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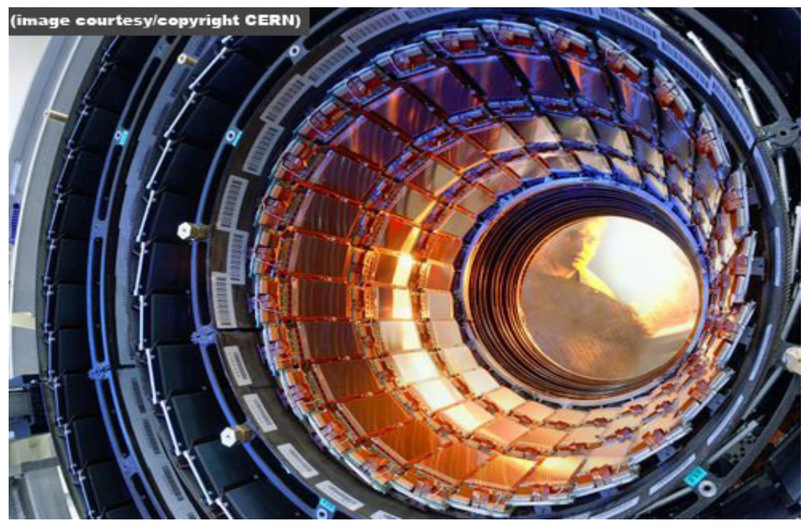
Contents

CERN

Experiments observe new particle consistent with Higgs boson



Physicists have observed a new particle consistent with the long-sought Higgs boson, a theorised sub-atomic particle believed to confer mass, the European Organization for Nuclear Research (CERN) announced on Wednesday.

Two independent teams, ATLAS and CMS experiments, observed a new particle in the mass region around 125-126 GeV, at the level of 5 sigma certainty, the usual particle physics threshold for discovery, according to CERN.

"We've discovered a new particle of boson, possibly a Higgs boson, but we have to find out what kind of Higgs boson it is," Rolf Heuer, director of CERN told reporters.

Asked whether they found the last-missing ingredient in the Standard Model of physics, Heuer answered, "As a layman, I think we have it. But as a scientist, I have to say, 'What do we have?'"

He said the discovery opens the way to more detailed studies, requiring larger statistics, which will pin down the new particle's properties.

"We have reached a milestone in our understanding of nature," Heuer said.

CMS experiment spokesman Joe Incandela said "we know it must be a boson and it's the heaviest boson ever found."

Peter Higgs, a Scottish physicist who proposed the existence of such a particle in 1964, presented on Wednesday's seminar and press conference as audience. He congratulated the scientists, calling it "an occasion for celebration."

"For me, its really an incredible thing that's happened in my lifetime," Higgs said.

Scientists will conduct the world's greatest ever particle physics experiment, a historic "Big Bang" experiment, hoping to revolutionize our understanding of the universe, according to media reports.

In the 6.4 billion euro (9.2 billion U.S. dollars) CERN (Geneva-based lab, known by its old French acronym CERN) experiment to be coducted inside an about 27-km tunnel deep beneath the French-Swiss border, scientists hope to detect evidence of extra dimensions, invisible "dark matter" and an elusive particle called the "Higgs boson."

"Higgs boson," named after Scottish physicist Peter Higgs who in 1964 pointed to such a particle as the force that gave mass to matter and made the universe possible.

Scientists plan to smash particle beams together at close to the speed of light inside CERN's tightly-sealed Large Hadron Collider to create multiple mini-versions of the primeval Big Bang, which occurred

about 13.7 billion years ago and led to formation of stars, planets — and eventually to life on earth. CERN scientists insist that while the collider is capable of creating black holes, they would be miniscule and incapable of growing. "Each collision of a pair of protons in the LHC will release an amount of energy comparable to that of two colliding mosquitoes, so any black hole produced would be much smaller than those known to astrophysicists."

The European Organization for Nuclear Research (French: Organisation européenne pour la recherche nucléaire), known as CERN is an international organization whose purpose is to operate the world's largest particle physics laboratory, in the northwest suburbs of Geneva on the Franco–Swiss border (46°14'3?N 6°3'19?E). Established in 1954, the organization has 20 European member states.

The term CERN is also used to refer to the laboratory, which employs just under 2,400 full-time employees, 1,500 part time employees, and hosts some 10,000 visiting scientists and engineers, representing 608 universities and research facilities and 113 nationalities.

CERN's main function is to provide the particle accelerators and other infrastructure needed for high-energy physics research. Numerous experiments have been constructed at CERN by international collaborations to make use of them. It is also the birthplace of the World Wide Web. The main site at Meyrin also has a large computer centre containing very powerful data-processing facilities primarily for experimental data analysis and, because of the need to make them available to researchers elsewhere, has historically been a major wide area networking hub.

CERN welcomed 269 young scientists from 71 nations this year on its Summer Students Programme. The programme offers undergraduate students of physics, computing and engineering the opportunity to join in the day-to-day work of research teams participating in experiments at CERN in Geneva, Switzerland. Beyond the outstanding scientific value of their stay, the selected students find working in a multidisciplinary and multicultural environment to be an enriching personal experience. The students have the opportunity to make valuable and long-lasting contacts with other students and scientists from all over the world.

In addition to the work in the experimental teams, summer students attend a lecture series – specially prepared for them – on which CERN scientists share their knowledge on a range of topics in theoretical and experimental particle physics and computing. Visits to CERN's accelerators and experimental areas are also part of the programme, as are discussion sessions and workshops. At the end of their stay, students are required to submit a short report on their work at CERN. The students stay for 8-13 weeks, and many are inspired to return as fellows or PhD students.

Argentina former junta leaders jailed for baby theft

Two former military leaders in Argentina have been found guilty of overseeing the systematic theft of babies from political prisoners.

Relatives of the stolen children cheered as a court in Buenos Aires sentenced Jorge Videla (shown in this photo) to 50 years in prison and Reynaldo Bignone to 15 years.

At least 400 babies are thought to have been taken from their parents during Argentina's military rule.

Robert Cox is the former editor of the Buenos Aires Herald. He was the first journalist to report on the plot, but, as he told DIG, the story did not start life as one about stolen babies, but missing adults.

Romanian President Basescu's impeachment vote expected

Romania's MPs are preparing to vote on whether to impeach the country's president, Traian Basescu.

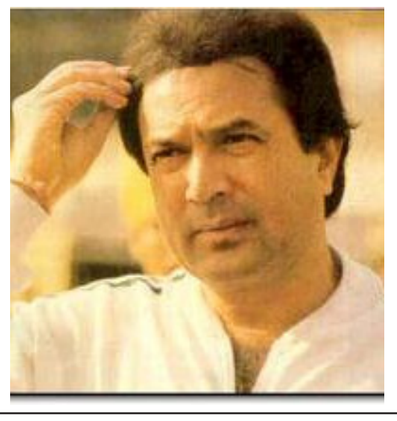
Mr Basescu faces allegations of encroaching on the prime minister's role and violating citizens' rights.

If parliament approves the move, he will face suspension and a national poll on his impeachment.

The president is in conflict with Prime Minister Victor Ponta, who heads the Social Liberal Union (USL), which has a majority in parliament.

RAJESH KHANNA

the man who brought superstardom to Hindi films



Rajesh Khanna epitomised a range of emotions on the big screen—from melancholy to romance—with a rich bouquet of lilting songs like 'Zindagi ek safar hai suhana' and 'Mere sapno ki raani' making his movies and characters immortal.Bollywood's first superstar, the 69-year-old actor's mannerism, his unique style of dancing, dialogue delivery, disarming smile and the signature nod of his head added to his onscreen persona that made many a young woman's heart skip a beat.Despite his heartthrob status as a romantic hero, Khanna essayed a variety of roles—the terminally ill Anand in the Hrishikesh Mukherjee film, a romantic airforce officer in "Aradhana", a chef in "Bawarchi", a lonely husband in "Amar Prem" and a poor medical student in "Safar".Khanna, popularly called Kaka, generated hysteria among fans like never before.At the peak of his career, he would be mobbed during public appearances as fans kissed his car, which would be covered with lipstick marks. They lined the road, cheering and chanting his name. Female fans sent him letters written in blood. His predecessors Raj Kapoor and Dilip Kumar broke hearts in their time no doubt, but the hysteria connected with Khanna was unprecedented. Nicknamed 'Kaka', Khanna shot up like a meteor.Khanna also had a brush with politics after he stopped acting from early nineties. He won the Lok Sabha seat from New Delhi constituency in the 1991 elections.A series of emotional tragedies in which he acted Anand, Safar and even Aradhana, though the tragic protagonist of that film was Sharmila Tagore rather than Khanna gave his career a certain weight.Many of those who remember Khanna and his films actually remember the songs in those films with some songs remaining evergreen four decades after they kept the audience hooked to them.Born as Jatin Khanna on December 29, 1942, he was adopted and raised by foster parents.He began taking interest in acting while in school and performed in a number of plays. It was his uncle who changed Khanna's first name to Rajesh when he decided to join films.In 1965, he won an all India talent contest organised by United Producers and Filmfare and as a result made his debut the next year in "Aakhri Khat".He found success with films like "Baharon Ke Sapne", "Aurat", "Doli" and "Ittefaq", but the 1969 film "Aradhana" opposite Sharmila Tagore catapulted Khanna to superstardom.The film also saw the resurgence of Kishore Kumar, who eventually became the official playback voice of Khanna and the actor-singer duo delivered a number of hit songs - memorable among them being 'Roop tera mastana', 'Kuch to log kahenge' and 'Jai Jai shiv shankar'.After "Aradhana", "Haathi Mere Saathi" (1971) became the biggest hit and also the biggest grosser ever till then.Khanna appeared in 163 feature films of which 106 had him as the solo lead hero and 22 were two hero projects.He had 15 consecutive solo superhits between 1969 and 1972, which is still an unbroken record in Indian film history.He won three Filmfare Best Actor Awards and was nominated for the same fourteen times.He was awarded the Filmfare Lifetime Achievement Award in 2005.He worked with the best of the talents of his time, be it directors, actresses and composers.Sharmila and Mumtaz became his leading ladies in many films including "Amar Prem" and "Aap Ki Kasam". Directors like Shakti Samanta, Yash Chopra, Manmohan Desai, Hrishikesh Mukherjee and Ramesh Sippy worked with Khanna.His films' music made them more memorable, with the trio of composer R D Burman, Kishore and he himself working together in more than 30 films.The commercial success of his films declined during 1976-78. After 1978, Khanna starred in critically acclaimed films such as "Amado", "Phir Wohi Raat", "Dard", "Dhanwan", "Avtaar" and "Agar Tum Na Hote".Khanna was in a long-term relationship with Anju Mahendru in the early '70s, and later went on to marry Dimple Kapadia in 1973.They have two daughters - Twinkle and Rinke - who followed their parents into showbiz. Dimple split from the actor in 1984. Though they lived separately, the couple never completed divorce formalities.

