb energy from the field.

- *Source:* [Quantum Physics: Total Surveillance](#), Ferdinand Schmidt-Kaler, DOI: 10.1038/446275a, Nature 446, 275-276, 07/03/15

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1. **Warming Up To Criticality: Quantum Change, One Bubble At A Time, [Science](#)**

News ↓

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Excerpts: To probe the condensate as it slowly transitioned into a regular gas slightly warmer than the critical temperature, the physicists switched off the confining magnetic field at two heights within the condensate. Freed atoms at those locations dropped into a detector instead of flying off randomly. The atoms have so little motion that they "fall like a rock," says team member Michael Kuhl, now at Cambridge.

Inside the detector, which can count single atoms, the two overlapping streams of atoms sometimes interfered like waves. For example, canceling each other out so that the detector saw nothing.



Bubbling Quantum States. Two streams of atoms drop from slices of a cloud of rubidium into a detector. If the atoms come from the same Bose-Einstein bubble, they'll share a quantum state and show wavelike interference. P. Huey, from E. Altman/Science

- *Source:* [Warming Up To Criticality: Quantum Change, One Bubble At A Time](#), Davide Castelvecchi, Science News, 07/03/17
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18. **The Universe Is A String-Net Liquid, [New Scientist](#)** ↓

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Excerpts: Different phases of matter are characterised by the way their atoms are organised. In a liquid, for instance, atoms are randomly distributed, whereas atoms in a solid are rigidly positioned in a lattice. FQHE systems are different. "If you take a snapshot of the position of electrons in an FQHE system they appear random and you think you have a liquid," says Wen. But step back, and you see that, unlike in a liquid, the electrons dance around each other in well-defined steps.



Is this a new kind of matter (Image: Elmar)

- *Source:* [The Universe Is A String-Net Liquid](#), Lackner/Mindat)
Zeeya Merali, New Scientist, 07/04/15
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19. **Complex Challenges: Global Terrorist Networks** ↓

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1. **Top-Secret Torture, [Washington Post](#)** ↓

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Excerpts: Khalid Sheik Mohammed's cold-blooded confession of responsibility for the attacks of Sept. 11, 2001, and other horrific crimes before a tribunal in Guantanamo Bay got a lot of attention when the Pentagon released a partial transcript last week -- and understandably so. But another set of disclosures by the al-Qaeda leader that could also be sensational received almost no attention. That's because the Pentagon swiftly classified a document submitted by Mr. Mohammed in which he detailed the torture he says he suffered. The rationale is that disclosure of those allegations would harm national security.

- *Source:* [Top-Secret Torture](#), Washingtonpost, 07/03/20
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2. **Ungovernable Somalia And The Imminent Collision Of Hegemonic Interests, [Media Monitors](#)** ↓

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Excerpts: Once again, Somalia became a magnetic political rink that lures powerful entities with incompatible strategic interests into a potentially deadly competition that causes more suffering for that dying state.

In the past it was between the super powers of the Cold War who armed Somalia to the danger zone and paved the way to its ongoing demise. Today, it is between partners on the   global war on terror   with dichotomous interests: Ethiopia-- a country lately became known as 'the Hegemon of the Horn'-- and Washington.

- *Source:* [Ungovernable Somalia And The Imminent Collision Of Hegemonic Interests](#), Abukar Arman, Media Monitors, network, 07/03/21
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20. Links & Snippets ▾



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1. Other Publications ▾



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- 1. [Are Genetically Robust Regulatory Networks Dynamically Different from Random Ones?](#), Volkan Sevim, Per Arne Rikvold, 2007/03/06, arXiv, DOI: q-bio.MN/0703022
- 2. [Antibiotics As Signalling Molecules](#), G. Yim, H. H. Wang, J. Davies, 2007/03/13, Philosophical Transactions: Biological Sciences, DOI: 10.1098/rstb.2006.2044
- 3. [The Impact Of Armed Conflict On Protected-Area Efficacy In Central Africa](#), E. de Merode, K. H. Smith, K. Homewood, R. Pettifor, M. Rowcliffe, G. Cowlshaw, 2007/03/13, Biology Letters, DOI: 10.1098/rsbl.2007.0010
- 4. [Fractal Rotation Isolates Mechanisms For Form-Dependent Motion In Human Vision](#), C. P. Benton, J. M.D. O'Brien, W. Curran, 2007/03/13, Biology Letters, DOI: 10.1098/rsbl.2007.0010
- 5. [Physicists Wipe Away Complexity For A Clearer View Of Heavy Nuclei](#), 2007/03/15, Innovations-report
- 6. [The Day After A Stressful Event, Rats Lose Brain Cells](#), 2007/03/15, ScienceDaily & Society for Neuroscience
- 7. [European Bosses Snub Asia For Local Providers: Channel Benefits As IT Managers Prefer Their Local Suppliers. Market Watcher KPMG Claims](#), D. Woodburn, 2007/03/16, vnunet.com
- 8. [Brain Imaging Study Shows Fears Learned By Observing Others Are Similar To Those Learned From Direct Experience](#), 2007/03/16, Innovations-report
- 9. [Are Journal Rankings Distorting Science?](#), 2007/03/16, ScienceDaily & BMJ-British Medical Journal
- 10. [Algebra In A Man With Severe Aphasia](#), N. Klessinger - nicolai.klessinger@gmx.net, M. Szczerbinskia, R. Varley - r.a.varley@sheffield.ac.uk, 45:8, 2007, online 2007/01/14, Neuropsychologia, DOI: 10.1016/j.neuropsychologia.2007.01.005
- 11. [One World? Many Worlds? The Place Of Regions In The Study Of International Society](#), A. Hurrell, Jan. 2007, online 2007/01/31, International Affairs, DOI: 10.1111/j.1468-2346.2007.00606.x
- 12. ['Real Men Want To Go To Tehran': Bush, Pre-Emption And The Iranian Nuclear Challenge](#), D. H. Dunn, Jan. 2007, online 2007/01/31, International Affairs, DOI: 10.1111/j.1468-2346.2007.00601.x