Current Events

January

● **1 January 2012:** NASA's twin GRAIL satellites (artist's impression shown) begin studying the Moon's gravitational field.

● 1 January – NASA's GRAIL-B satellite successfully enters lunar orbit, joining its twin spacecraft GRAIL-A. The two satellites will study the Moon's gravitational field, generating a detailed map of its fluctuations to help scientists understand how the Moon formed. (NASA)

2 January

● China launches its first commercial 3DTVchannel, operated by China Central Television(CCTV).

● A new study shows that deep brain stimulation(DBS) is a safe and effective intervention for treatment-resistant depression in patients with either unipolar major depressive disorder (MDD) or bipolar II disorder (BP). (MedicalXpress)

● 3 January – Experimental, genetically modified, fast-ageing mice, injected with stem cells, exhibited improved health and lived two to three times longer than expected, according to findings published in *Nature Communications*. (EurekAlert!) (*National Geographic*)

4 January

● American scientists report that a parasitic species of fly which compels honey bees to abandon their hives may be responsible for a global honey bee die-off that has decimated hives around the world. Honey bees are crucial pollinators, and their rapidly diminishing population may have severe effects on human agriculture.

● University of Wyoming scientists unveil genetically modified silkworms capable of producing large amounts of spidersilk, which has a greater tensile strength than steel. If available in bulk quantities, the silk could be used to produce high-strength medical sutures and lightweight forms of body armor.

● Scientists at the University of Southern California develop a method for generating accurate 3D models of cellular genomes. (PhysOrg)

● Researchers at Oxford University report promising results in

4 January 2012: scientists create genetically-engineered silkworms capable of producing bulk quantities of steel-strong spidersilk.

5 January

● Mae Jemison, the first African-American female astronaut, is selected to head the DARPA- andNASA-sponsored 100-Year Starship project, which aims to conduct research into the technological and human elements needed formanned interstellar travel.

● Classified documents are leaked detailing a range of advanced non-lethal weaponsproposed or in development by the United States Armed Forces. Among the systems described are a laser-based weapon designed to divert hostile aircraft, an underwater sonic weapon for incapacitating SCUBA divers and a heat-based weapon designed to compel crowds to disperse.

● American scientists report that they have bred the first-ever monkeys grown from cells taken from different embryos. Such "chimeric" hybrid monkeys could give valuable insights into the development of human embryos.

● A team of international researchers reports that low-resistivity electrical wires can be produced at the nanometer scale by chaining phosphorus atoms together and encasing them in silicon. In future, the development may permit the production of efficient nanometer-scale electronics.(*Scientific American*)

● A team of American, French and Italian researchers demonstrate working transistors made from cotton fibers, doped with gold nanoparticles and a conductive polymer. The invention could permit the creation of a range of electronic-fabric devices, including clothing capable of measuring pollutants, T-shirts that display dynamic information, and carpets that sense how many people are crossing them. (IEEE Spectrum)

6 January

● The human brain's ability to function can start to deteriorate as early as age 45, according to a study published in the British Medical Journal.

● Scientists have refuted a Greenpeace claim that genetically modified corn has caused a newinsect pest. (PhysOrg)

● 11 January 2012: astronomers report that nearly every star in the Milky Way galaxy may hostexoplanets (artist's impression of Upsilon Andromedae d pictured).

9 January

● Human emissions of carbon dioxide will defer the next Ice Age, according to a new study.

● Researchers in California have produced a cheap plastic capable of removing large amounts of carbon dioxide (CO_2) from the air. The new material could enable the development of "artificial trees" that lower atmospheric concentrations of CO_2 in an effort to lessen the effects of climate change. (Science Mag)

10 January

● The 2012 Consumer Electronics Show opens inLas Vegas, Nevada. Among the new products and technologies showcased are large-screen OLED televisions, quad-core tablet computersand consumer-ready 3D printers.

● Climate change, in the form of reduced snowfall in mountains, is having a major impact on mountainous plant and bird communities, through the increased ability of elk to stay at high elevations over winter and consume plants, according to a study in *Nature Climate Change*.(Science Daily)

11 January

● An international team of astronomers report that each star in the Milky Way Galaxy may host "on average ... at least 1.6 planets", suggesting that over 160 billion star-bound planets may exist in our galaxy alone. The team used gravitational microlensing to discover the gravitational effects of planets orbiting distant stars.[

● American astronomers discover three rocky exoplanets smaller than Earth, the smallest such worlds yet found, orbiting a red dwarf star 130 light-years from Earth. (*Wired*)

● Researchers report the discovery of a natural hormone that has a similar effect to exercise onmuscle tissue – burning calories, improving insulin processing, and perhaps boosting strength.(Technology Review)

● 12 January

● Scientists formally describe the world's smallest known vertebrate species, *Paedophryne amauensis* – a frog that measures just 7 millimeters in length. The species was first discovered in Papua New Guinea in 2009. (*The Guardian*)

● A University of Connecticut researcher who studied the health benefits of resveratrol, a compound found in red wine, has been found to have falsified data on numerous occasions.(Medical News Today)

● 12 January 2012: *Paedophryne amauensis*, the world's smallest known vertebrate, is formally described.

13 January

● IBM researchers successfully store a single bitof data in a group of just 12 supercooled ironatoms; current commercial hard disks require over 1 million atoms to store one bit of data. The breakthrough, which was achieved with the use of a scanning tunnelling microscope, may permit the production of ultra-high-density computer storage media in future. (BBC) (E-Commerce Times)

● German scientists convert a gold sphere just 60 nanometres in diameter into an ultra-sensitive listening device, potentially allowing the sounds of bacteria and other single-celled organisms to be recorded. (*New Scientist*)

● 14 January – Researchers at the University of Cambridge repair myelin sheath damage in ageing mice with multiple sclerosis by injecting the blood of younger mice into them, reactivating the older mice's regenerative stem cells. (*New Scientist*)

● 15 January – Russia's Fobos-Grunt Martian sample return spacecraft, which became stranded in orbit after a post-launch malfunction in November 2011, re-enters Earth's atmosphere.

18 January

● Astronomers report the discovery of the most distant dwarf galaxy yet found, approximately 10 billion light-years away. (*Christian Science Monitor*)

● A British amateur astronomer discovers a new Neptune-sized exoplanet, just days after theBBC's *Stargazing Live* program makes a public appeal for volunteers to assist scientists in the search for potential exoplanets. Over 100,000 volunteers are reportedly taking part in the ongoing search.

● Archaeologists find a novel tulip-shaped fossil, formally named *Siphusauctum gregarium*, in theMiddle Cambrian Burgess Shale in the Canadian Rockies. The 20-centimetre-long creature reportedly possessed a unique filter feeding system. (Science Daily)

● A working 9-nanometer transistor is developed by IBM engineers, demonstrating that nanotubescould serve as a viable alternative to silicon in future nanoelectronic devices. (Nano Letters)(Technology Review)

19 January

● Austrian researchers develop a quantum computer capable of performing calculations without revealing any of the data involved, using encoded strings of photons designed to appear random. This method of "blind quantum cryptography" may permit sensitive data to be processed and transferred without any danger of interception or decryption, leading to ultra-secure cloud computing. (*New Scientist*)

● NASA data shows that in 2011, temperatures in the Arctic rose beyond the record established in 2010 — setting a new record. (Skeptical Science)

● 20 January – Virologists agree to a temporarily hiatus on experiments on the H5N1 influenza virus, due to fears that an airborne strain of the lethal virus could be used by bioterrorists. (*New Scientist*)

22 January

● American researchers report that nanoparticles can be successfully engineered to mimic part of the body's immune system, improving its response to vaccines.

● An international team of scientists has concluded that anthropogenic CO2 emissions over the last 100 to 200 years have already raised ocean acidity far beyond the range of natural variations. (Science Daily)

● 23 January 2012: stem cell therapy is successfully used to ease the symptoms ofblindness in human volunteers (human embryonic stem cell shown).

23 January

● South Korean scientists develop touchscreensthat can recognise the existence and concentration of DNA molecules placed on them. The invention could allow the development of smartphones with the ability to diagnose users' medical conditions. (ABC)

● *The Lancet* reports that a human medical trial of embryonic stem cells successfully eased a degenerative form of blindness in two volunteers, and showed no signs of any adverse effects. (Medical Xpress)

● Brain scans of people under the influence of the psilocybin, the active ingredient in magic mushrooms, have given scientists the most detailed picture to date of how psychedelic drugs work. (Imperial College London)

● Scientists demonstrate a terahertz antenna 100 nanometers across – 30,000 times smaller than the previous smallest antenna. The invention could permit the production of lightweight, handheld devices able to accurately scan for bombs, chemicals and even subcutaneoustumors. (ExtremeTech) (PopSci)

24 January

● Earth is struck by the largest solar storm since 2005, creating huge aurorae and potentially interfering with satellite communications worldwide.

● A nest of dinosaur eggs 100 million years older than the previous oldest site is found in South Africa. The fossils are of the prosauropod species *Massospondylus*, a relative of the long-necked sauropods.

25 January

● University of Washington scientists report that injecting sulfate particles into the stratospherewill not fully offset climate change. (Science Daily)

● A study in Japan finds that green tea can significantly reduce disability in the elderly, likely due to its antioxidant content. (MedicalXpress)

● 26 January – American researchers successfully "cloak" a three-dimensional object, making it invisible from all angles, for the first time. However, the demonstration works only for waves in themicrowave region of the electromagnetic spectrum. (BBC)

● 27 January 2012: the most detailed 3D image of the Amazon rainforest yet produced is published.

27 January

● An international team of scientists reports thatgraphene, already widely known for its conductive properties, is also able to selectively filter gases and liquids. The material could thus potentially find use in industrialdistillation and water purification. (*The Register*)

● A study published in the journal*Carcinogenesis* shows that in both cell lines and mouse models, grape seed extract (GSE) kills head and neck cancer cells, while leaving healthy cells unharmed. (MedicalXpress)

● Using an airborne LIDAR system, scientists produce the most detailed 3D image of the Amazon rainforest yet recorded, allowing the accurate measurement of the rainforest's ecoystem and rate of deforestation. (*The Guardian*)

● 2012 BX_{34}, an asteroid between 8 metres (26 ft) and 11 metres (36 ft) across, passes within 60,000 kilometres of the Earth, performing one of the closest asteroid flybys yet recorded.

● British animators develop a new algorithmic method of creating highly realistic CGI trees, allowing films and video games to easily display realistic 3D foliage. (*New Scientist*)

● 29 January – Using stem cells generated from patients with schizophrenia, bipolar depression and other mental illnesses, scientists at the University of Edinburgh create neurones with brain tissue genetically identical to the person's brain. The breakthrough could allow new treatments for mental illnesses to be accurately tested without endangering patients. (*The Guardian*)

30 January

● A UN report warns that time is running out to ensure there is enough food, water and energy for a rapidly rising global population. By 2030, the world will need at least 50 percent more food, 45 percent more energy and 30 percent more water, according to estimates. (UN)

● The British Royal Navy begins development of a new anti-missile defence system, the Sea Ceptor, capable of intercepting and destroying supersonic missiles within an area of 500 square miles (1,300 km^2). The system is likely to enter service by 2017.

● American researchers report that ultrasound waves can be used effectively to kill sperm, potentially offering a new male contraceptive method. (HealthcareGlobal)

● Ozone from anthropogenic air pollution in North America leads to the annual loss of 1.2 million tonnes of wheat in Europe alone, according to a study published by British universities.(PhysOrg)

● A NASA study reports that changes in solar activity cannot be responsible for the current period of global warming. The sun's total solar irradiance has in recent years dipped to the lowest levels recorded during the satellite era. (ScienceDaily)

● According to genetic studies, modern humans seem to have mated with "at least two groups" of ancient humans: Neanderthals and Denisovans.[5]

● 31 January 2012: American scientists demonstrate a method of decoding human thoughts by studying the superior temporal gyrus(indicated).

31 January

● American scientists successfully demonstrate a method of decoding thoughts by studying activity in the human brain's superior temporal gyrus, which is involved in linguistic processing. Using this method, a device which reads and transmits the thoughts of brain-damaged patients could become a reality in the future.

● Microchip designer AMD launches its Radeon HD 7950 graphics card, based on a 28 nanometer manufacturing process – a more advanced die shrink of the current 32 nanometer standard. (*The Inquirer*)

● Poyang Lake, China's largest freshwater lake, has almost completely dried up due to a combination of severe drought and the impact of the recently built Three Gorges Dam. (*The Guardian*)

February

● 3 February 2012: the Very Large Telescopearray enters operation in northern Chile.

● 1 February – Researchers report that the eruption of supervolcanoes could be predicted several decades before the event by detecting the seismic and chemical signs of a massive magma buildup.(BBC)

2 February

● The European Commission issues a 225-million-euro (US$330 million) contract to an Anglo-German consortium for eight additional satellites to expand Europe's Galileo satellite navigation system.

● Astronomers report the discovery of a largeexoplanet orbiting within the habitable zone of a star 22 light-years distant. This is the fourth potentially life-supporting exoplanet discovered since May 2011. (*San Francisco Chronicle*)

● Researchers reportedly create the world's thinnest pane of glass, a sheet of silicon and oxygen just three atoms wide. The glass formed in an accidental reaction when the scientists were synthesizing graphene on copper-covered quartz. (ScienceMag)

3 February

● The European Southern Observatory successfully activates its Very Large Telescope (VLT) by linking four existing optical telescopes to operate as a single device. The linked VLT is the largest optical telescope yet built, with a combined mirror diameter of 130 metres (430 ft).

● Physicists at Germany's Max Planck Institute unveil a microscope that can image living brain cells as they function inside a living animal. (PhysOrg)

● American scientists demonstrate a medical procedure that may allow patients suffering fromnerve damage to recover within weeks, rather than months or years. The procedure makes use of a cellular mechanism similar to that which repairs nerve axons in invertebrates. (Science Daily)

● MIT researchers develop high-temperature photonic crystals capable of efficiently converting heat to electricity, potentially allowing the creation of pocket-sized microreactors with ten times the efficiency and lifespan of current commercial batteries. As photonic crystals are already a relatively mature technology, the new invention could be commercialised in as little as two years. (ExtremeTech)

● A *Lancet* study reports that global malaria deaths may be badly underestimated, giving a revised 2010 malaria death toll of 1.24 million. By contrast, the World Health Organisationestimated that 655,000 people died of malaria in 2010. (BBC)

● 4 February – Dutch doctors successfully fit an 83-year-old woman with an artificial jaw made using a 3D printer. This operation, the first of its kind, could herald a new era of accurate, patient-tailored artificial transplants. (BBC)

● 4 February 2012: Dutch doctors successfully fit the first artificial jaw made with a 3D printer(ORDbot Quantum 3D printer pictured).

6 February

● After nearly 20 years of intermittent drilling, Russian scientists reportedly break through to the surface of the subterranean Lake Vostok, buried 2.5 miles (4.0 km) under the Antarcticice. The lake, which has not been uncovered for over 15 million years, may harbour a unique prehistoric ecosystem. (*The Guardian*) (*The Washington Post*)

● A team of engineers and biologists develop a working WORM computer memory out ofsalmon DNA molecules by combining the DNA with silver nanoparticles. (ExtemeTech)

● Scientists from Yale University have discovered a fungus in the South American rainforest that eats plastic. It is hoped that this organism could be used in the breaking down of waste matter in landfills and other locations. (TG Daily)

7 February

● Scientists report that rapid declines in some British and European ladybird species are being caused by the spread of the invasive harlequin species.

● The entire genome of an extinct species of human – the 40,000-year-old Denisova hominin – has been decoded from a fossil. (PhysOrg)

● 8 February – NASA data reveals that the total land ice lost from Greenland, Antarctica and Earth'sglaciers and ice caps between 2003 and 2010 totalled about 4.3 trillion tons (1,000 cubic miles), adding about 0.5 inches (12 millimeters) to global sea levels. Such a quantity of ice would be sufficient to cover the entire United States to a depth of 1.5 feet (0.5 meters). (NASA/JPL)

● 9 February – Researchers at Case Western Reserve University discover that bexarotene, a drug normally used to treat skin cancer, can quickly reverse the symptoms of Alzheimer's disease in mice, removing over 50% of the disease's trademark amyloid plaque from the brain within 72 hours.(CNN)

● 10 February – Scientists at the University of California, San Diego report the creation of the tiniesttelecommunications laser yet built, just 200 nanometers wide. The highly efficient nanolaser could be used to develop optical computers and ultra-high-resolution imaging systems. (PopSci)

13 February

● A new UN report warns that 24 percent of global land area has declined in productivity over the past 25 years due to unsustainable land-use, and soil erosion rates are about 100 times greater than nature can replenish. (UPI)

● The European Space Agency successfully conducts the maiden launch of its new Vega rocket, transporting several satellites into orbit, including the first Polish, Hungarian and Romaniansatellites. (*The Telegraph*)

● BAE Systems engineers unveil a carbon-fiber-based structural battery capable of being integrated into a device's framework, reducing weight while maintaining structural strength and power capacity.

● 14 February – In a groundbreaking human trial, American scientists report that damaged heart tissue in heart attack patients can be repaired with infusions of the patient's own stem cells. The treatment halved the amount of extant scar tissue within a year.

● 15 February 2012: Nevada becomes the first US state to release official regulations for the public testing of autonomous cars (prototype autonomous Audi pictured).

● 15 February – Nevada becomes the first US state to allow the testing of autonomous vehicles on US public roadways. (DMV)

● 16 February – The speed at which someone walksmay predict their likelihood of developing dementialater in life, according to researchers in the US.

● 20 February – Scientists report regenerating *Silene stenophylla* from 32,000-year-old remains. This surpasses the previous record of 2,000 years for the oldest material used to regenerate a plant.*(Washington Post)*

22 February

● Scientists have extended the life of male mice by 15%, using an enzyme called SIRT6.(KurzweilAI)

● Engineers at Stanford reveal a wirelessly powered, self-propelled medical device that can travel through the bloodstream to deliver drugs, perform diagnostics or microsurgeries. (Science Daily)

● NASA reports the detection of the solid form of buckyballs (buckminsterfullerene) in deep space.[6]

26 February

● Researchers publish the first images of the charge distribution in a single molecule, precisely showing the motion of electrons. The observed distribution apparently corresponds closely with predictive models.

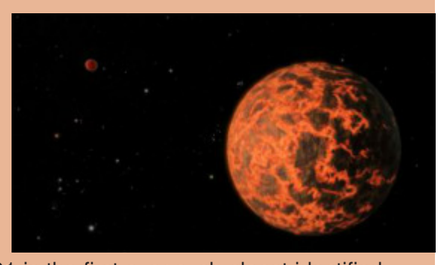
● It may be possible to one day create an "unlimited" supply of human eggs to aid fertilitytreatment, US doctors say.

27 February

● Scottish research has shown it could be possible to reverse the muscle damage seen in children with a form of motor

Astronomers discover exoplanet smaller than earth

Astronomers have discovered a planet two-thirds the size of earth and possibly the closest to our solar system, using NASA's Spitzer Telescope.