2. Webcast Announcements ↓

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2. [TED Talks, TED Conferences LLC](#), since 2006
3. [Talking Robots: The PodCast on Robotics and AI](#), Ecole Polytechnique Federale de Lausanne, Switzerland, 06/11/03
4. [Potentials of Complexity Science for Business, Governments, and the Media 2006](#), Budapest, Hungary, 06/08/03-05
5. [6th Intl Conf on Complex Systems \(ICCS\)](#), Boston, MA, 06/06/25-30
6. [Artificial Life X, 10th Intl Conf on the Simulation and Synthesis of Living Systems](#), Bloomington, IN, USA. 2006/06/03-07
7. [6th Understanding Complex Systems Symposium](#), Urbana-Champaign, IL, 06/05/15-18
8. [Ralph Abraham on Complexity Digest](#), Calcutta, India, 05/12/27
9. [An Afternoon with Michael Crichton](#), Washington, 05/11/06
10. [Illuminating the Shadow of the Future](#), Ann Arbor, MI 05/09/23-25
11. [Open Network of Centres of Excellence in Complex Systems - Brainstorming Meeting](#), Paris, France 05/09/19-23
12. [Complexity, Science & Society Conference 2005](#), U. Liverpool, UK 2005/09/11-14
13. [ECAL 2005 - VIIIth European Conference on Artificial Life](#), Canterbury, Kent, UK 2005/09/5-9
14. [T. Irene Sanders](#), Executive Director and Founder, [The Washington Center for Complexity & Public Policy](#), 05/08/27, QuickTime video (10:38 min), [Podcast](#)
15. [North American Society for the Psychology of Sport and Physical Activity 2005 Conference, Virtual Conference Network](#), St. Pete's Beach, Florida, 05/06/09-11
16. [Understanding Complex Systems - Computational Complexity and Bioinformatics, Virtual Conference Network](#), Urbana-Champaign, IL, UIUC, 05/05/16-19
17. [Nonlinearity, Fluctuations, and Complexity, with a celebration of the 65th birthday of Gregoire Nicolis](#), Complexity Session, Universite' Libre de Bruxelles, Brussels, Belgium, 05/03/16
18. [1st European Conference on Complex Systems](#), Torino, Italy, 04/12/5-7
19. [From Autopoiesis to Neurophenomenology: A Tribute to Francisco Varela \(1946-2001\)](#), Paris, France, 2004/06/18-20
20. [Evolutionary Epistemology, Language, and Culture](#), Brussels, Belgium, 04/05/26-28
21. [International Conference on Complex Systems 2004](#), Boston, 04/05/16-21
22. [Nonlinear Dynamics And Chaos: Lab Demonstrations](#), Strogatz, Steven H., Internet-First University Press, 1994
23. [CERN Webcast Service](#), Streamed videos of Archived Lectures and Live Events
24. [Dean LeBaron's Archive of Daily Video Commentary](#), Ongoing Since February 1998
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3. Conference Announcements ↓