The potential exoplanet called UCF-1.01, is located 33 light-years away, with a diametre of 8,400 kilometers, making it possibly the nearest world to our solar system that is smaller than our home planet, NASA said.

Exoplanets circle stars beyond sun. Only a handful smaller than earth have been found so far and UCF-1.01 is the first ever such planet identified with the space telescope.

"We have found strong evidence for a very small, very hot and very near planet with the help of the Spitzer Space Telescope," said Kevin Stevenson from the University of Central Florida in Orlando in a statement.

"Identifying nearby small planets such as UCF-1.01 may one day lead to their characterization using future instruments."

The hot, new-planet candidate was discovered unexpectedly when Stevenson and his colleagues were studying the Neptune-sized exoplanet GJ 436b, already known to exist around the red-dwarf star GJ 436.

The astronomers noticed slight dips in the amount of infrared light streaming from the star, separate from the dips caused by GJ 436b.

The dips were periodic, suggesting a second planet might be orbiting the star and blocking out a small fraction of the star's light. UCF-1.01 would revolve quite tightly around GJ 436, at about seven times the distance of earth from the moon, with its "year" lasting only 1.4 Earth days.

Given this proximity to its star, far closer than the planet Mercury is to sun, the exoplanet's surface temperature would be more than 1,000 degrees Fahrenheit (almost 600 degrees Celsius).

Scientists believe that if the roasted, diminutive planet candidate ever had an atmosphere, it almost surely has evaporated.

UCF-1.01 might therefore resemble a cratered, mostly geologically dead world like Mercury. Paper co-author Joseph Harrington said the extreme heat of orbiting so close to GJ 436 has melted the exoplanet's surface.

"The planet could even be covered in magma," said Harrington.

Of the approximately 1,800 stars identified by NASA' Kepler space telescope as candidates for having planetary systems, just three are verified to contain sub-Earth-sized exoplanets.

neurone disease, using a drug to boost levels of a key protein.

- The remains of two new species of prehistoric penguin are discovered – *Kairuku grebneffi* and*Kairuku waitaki*. Standing nearly 5 feet (1.5 m) tall, *Kairuku grebneffi* is the largest penguin ever discovered. (Discovery)

28 February

- IBM announces a breakthrough in quantum computing, demonstrating a qubit microchip that can preserve its quantum states up to four times longer than previous designs. (IBM)(KurzweilAI)
- Researchers estimate that *Tyrannosaurus rex*'s bite force could exceed 57,000 newtons, more than three times that of a great white shark. (*Telegraph*)

March

- 7 March 2012: scientists sequence the genomeof the Western gorilla.

§ 1 March – New research concludes that the Earth's oceans may be growing more acidic at a faster rate than at any time in the past 300 million years. (MSNBC)

2 March

- A cheap antibiotic usually used to treat acnecould alleviate the symptoms of schizophrenia, international studies have found. (Daily Mail)
- A NASA spacecraft has detected oxygenaround one of Saturn's icy moons, Dione.(BBC)
- Meta-analysis of 42 previous studies concludes that some consumption of chocolate may be good for the heart. (Reuters)
- 5 March – A study finds a correlation betweensnoring as a toddler and behavior problems later in childhood. (BBC)

7 March

- Physicists from Fermi National Accelerator Laboratory report data suggesting that the elusive hypothesized Higgs boson ("God particle", with a mass of 115 to 135 GeV/c^2) may have been detected.[7][8]
- Scientists successfully decode the gorilla genome, the last of the Great Ape genuses to be sequenced. (BBC)

8 March

- A study suggests that donor stem cells may prevent organ rejection in imperfectly matchedtransplant cases. (*LA Times*)
- The international Daya Bay neutrino experiment announces the discovery of a new type ofneutrino oscillation.[9][10][11]
- 9 March – US researchers have made a breakthrough in curing AIDS, using a cancer drug to attack HIV in its hardest-to-reach places, inside certain immune-system cells. (Bloomberg)

12 March

- Researchers at the Vienna University of Technology (TU Vienna) have made a breakthrough in3D printing, with a machine that can print at the nano-scale and is orders of magnitude faster than previous devices. (Science Daily)
- A diet high in red meat can shorten life expectancy by increasing the risk of death

19 March

- Even if humankind manages to limit global warming to 2 degrees C (3.6 degrees F), as theIntergovernmental Panel on Climate Change recommends, future generations will have to deal with sea levels 12 to 22 meters (40 to 70 feet) higher than at present, according to research published in the journal *Geology*. (Rutgers press release)
- Researchers at the RIKEN Advanced Science Institute (Japan) have developed a way to create full-color holograms with the aid of surface plasmons. (PhysOrg)
- The amount of photovoltaic solar panels installed in the US more than doubled from 2010 to 2011, according to a report by the Solar Energy Industries Association (SEIA) and GTM Research. (PhysOrg)
- Seagate claims it has paved the way for 3.5-inch hard drives with 60TB capacities, after breaking the 1TB/square inch density threshold. (PC Pro)
- 19 March 2012: researchers report that the number of solar panels in the United States more than doubled between 2010 and 2011.

20 March

- Astronomers have discovered the first known rectangular-shaped galaxy: LEDA 074886.(Technology Review)
- New analysis by MIT shows that there is enough room underground to safely store at least a century's worth of U.S. fossil fuel emissions. (MIT)

§ 24 March – Humans hunted Australia's giant vertebrates to extinction about 40,000 years ago, the latest research published in *Science* has concluded.

25 March

- Global temperatures could rise by 3.0 °C (5.4 °F) by 2050, a new computer simulation has suggested.
- Canadian film director James Cameron reaches the Challenger Deep, the deepest known point in Earth's oceans, in the *Deepsea Challenger* submersible. Cameron is the first person to visit the Deep, which is located in the Pacific Mariana Trench, since 1960.
- Physicists report that the largest molecules yet tested (molecules containing 58 or 114 atoms) also demonstrate quantum wave behavior using the classic double-slit experiment.[18][19]

§ 28 March – NASA announces the name of the Martian mountain, Mount Sharp, that the Mars Science Laboratory rover (also known as "Curiosity") will explore after its planned landing in Gale Crater on 6 August 2012.[20][21][22]

§ 29 March

§ "Solar tornadoes" several times as wide as the Earth have been observed in the Sun's atmosphere by the Atmospheric Imaging Assembly telescope on board NASA's Solar Dynamics Observatory (SDO) satellite. (PhysOrg)

- Scientists have revealed the most detailed picture of the Milky Way galaxy ever produced, with over a billion stars visible in a mosaic combined from thousands of individual images. (BBC)(The Royal Observatory, Edinburgh)
- New scanning technology has revealed that the human brain possesses an astonishingly simple 3D grid structure, with sheets of parallel neuronal fibers crossing one another at right angles. (MedicalXpress)

April

- 5 April 2012: the Large Hadron Collider completes a landmark energy upgrade.
- 2 April – The British Army announces the development of a conductive smart fabric for infantry uniforms. The fabric, which should enter widespread service by 2015, will eliminate the need for heavy, vulnerable power cables, making soldiers' electronics safer, cheaper and more durable. (BBC)

4 April

- A new, detailed record of past climate change has shown compelling evidence that the last ice age was ended by a rise in temperature driven by an increase in atmospheric carbon dioxide. The key result from the new study is that it shows the carbon dioxide rise during this major transition ran slightly ahead of increases in global temperature. (BBC)
- Austrian and Japanese researchers unveil solar cellsthat are thinner than a thread of spider silk, and flexible enough to be wrapped around a single human hair.(PhysOrg)
- American researchers begin a new project, funded by the National Science Foundation, to develop printable robots that can be designed and made to order by the average person in less than 24 hours. The project, which is hoped to come to fruition by 2020, could allow any individual to cheaply build automated tools for any task in their own home. (BBC)

5 April

- Dutch and American researchers report that they have created a working quantum computerout of diamond, using the diamond's natural impurities as superimposed qubits to perform calculations. (*Wired*)
- Google unveils Project Glass, which aims to develop augmented reality glasses capable of layering information such as email, real-time traffic updates and video calls over a user's field of vision. (*Herald Sun*)
- The Large Hadron Collider re-enters operation after an energy upgrade. It now has a total collision energy of 8 trillion electronvolts, a major increase over its pre-upgrade energy of 7 TeV.(*The Guardian*)
- 6 April – An international team of researchers reports that a new, drug-resistant strain of malariahas emerged on the Thai-Cambodian border, potentially threatening global efforts to contain the disease. (MNT)
- 8 April – American scientists reveal that transparent graphene sheets can be used to encapsulate liquids for study by electron microscopes. The discovery will greatly ease the accurate imaging of liquids at micro- and nanoscales. (BBC)
- 10 April – The Wellcome Trust, one of the world's largest private funders of scientific research, states that it is launching a new online journal to promote the free sharing of scientific papers. The new journal, titled eLife, is part of a widespread push for open access to scientific research, and will compel researchers to make their work freely available online. (*The Guardian*)

12 April

- A team of researchers from France's Laboratoire Univers et Théorie releases the first ever computer model simulation of the structure of the entire observable universe, from the Big Bangto the present day. The simulation has made it possible to follow the evolution of 550 billion individual particles. (CNRS)
- A new report reveals that the United States invested more in renewable energy technology in 2011 than any other nation, totalling US$48 billion. China was the second-largest investor, spending US$45.5 billion on renewables. Worldwide, the combined investment in renewables reached an all-time high, at US$236 billion.
- German physicists develop the world's first universal quantum computing network, linking two laboratories using entangled rubidium atoms as network nodes. (*Nature*)
- An international team of researchers has used new, massively parallel DNA sequencingtechnology to fast-track the discovery of a breast cancer risk gene, XRCC2. (Asian Scientist)
- DARPA, the US military's advanced research agency, offers a US$2 million prize to any team who can independently develop a rescue robot capable of multiple tasks, including climbing ladders, clearing obstacles, using power tools and driving cars. (*International Business Times*)
- After studying 40 years of medical records, Swedish scientists state that sufferers ofHuntington's disease are around 50% less likely to develop cancer than those without the disease. Further study may reveal the genetic mechanism behind this resistance, allowing new cancer treatments to be developed. (Cancer Research UK)
- The United Kingdom reports that it is considering the installation of undersea power cables to allow its National Grid to draw clean energy from Iceland's volcanoes. (Energy Live News)
- Scientists report that complexity analysis studies of the Labeled Release experiments of the1976 Viking mission to Mars may suggest the detection of "extant microbial life on Mars."
- 12 April 2012: German scientists create the world's first quantum computing network usingentangled rubidium atoms (rubidium sample shown).

13 April

- North Korea's Unha-3 orbital rocket disintegrates in mid-flight over the Yellow Sea, destroying its payload, the KwangmyOngsOng-3satellite. Analysts fear that the failed launch may raise the likelihood of North Korea conducting another nuclear weapons test. (*The Telegraph*)
- German scientists develop a fiber-based "earthquake-proof" wallpaper capable of reinforcing masonry and delaying building collapses during violent quakes. The invention could save lives by giving people more time to flee from collapsing buildings. (*NZ Herald*)
- The Pentagon places an order for advanced dual-focus contact lenses, designed to give soldiers greater visual awareness, in tandem with a new HUD system. The technology may enter the civilian market by 2014. (BBC via SmartPlanet)
- Dutch scientists report that they have found evidence of the existence of the Majorana fermion, a particle that is its own antiparticle. The existence of the Majorana was first theorized by the Italian scientist Ettore Majorana in the 1930s.
- Researchers at UCLA announce that they have genetically engineered stem cells to seek out and kill HIV in mice. (The Advocate) (Medical Daily) (NBC Los Angeles)
- 15 April – Researchers claim that new satellite imagery shows an increase in the mass of some glaciers in Asia's Karakoram mountain range. This data contrasts with the wider global trend of glacial melting. (BBC)
- 17 April – It is revealed that the Chinese and American militaries have been conducting informalwar games together to help prevent military escalation in the event of a future cyber war. (*Sydney Morning Herald*)
- 18 April – Researchers at the American National Institutes of Health demonstrate ananotechnology-based drug treatment which can successfully alleviate some symptoms of cerebral palsy (CP). The drug, which was tested in rabbits, caused a dramatic improvement of the movement disorders and brain inflammation that are characteristic of many cases of CP. (Science Daily)
- 19 April 2012: international researchers develop synthetic DNA compounds.

19 April

- A landmark study by British and Canadian scientists reveals that breast cancer can be subdivided into ten distinct types, with its aggressiveness determined by certain genes. The new data may make breast cancer diagnoses much more precise, and allow cancer treatments to be more effectively tailored to each patient. (*The Guardian*)
- British and American scientists successfully develop synthetic DNA compounds, dubbed "XNA", which demonstrate evolution when faced with selective pressure. (*National Geographic*)
- British researchers identify key genes that "switch off" as the human body ages. These genes may be targeted by future anti-aging therapies. (Science Daily)

20 April

- Scientists say the notoriously dry continent of Africa is sitting on a vast reservoir ofgroundwater.
- A NASA-backed group of universities begins testing a GPS-derived earthquake warning system. The system, which uses satellite data to track seismic activity in real-time, may allow accurate earthquake and tsunami warnings to be issued up to ten times faster than is currently possible. (*Nature*)
- After three years of development, IBM reveals a new, ultra-lightweight lithium-air battery, offering greater energy density than any current lithium-ion battery. The new battery may permit the production of electric vehicles with far greater range and battery life than current models.(ExtremeTech)
- 21 April – Scientists at Chicago's Northwestern University successfully trial a brain-computer interface capable of restoring naturalistic muscle movements in paralyzed rhesus monkeys. It is hoped the invention will eventually be approved to treat paralytic or brain-damaged humans.(ExtremeTech)
- 22 April – Intel Corporation releases its new Ivy Bridge microprocessors – the world's first commercial 22 nanometer microchips, featuring increased processing power and energy efficiency.(BBC)
- 24 April – Planetary Resources, a startup company backed by Google billionaires Larry Page andEric Schmidt and film director James Cameron, announces plans to develop technology to survey and mine asteroids for minerals by 2020. The company plans to launch the first element of its project, a network of orbital surveying telescopes, by 2014.
- 27 April 2012: engine precooler tests begin forReaction Engines' Skylon spaceplane design (artist's impression pictured).

26 April

- Australian scientists develop a multi-layered,silica-based hydrophobic coating with greater durability than previous such coatings. The invention may be used to make self-cleaning fabrics and antibacterial medical equipment.
- Researchers develop a crystalline quantum computer, composed of just 300 atoms, that theoretically is so powerful that it would take a conventional computer the size of the known universe to match it. (ABC)
- Scientists report that lichen survived over 34 days under Martian conditions in the Mars Simulation Laboratory (MSL) maintained by the German Aerospace Center (DLR).

27 April

- Researchers identify 53 key neurons in the brains of homing pigeons which may explain how the birds navigate using Earth's geomagnetic field. (*New Scientist*)
- The British company Reaction Engines begins testing the advanced engine precooler system intended for its reusable Skylon spaceplane. If the tests are successful, the hybrid-rocket Skylon – designed to vastly reduce the cost of orbital spaceflight – may begin flying cargo to Earth's orbit by 2020.

May

- 6 May 2012: scientists develop a drug capable of preventing the breakdown of cerebral proteinproduction, potentially offering a new treatment forAlzheimer's disease (cerebral plaques pictured).

1 May

- Scientists report that a new genetic test could diagnose the risk of breast cancer years before the disease actually develops, allowing much more effective early treatment. (*Daily Mail*)(BBC)
- French researchers successfully createsilicene, a one-atom-thick sheet of silicon that is analogous to the much-vaunted graphene. Silicene is theorized to retain silicon's excellentsemiconductor properties even at extremely small scales, and could allow the simple mass production of efficient nanoscale computers.(PopSci)
- 2 May – The European Space Agency selects theJupiter Icy Moon Explorer (JUICE) proposal for its next major space exploration program. The robotic JUICE probe, which is planned to launch in 2022, will conduct in-depth studies of the Jovianmoons Callisto, Europa and Ganymede.
- 3 May – In the United Kingdom's first successful ocular implant trial, two men blinded by retinitis pigmentosa have their sight partially restored

Japan switches on Ohi nuclear reactor amid protests

Hundreds gathered near the plant in the town of Ohi to protest against the move, which has divided public opinion.

Last month, the prime minister urged support, saying a return to nuclear power was essential for the economy.

All 50 of Japan's nuclear plants were shut after the meltdown at Fukushima, which was triggered by a tsunami and earthquake.

The crisis was regarded as the worst nuclear disaster since Chernobyl in 1986.

The reactor is expected to be fully operational by the end of the week, the operator, Kansai Electric Power Co (Kepco) says.

About 100 of the 650 protesters at the nuclear plant blocked a nearby road overnight, but a Kepco spokesman said the reactivation was not affected, according to the Reuters news agency.

The restart of the reactor follows an order by Mr Noda last month authorising the reactivation of both it and another reactor at Ohi - No 4 - following stress tests. Reactor No 4 is to be restarted on 14 July.

At the time, he called on the Japanese to support the move, saying it was needed to bolster the economy and prevent energy shortages over the summer.

The decision was welcomed by businesses who had voiced concern over the lack of power for industry.

On Friday, tens of thousands took part in anti-nuclear rallies in Tokyo outside Prime Minister Yoshihiko Noda's official residence, chanting "Saikado hantai," or "No to nuclear restarts", in what correspondents say was a rare show of dissent in Japan.

Mariko Oi, in Tokyo, says it was one of the largest demonstrations seen since the reactors at Fukushima were damaged in March 2011.

The most important thing for us is sustainability of the Earth for the next generation"

Reports differ on the number of attendees, but organisers say 200,000 people took part, our correspondent says.

The government is continuing to assess whether other nuclear plants are safe to be reactivated. But demonstrators say they are not convinced by assurances over safety. They argue that Japan should take the opportunity to move to alternative energy sources.

"The most important thing for us is sustainability of the Earth for the next generation so if we have some problems to keep the planet clean and beautiful, then we have to change the industrial structure" to foster alternative energy sources, he said.

Colombia lowers alert over volcano's eruption

Colombian officials have downgraded the alert level for an eruption of the Nevado del Ruiz volcano, and some airports in the area have resumed operations.

This Sunday, July 1, 2012 shows the Nevado del Ruiz volcano near Villa Maria, central Colombia. The volcano erupted Saturday afternoon, spewing smoke and ash. While authorities ordered the preventative evacuation of some communities around the mountain but no damages or victims were reported. (AP Photo/Luisa Garcia)

Parties not expected to get bold in platforms Romney raps Obama for attacks on GOP tax plans Romney wants running mate to play it safe, for now Obama, Romney compete for undecideds, stoke base Dems target Ryan on women's issues Delegate count: Who's leading GOP?

The volcano in western Colombia spewed smoke and ash on Saturday, but caused no injuries or damage. Colombia's disaster management agency says officials lowered the alert level Sunday morning, but are continuing precautionary evacuations in 15 towns near the mountain.

Gas and vapor have been erupting periodically this year from the Nevado de Ruiz. The 17,457-foot (5,321-meter) volcano is roughly 90 miles (145 kilometers) west of the capital, Bogota.