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2. [Storytelling and Complexity in Human Systems](#), Las Vegas, NV, USA, 07/03/31-04/01
3. [4th Lake Arrowhead Conference on Human Complex Systems](#), Lake Arrowhead, CA, 07/04/25-29
4. [Intl Conf on Morphological Computation](#), Venice Italy, 07/03/26-28
5. [Capturing Business Complexity with Agent-Based Modeling and Simulation Useful, Usable, and Used Techniques - A Course on Business Applications](#), Argonne Natl Lab, Woodridge, IL, 07/04/16-20
6.  [New Trends in Mathematics for Complex Systems - Nouvelles approches en mathématiques pour les systèmes complexes, Paris](#), 07/04/23-25
7. [Complexity and Organizational Resilience](#), The Village, Pohnpei, Micronesia, 07/05
8. [9th GEF -The World Festival of Creativity in Schools](#), Sanremo ITALY, 07/05/02-06
9. [UCS 2007 - Understanding Complex Systems](#), Urbana-Champaign, Ill, 07/05/14-17
10.  [Visualizing Network Dynamics Competition @ NetSci07](#), New York, 07/05/20-25
11. [2nd Intl Conf on Built Environment Complexity - Embracing complexity thinking in built environments](#), Cape Town South Africa, 07/05/21-25
12. [ECO 2007 Summit: Ecological Complexity and Sustainability: Challenges and Opportunities for 21st-Century Ecology](#), Beijing, China, 07/05/22-27
13. [2007 IEEE/ICME Intl Conf on Complex Medical Engineering-CME2007](#), Beijing, China, 07/05/23-27
14. [Analysis and Control of Complex Networks](#), Milan, Italy, 07/05/24-26
15. [The 7th Intl Workshop on Meta-Synthesis and Complex Systems](#), Beijing, 07/05/27-30
16. [2nd Intl Wkshp on Engineering Emergence in Decentralised Autonomic Systems EEDAS 2007](#), Jacksonville, FL, 07/06/11-15
17. [7th conf SYMMETRY IN NONLINEAR MATHEMATICAL PHYSICS](#), Kiev, Ukraine, 07/06/24-30
18.  [Symposium on Knowledge Domain Visualizations @ IV 2007](#), ETH Zurich, Switzerland, 07/07/04-06

19. [Summer School In Complexity Science](#), London, UK, 07/07/08-17
20. [2007 Genetic And Evolutionary Computation Conference \(GECCO-2007\)](#), London, UK, 07/07/07-11
 - [Evolutionary Computation and Multi-Agent Systems and Simulation Workshop \(ECoMASS-2007\)](#), London, England, 07/07/07
21. [22nd European Conference on Operational Research EURO XXII](#), Prague, Czech Republic, 07/07/08-11
22.  [11th World Multi-Conference on Systemics, Cybernetics and Informatics](#), Orlando, Florida, USA, 07/07/08-11
23. [SASO 2007 - First IEEE Intl Conf Self-Adaptive and Self-Organizing Systems](#), Boston, Mass., USA, 07/07/09-11
24. [IEEE International Conference on Development and Learning 2007](#), Imperial College London, 07/07/11-13
25. [NKS 2007 Wolfram Science Conference](#), Burlington, VT, 07/07/13-15
26. [Complex Change Webinar: Planning in the Midst of Chaos](#), 07/07/17
27. [Society for Chaos Theory in Psychology & Life Sciences 17th Annual Intl Conf](#), Orange, Ca, USA, 07/07/27-29
28. [ICCM 2007 - 8th Intl Conf on Cognitive Modeling](#), Ann Arbor, Michigan, 07/07/27-29
29.  [ICS PIF Summer School 2007 - First French Complex Systems Summer School](#), Paris, 07/07/30-08/26
30. [Natural Complexity: Data and Theory in Dialogue](#), Cambridge, UK, 07/08/13-17
31. [ECAL 2007 - 9th European Conference on Artificial Life](#), Lisbon, Portugal, 07/09/10-14
 - [ECAL 2007 Workshop on Machine Epigenesis](#), Lisbon, Portugal, 07/09/10
32.  [3rd Edition of the Econophysics Colloquium](#), Ancona, 07/09/27-29
33. [European Conference on Complex Systems 2007 \(ECCS'07\)](#), Dresden, Germany, 07/10/01-05
34.  [Processes Of Emergence Of Systems And Systemic Properties. Towards A General Theory Of Emergence.](#), Castel Ivano (Trento), 07/10/18-20
35. [2007 IEEE/WIC/ACM Intl Joint Conf on Web Intelligence and Intelligent Agent Technology \(WI-IAT'07\)](#), Silicon Valley, USA, 07/11/02-05
36.  [Theory In Cognitive Neuroscience](#), Wildbad Kreuth (Bavaria), Germany, 07/11/04-07
37.  [7th Intl Conf on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems](#), Piscataway, NJ, 07/11/05-07
38. [KSS 2007 - 8th Intl Symposium on Knowledge and Systems Sciences](#), Ishikawa prefecture, Japan, 07/11/05-07
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4. Call for Papers - Course/Book Announcements

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3. [Chaos and Complexity Resources for Students and Teachers](#), 06/03/01

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