An eruption at the volcano in 1985 sent a river of rocks and mud surging into the town of Armero and killed 25,000 people.

by prototype microchip implants. (*The Telegraph*)

- 6 May – British researchers report that they have successfully extended the lifespans of mice suffering from prion diseases by preventing the breakdown of protein production in the brain. This breakthrough could allow the development of a single drug able to tackle a wide range of brain diseases, such as Alzheimer's and Parkinson's.
- 8 May – Claire Lomas, a paralyzed British woman becomes the first person to complete amarathon using a bionic mobility suit. The ReWalk suit allowed her to complete the London Marathon in 16 days. (*The Guardian*)
- 9 May – A detailed design is released for a practical artificial leaf – a potentially revolutionary milestone in the development of sustainable energy. (Science Daily) (ACS)

11 May

- American researchers report that preventable infections are the leading cause of child mortalityworldwide. Of the 7.6 million children who died before their fifth birthday in 2010, over 60% died of infections such as pneumonia. (BBC)
- Scientists at the University of Science and Technology of China use quantum teleportation to transmit photons over a distance of 97 kilometres (60 mi) – a world record. The teleportation method, which utilises quantum entanglement to transfer information between points without crossing the intervening space, could allow the development of ultra-secure satellite communications. (PopSci) (Technology Review)
- 12 May – Scientists refute the theory that sex-linked chromosomes, such as the male Y chromosome, will become extinct. A new study shows that, although such chromosomes have shrunk and lost genetic material, they remain crucially important predictors of fertility. (Science Daily)
- 13 May – Researchers claim that there is a strong correlation between the loss of biodiversity and thedisappearance of endangered languages and cultures.

14 May

- Researchers extend the lifespan of mice by 24%, using gene therapy applied when the mice were adults. The success of the technique, which involved inducing cells to produce more of the enzyme telomerase, suggests that adult life extension is feasible.(Science Daily)
- Scientists grow healthy bone from human embryonic stem cells. This breakthrough could allow much quicker and easier bone grafts for human patients. (Science Daily)
- Scientists at California's Stanford University invent a working bionic eye powered only by focused light. Though currently a prototype, the device could eventually restore the sight of millions of people suffering from eye diseases such as macular degeneration and retinitis pigmentosa.

15 May

- The United States announces a national plan to develop an effective treatment for Alzheimer's disease by 2025.
- American scientists develop a device which uses genetically engineered viruses to generate electricity. The invention could allow the development of ubiquitous piezoelectric micro-generators which gather energy from everyday vibrations such as closing doors.

16 May

- American surgeons successfully restore hand function to a partly paralyzed man using a pioneering nerve transfer technique. Following the surgery and subsequent physiotherapy, the patient – who entirely lost the use of his hands in a car accident – can now feed himself and even write with some assistance. (iAfrica.com)
- Japanese scientists develop a wireless data transmission system which operates in the currently unregulated terahertz frequency spectrum. The system can transmit data at a rate of 3 Gbps, a record for wireless data transmission; it could potentially be upgraded to transmit at 100 Gbit/s.
- The USGS and IAU officially name areas of Mars, including Aeolis Mons, Aeolis Palus andRobert Sharp Crater, relevant to the planned landing of NASA's *Curiosity* Mars rover on 6 August 2012.
- 25 May 2012: SpaceX's Dragon becomes the first commercial spacecraft to dock with theInternational Space Station.
- 20 May – An annular solar eclipse takes place.
- 22 May – American researchers demonstrate a rewritable DNA memory capable of storing digital data. (HealthTechZone)
- 23 May – In a breakthrough for adult stem celltherapy, Israeli scientists grow healthy heart muscle cells from the skin cells of patients. This development could offer a new treatment for heart failure patients.

25 May

- SpaceX's unmanned Dragon spacecraftcompletes a successful rendezvous with theInternational Space Station, becoming the firstcommercial spacecraft ever to do so.
- South Africa, Australia and New Zealand agree to co-host the Square Kilometre Array (SKA), the world's largest single radio telescope project. The SKA, which will comprise thousands of individual antennae with a combined signal-collecting area of 1 square kilometre (1,000,000 m^2), is expected to begin operations by 2025.
- American researchers develop a cloaking device capable of slowing light to a virtual halt within an array of 25,000 microscopic lenses.
- Archeologists discover 42,000-year-old bone flutes in a German cave – the oldest musical instruments yet discovered.

29 May

- A "road train" of wirelessly-linked autonomous vehicles successfully completes a 200-kilometre (120 mi) motorway journey, in Spain's first public test of autonomous vehicles. (BBC)
- Iran claims to have developed antivirus software capable of defending against the powerfulFlame cyberweapon, which has infected computer networks across the Middle East.

30 May

- Scientists successfully sequence the tomato genome, and state that tastier and morepesticide-resistant tomato varieties can be engineered for commercial use within five years.
- Geologists report that supervolcanoes can develop much faster than previously suspected – erupting within just a few hundred years of their formation, instead of tens of thousands of years.

31 May

- SpaceX's Dragon spacecraft returns to Earth following its successful test mission to theInternational Space Station.
- Scientists develop a nanotechnology-basedimmunoassay test which is potentially three million times more sensitive than conventional tests. The new test could revolutionise the early detection of maladies such as cancer and Alzheimer's disease. (Science Daily)
- The International Union of Pure and Applied Chemistry (IUPAC) officially names synthetic elements 114 and 116 "flerovium" and "livermorium", respectively. (AP via *Las Vegas Sun*)
- Sharp Corporation develops a solar cell with the highest solar energy conversion efficiency yet achieved. A conversion efficiency of 43.5% was obtained by using a concentrator triple-junction compound cell, combining a focusing lens with multiple layers of light-absorbing compounds.(Photonics Online)

June

1 June

- In a major milestone for neuroscience, researchers publicly release the first installment of data from their project to construct the first whole-brain wiring diagram of a vertebrate brain, that of amouse. (KurzweilAI)
- Scientists publish the results of a successful neurorehabilitation study, in which paralysed ratsregained the ability to walk and even sprint after receiving targeted electrochemical therapy. The rats' damaged spinal cords were stimulated with chemicals and implanted electrodes, and a robotic assistive harness was used to "teach" the rats to walk again.
- Australian researchers publish a new study revealing how the zebrafish heals its spinal cordafter injury. According to the study, a specialised protein prevents paralysing glial scars forming when zebrafish suffer spinal cord damage. It is hoped that this protein may be exploited for the treatment of paralysed humans. (Sci-News)
- 4 June – A partial lunar eclipse takes place. (MSNBC)

5 June

- American glass manufacturer Corning Inc. unveils an ultra-thin, flexible glass dubbed "Willow Glass". The invention, which is similar to Corning's widely-used Gorilla Glass, could be used in the development of flexible computer displays and ultra-thin smartphones. (BBC)
- The solar-powered Solar Impulse aircraft lands in Morocco after a 19-hour flight from Spain, marking the first intercontinental flight of a purely solar-powered aircraft.
- 5–6 June 2012: a transit of Venus, the last such event until 2117, occurs (transit image fromMinneapolis shown).
- 5–6 June – A transit of Venus, one of the rarest predictable astronomical phenomena, occurs. Another such transit will not occur until the year 2117.

6 June

- An international group of scientists warns thatpopulation growth, widespread destruction of natural ecosystems, and climate change may be driving the Earth toward an irreversible change in the biosphere – a planet-wide "tipping point". (Science Daily)
- Scientists at Sweden's Karolinska Institutetachieve a breakthrough in creating a new vaccine, CAD106, for Alzheimer's disease.(Karolinska Institutet)
- IPv6, a new version of the Internet Protocol, is officially launched, offering trillions of possible new web addresses. (PCWorld) (YouTube)
- Wales becomes the first nation in the world to have its plants DNA barcoded. A tiny fragment of leaf, seed or root, or even a single pollen grain, can now be used to identify species. (plos one)
- German scientists develop zeolite thermal storage pellets that can store four times as much thermal energy as water, and can retain their energy almost indefinitely.

7 June

- According to NOAA scientists, the average temperature for the contiguous United States during May 2012 was 64.3°F, 3.3°F above the long-term average, making it the second-warmest May on record. The month's high temperatures also contributed to the warmest spring, warmest year-to-date, and warmest 12-month period the United States has experienced since recordkeeping began in 1895. (Science Daily)
- Scientists at the University of Washington successfully sequence the genome of an 18-week-old human fetus in the womb by taking blood samples from the mother. In future, millions of children could be safely screened for genetic disorders in this way.
- The US Naval Research Laboratory has developed a form of underwater solar energy. (NRL)
- A team of New Zealand scientists report that measuring the ratio of hydrogen and methanelevels on the planet Mars may help determine the likelihood of life on Mars. According to the scientists, "...low H_2/CH_4 ratios (less than approximately 40) indicate that life is likely present and active." Related, but in a separate study, a team of Netherland scientists associated with MIT reported methods of detecting hydrogen and methane in extraterrestrial atmospheres.

8 June

- American researchers report that they have successfully developed a key insulation technology required for the ITER nuclear fusion demonstration reactor. (PhysOrg)
- American scientists build a tabletop-sized X-ray laser, vastly smaller and cheaper than most such devices. The invention could permit ultra-high-resolution imaging of microscopic structures such as living cells.
- British researchers begin trialling "smart" hand pumps equipped with transmitters that can immediately detect and report mechanical breakdowns. This will allow vital water pumps to be fixed much more quickly in rural Africa.
- Japanese researchers grow a tiny, functioning human liver from stem cells.

10 June

- Canadian scientists develop a new method of accurately visualising complex proteininteractions. The development could have broad implications for the biomedical andbioengineering sciences, including the design of functional bionanomachines.
- British researchers begin a project to build a catalog of exceptionally detailed 3D photographs of ant species.

11 June

- The European Extremely Large Telescope is approved for construction by member states of the European Southern Observatory organization.

12 June

- Scientists unveil a new porous metal-organic framework, NOTT-202, capable of capturing and storing excess carbon dioxide within its structure.
- An extensive study concludes that several factors aligned to cause the extinction of wooly mammoths.
- The WHO concludes that diesel exhaust exposure can cause cancer.
- A123 Systems develops an improved version of its lithium-ion battery cells, potentially lowering the cost of electric vehicles. (Technology Review)

13 June

- NASA successfully launches its NuSTAR X-ray space telescope.
- Scientists fully decode the bonobo genome.

14 June

- Swedish surgeons implant a patient with a working lab-grown vein created with the patient's own stem cells.
- Chinese researchers report that fields of GM crops can be beneficial to nearby non-GM plants by encouraging the proliferation of beneficial predator insects, which reduce the need for pesticides.
- dated to around 38,000 BC, making them the oldest examples of art yet discovered in Europe. Scientists theorize that the paintings may have been made by Neanderthals, rather than by *homo sapiens*.
- 2012 LZ1, a large near-Earth asteroid, passes by the planet. (*National Geographic*)
- Physical activity levels are declining worldwide, a trend that raises major health concerns, according to a new study. (Wiley)

15 June

- American scientists report a possible genetic link between diabetes and an increased risk ofAlzheimer's disease.
- NASA scientists report that Voyager 1 may be very close to entering interstellar space and becoming the first human-made object to leave the Solar System.

16 June

- China successfully launches the mannedShenzhou 9 spacecraft on a mission to theTiangong-1 space station module. Shenzhou 9 carries a crew of three, including China's first female astronaut, Liu Yang.
- The United States Air Force's robotic Boeing X-37B spaceplane returns to Earth after a successful 469-day orbital mission.(Space.com)
- 18 June – Researchers design a robot that can outperform humans in identifying a wide range of natural materials according to their textures. The invention paves the way for advancements in prostheses, personal assistive robots and consumer product testing. (Science Daily)
- 19 June – Men who are heavy tea drinkers may be more likely to develop prostate cancer, according to new research.

20 June

- Engineers build a working 50-gigapixel camera by synchronizing 98 tiny cameras in a single device. (PhysOrg)
- Renewable energy sources can fill 80 percent of American electricity demand by 2050, according to a new report.

21 June

- Scientists develop the world's first magnetic emulsion, based on magnetic surfactantmolecules. The invention could be used to clean up oil spills or even guide medicines through human blood vessels.
- 2.8-million-year-old climate data is reconstructed from sediment cores recovered from Lake El'gygytgyn, Russia. The data is considerably older than the 800,000-year-old ice cores found in the Antarctic. (Ars Technica) (Science)
- 23 June – 100 years after the birth of English cryptanalyst and computer pioneer Alan Turing, British experts cast doubt on the long-held notion that Turing's death was a suicide.

24 June

- China successfully completes its first manual orbital rendezvous, as the manned Shenzhou 9spacecraft docks with the Tiangong-1 module without the assistance of automated docking systems.
- Rates of sea level rise are increasing three-to-four times faster along portions of the U.S. Atlantic Coast than globally, according to a new U.S. Geological Survey report published in Nature Climate Change.(USGS)
- 26 June – The discovery of a new mineral, panguite, is announced, with samples found in theAllende meteorite.[37]

27 June

- Physicists collide gold ions together to produce a quark-gluon plasma, similar to that which existed in the first instant after the Big Bang. In doing so, they momentarily produce whatGuinness World Records reports is the highest man-made temperature ever: 4 trillion degrees Celsius (7.2 trillion degrees Fahrenheit).
- Scientists develop a new, high-precision method for modifying organic compounds with new active molecules, easing the development of new medicines. (Science Daily)
- Scientists associated with Johns Hopkins University report that early humans, such as*Australopithecus sediba*, may have lived in savannas but ate fruit and other foods from the forest – behavior similar to modern-day savanna chimpanzees.
- 28 June – An international team of astronomers discovers evidence that our Milky Way had an encounter with a small galaxy or massive dark matter structure perhaps as recently as 100 million years ago, and as a result of that encounter it is still ringing like a bell. (Queens University)
- 29 June 2012: scientists develop an fMRI brain scanner which allows paralyzed people to communicate using thought alone (fMRI images shown).

29 June

- American researchers demonstrate "paint-on" batteries, composed of active layers just 0.5 mm thick, capable of being spray-painted onto almost any surface. The technology could allow for the creation of lighter, more flexible electronic devices with a wide range of form factors.
- Dutch and German scientists unveil a new brain-scanning functional magnetic resonance imaging device that allows paralyzed people to type out words using only their thoughts. (LiveScience)
- Scientists discover the remains of an enormous, 3-billion-year-old impact near the Maniitsoq region of West Greenland, a billion years older than any other known collision on Earth. (Daily Galaxy)

July

- 1 July – The London Symphony Orchestra performs a musical composition created without human input by the Iamus computer. (*The Guardian*)

2 July

- American researchers use a 3D printer to build a sugar framework for growing an artificial liver. The sugar structure simulates a human vascular system, allowing artificial blood vessels to be grown to support the liver.
- Scientists use ultrasound to display 3D video on a modified liquid soap membrane, creating the world's thinnest transparent video display.
- Graphene sheets with precisely controlled pores can purify water more efficiently than existing methods, according to scientists at MIT.
- Scientists report that indirect evidence supporting the existence of the Higgs boson has been found.

3 July

- Researchers photograph the shadow of a single atom for the first time. (Science Daily)
- A study led by Kansas State University discovers a new quantum state, which allows three, but not two, atoms to stick together. (Science Daily)

4 July

- CERN physicists announce the discovery of the long-sought Higgs boson at a "5 sigma" level of significance, indicating that there is only one chance in 3.5 million that they are mistaken.
- American scientists develop an electrically-conductive gel that can easily be printed onto surfaces with a standard inkjet printer, allowing the rapid and simple production of a wide range of electronics. (Science Daily)
- Researchers have identified seven genetic markers linked with a woman's breast size, according to a new study.
- 4 July 2012: CERN scientists report the discovery of a particle with significant similarities to the Higgs boson (Higgs collision signature shown).

6 July

- UCLA engineers develop an ultra-high-speed optical microscope capable of quickly and reliably identifying cancer cells in human blood, paving the way for faster, cheaper and more reliable cancer diagnoses. (*R&D Magazine*)
- Scientists construct the most biologically-accurate robotic legs yet built, closely mimicking the motion of human leg muscles.
- 9 July – Scientists discover a new molecule that could potentially make teeth cavity-proof.(Gizmodo)

10 July

- A new biofuel production process created by Michigan State University researchers produces energy more than 20 times higher than existing methods. (Science Daily)
- In two new scientific articles, researchers refute NASA's claims that bacteria can successfully incorporate arsenic into their DNA. (Chemistry World)
- American scientists develop an electrode-based T-shirt capable of charging cellphones on the move. (BBC)
- It is reported that staying seated for long periods of time can reduce the human lifespan, unless mitigated by regular strenuous exercise. (*The Guardian*)

11 July

- New research from the University of Manchester indicates that graphene – already noted for its strength and conductivity – is capable of repairing its structure without human assistance by absorbing loose carbon atoms from its vicinity. (Gizmodo) (BBC)
- NASA's Cassini space probe images a huge gaseous vortex shrouding the south pole ofSaturn's moon Titan. (BBC)
- Virgin Galactic unveils its privately-developed satellite launch vehicle, LauncherOne, and confirms that its SpaceShipTwo spaceplane will soon begin powered test flights. (Virgin Galactic)
- The Hubble Space Telescope discovers a fifth moon of the dwarf planet Pluto.
- 13 July – A new survey shows that lemurs are far more threatened by extinction than previously thought.
- 15 July – It is reported that *Dracunculiasis*, also called guinea worm disease (GWD), is on the verge of being wiped out – becoming only the second human disease after smallpox to be eradicated. (*Scientific American*)
- 16 July – A major milestone in HIV prevention is reached, as the FDA approves an existing drug,Truvada, for uninfected adults at high risk of acquiring the disease. (Medical News Today) (FDA)

19 July

- An iceberg twice as large as Manhattan reportedly breaks off from Greenland's Petermann Glacier.
- A new nanoparticle coating with self-repairing surface functionality has been developed. The coating uses polymer stalks tipped with functional compounds to repair surface damage.

20 July

- A giant potable aquifer is discovered in Namibia, potentially offering enough drinkable water to sustain the country for centuries.
- Using mice, researchers have grown sweat glands from newly-identified stem cells. (Science Daily)
- 15 July 2012: The parasitic disease*Dracunculiasis* (extraction of a causative guinea worm pictured) is reportedly close to being eradicated.

23 July

- American scientists create an artificial jellyfishout of silicone and lab-grown heart cells. The construct is capable of swimming in a similar manner to real jellyfish when stimulated with an electric current.
- Researchers report that 14% of Britishstomach cancer cases could be prevented by reducing public salt intakes. (*Guardian*)

25 July

- Satellite data reveals that 97% of Greenland's ice is undergoing a thaw, the greatest level of ice melt ever recorded on the landmass.
- A rift in the Antarctic rock as deep as the Grand Canyon is increasing ice melt from the continent, researchers say.
- The International Space Station's Alpha Magnetic Spectrometer instrument reports that it has recorded 18 billion cosmic ray events since its installation in 2011.

26 July

- The rapid decline in Arctic sea ice is at least 70% due to man-made global warming, according to a new study, and may even be up to 95% caused by humans – a far higher proportion than scientists had previously thought. (The Guardian)
- Using complex algorithms, researchers have found that pop songs over the last 50 years have become increasingly loud and more bland in terms of the chords, melodies and types of sound used. (Reuters)
- Using a bone marrow transplant, two men have been "cured" of HIV infection. (NBC News)
- Ageing termite workers are discovered to use a toxic crystalline structure to "self-destruct", spraying enemy insects with toxins in defence of their termite mounds.

27 July

- In preparation for the beginning of the 2012 Summer Olympics in London, British telecom companies create a hugely expanded network infrastructure in the city, including over 1,000 new Wi-Fi hotspots and thirty additional mobile phone masts.
- Swiss scientists claim that Earth's Moon may have been formed in a glancing "hit and run" collision with a large, fast-moving protoplanet.
- Japanese women have fallen behind Hong Kong citizens in life expectancy for the first time in 25 years, dropping from 86.3 years in 2010 to 85.9 years in 2011. This was partly due to theearthquake and tsunami of March 2011, according to a report by Japan's health ministry.

Hong Kong marks 15 years since Chinese handover

Hong Kong has begun marking the 15th anniversary since its handover from UK to Chinese control. Chinese President Hu Jintao is leading the main events. He earlier swore in businessman CY Leung as the territory's new leader.
Small groups of protesters have tried to disrupt his visit.
One of their main complaints is that the system used to choose Hong Kong's leader is designed to install Beijing's choice.
A so-called electoral college of 1,200 business leaders and other influential citizens, mostly loyal to Beijing, chooses the leader.
At the swearing-in ceremony, Mr Hu offered "warm congratulations" to Mr Leung and his team and described the 15th anniversary as a "joyous occasion". He reiterated Beijing's commitment to the "one country, two systems" policy whereby Hong Kongers are allowed many more political freedoms than Chinese people in the mainland.
While many Hong Kongers were happy to join in the celebrations...
A lone heckler stood and shouted at the Chinese president during the speech, referring to the 1989 Tiananmen Square massacre, but he was quickly bundled out of the harbourfront building.
The ceremony took place under tight security. But on Saturday police had to shield the president from demonstrators, and officers used pepper spray to disperse crowds who were demanding an investigation into the death in China of a Tiananmen activist, Li Wangyang, earlier this year.
It is a far cry from Mr Hu's last visit five years ago, when he toured Hong Kong in a blaze of pre-Olympic glory, says our correspondent.
His visit comes as public confidence in the Beijing government has fallen to a new low. People are unhappy with record property prices, an increasing wealth gap, a lack of democracy and a string of political scandals.
An annual protest in support of human rights is due to take place later, with tens of thousands expected to attend.
Hong Kong, a British colony until 1997, has a comparatively high degree of autonomy from Beijing. But China's leaders in Beijing have resisted public pressure for full democracy in the city.

OPINION - EDITORIALS

SOYUZ SPACE CAPSULE LANDS IN KAZAKHSTAN

C.S. Rajput

A Soyuz space capsule carrying a 3-man multinational crew has touched down on the southern steppes of Kazakhstan, bringing an end to their 193-day mission to the International Space Station.

Around a dozen recovery helicopters zeroed into the vast uncultivated land mass Sunday afternoon, where NASA astronaut Donald Pettit, Russia's Oleg Kononenko and Dutchman Andre Kuipers landed in their Russian-made capsule.

The voyage from the space station started 3 1/2 hours earlier, when it undocked and began a slow, gentle drift away. It made a perfect landing in the still and summery weather at 2:14 pm local time (08:17 GMT), right on schedule.

Russians Gennady Padalka and Sergei Revin and U.S. astronaut Joseph Acaba are expected to remain onboard the space station for a further three months.

Soyuz is a series of spacecraft initially designed for the Soviet space programme by the Korolyov Design Bureau in the 1960s, and still in service today. The Soyuz succeeded the Voskhod spacecraft and was originally built as part of the Soviet Manned Lunar programme.

The Soyuz spacecraft is launched by the Soyuz rocket, the most frequently used and most reliable Russian launch vehicle to date. The Soyuz rocket design is based on the Vostok launcher, which in turn was based on the 8K74 or R-7A Semyorka, a Soviet intercontinental ballistic missile. Soyuz spacecraft are launched from the Baikonur Cosmodrome in Kazakhstan.

The first unmanned Soyuz mission was launched November 28, 1966; the first Soyuz mission with a crew (Soyuz 1) was launched April 23, 1967, but the cosmonaut on board, Vladimir Komarov, died during the flight's crash-landing. Soyuz 2 was an unmanned mission, and Soyuz 3, launched on October 26, 1968, was the first successful Soyuz manned mission. The only other fatal mission, Soyuz 11, killed the crew of three also during re-entry due to premature cabin depressurization. Despite these early fatalities, Soyuz is presently widely considered the world's safest, most cost-effective human spaceflight system as demonstrated by its unparalleled length of operational history.

Soyuz spacecraft were used to carry astronauts to and from Salyut and later Mir Soviet space stations, and are now used for transport to and from the International Space Station (ISS). At least one Soyuz spacecraft is docked to ISS at all times for use as an escape craft in the event of an emergency.

The Soyuz spacecraft is intended to be replaced by the six-person Prospective Piloted Transport System.

The manned Soyuz spacecraft can be classified into design generations.

Soyuz 1 through Soyuz 11 (1967–1971) were first-generation vehicles, carrying a crew of up to three without spacesuits and distinguished from those following by their bent solar panels and their use of the Igla automatic docking navigation system, which required special radar antennas. This first generation encompassed the original Soyuz 7K-OK and the Soyuz 7K-OKS for docking with the Salyut 1 space station. The probe and drogue docking system permitted internal transfer of cosmonauts from the Soyuz to the station.

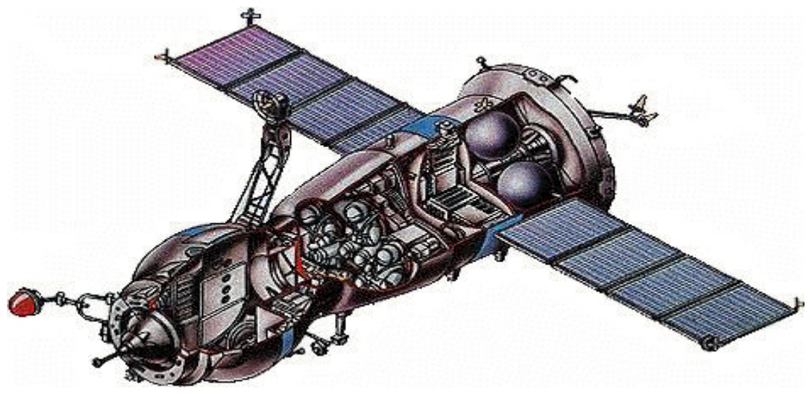
The Soyuz 7K-L1 was designed to launch a crew from the Earth to circle the moon, and was the primary hope for a Soviet circumlunar flight. It had several test flights in the Zond program from 1967–1970 (Zond 4 to Zond 8), which produced multiple failures in the 7K-L1's re-entry systems. The remaining 7K-L1s were scrapped. The Soyuz 7K-L3 was designed and developed in parallel to the Soyuz 7K-L1, but was also scrapped.

The next manned version of the Soyuz was the Soyuz 7K-OKS. It was designed for space station flights and had a docking port that allowed internal transfer between spacecraft. The Soyuz 7K-OKS had two manned flights, both in 1971. Soyuz 11, the second flight, depressurized upon re-entry, killing its three-man crew.

The second generation, called Soyuz Ferry or Soyuz 7K-T, comprised Soyuz 12 through Soyuz 40 (1973–1981). It was developed out of the military Soyuz concepts studied in previous years and was capable of carrying 2 cosmonauts with Sokol space suits (after the Soyuz 11 accident). Several models were planned, but none actually flew in space. These versions were named Soyuz 7K-P, Soyuz 7K-PPK, Soyuz R, Soyuz 7K-VI, and Soyuz OIS (Orbital Research Station).

The Soyuz 7K-T/A9 version was used for the flights to the military Almaz space station.

Soyuz 7K-TM was the spacecraft used in the Apollo-Soyuz Test Project in 1975, which saw the first and only docking of a Soyuz spacecraft with an Apollo spacecraft. It was also flown in 1976 for the earth-science mission,



Soyuz 22. Soyuz 7K-TM served as a technological bridge to the third generation.

The third generation Soyuz-T spacecraft (1976–1986) featured solar panels allowing longer missions, a revised Igla rendezvous system and new translation/attitude thruster system on the Service module. It could carry a crew of three, now wearing spacesuits.

The Soyuz-TM crew transports were fourth generation Soyuz spacecraft, and were used from 1986 to 2003 for ferry flights to Mir and the International Space Station.

Soyuz TMA features several changes to accommodate requirements requested by NASA in order to service the International Space Station, including more latitude in the height and weight of the crew and improved parachute systems. It is also the first expendable vehicle to feature "glass cockpit" technology. Soyuz-TMA looks identical to a Soyuz-TM spacecraft on the outside, but interior differences allow it to accommodate taller occupants with new adjustable crew couches.

Soyuz TMA-M (2010/....)

In 2004, Russian space officials announced that they intended to replace Soyuz with the new Kliper and Parom spacecraft by early 2011. Since then, Kliper appears to have been indefinitely postponed due to lack of government funding. It has since been announced that the Soyuz will receive an upgrade to make it suitable for up to one year in space, as well as new digital interior displays and updated docking equipment. This new version, known as Soyuz TMA-M, debuted on 7 October 2010 with the launch of TMA-01M, carrying the ISS Expedition 25 crew.

Soyuz ACTS (2012/....)

Soyuz ACTS (Advanced Crew Transportation System), also known as Soyuz-K, is a proposed version of the Soyuz design capable of achieving lunar orbit. The upgrades could include a new habitation module developed by the European Space Agency. A novel, rocket-based precision landing system may also be implemented. Missions could be launched from Baikonur or Guiana Space Centre.

Reentry Module

Soyuz spacecraft's Descent Module

The reentry module is used for launch and the journey back to Earth. Half of the reentry module is covered by a heat-resistant covering to protect it during re-entry; this half faces the Earth during re-entry. It is slowed initially by the atmosphere, then by a braking parachute, followed by the main parachute which slows the craft for landing. At one meter above the ground, solid-fuel braking engines mounted behind the heat shield are fired to give a soft landing. One of the design requirements for the reentry module was for it to have the highest possible volumetric efficiency (internal volume divided by hull area). The best shape for this is a sphere, but such a shape can provide no lift, which results in a purely ballistic reentry. Ballistic reentries are hard on the occupants due to high deceleration and cannot be steered beyond their initial deorbit burn. That is why it was decided to go with the "headlight" shape that the Soyuz uses—a hemispherical forward area joined by a barely angled conical section (seven degrees) to a classic spherical section heat shield. This shape allows a small amount of lift to be generated due to the unequal weight distribution. The nickname was thought up at a time when nearly every headlight was circular. Small dimensions of the reentry module led to it having only two-man crews after the death of the Soyuz 11 crew. The later Soyuz T spacecraft solved this issue. Internal volume of Soyuz SA is 4 m^3; 2.5 m^3 is usable for crew (living space).

TIGER WOODS PASSES JACK NICKLAUS WITH 74TH PGA TOUR WIN

S.S. Rajput

No, not for the most career victories in major championships, but for second in career PGA Tour wins. Woods won for the 74th time as he held off Bo Van Pelt on the back nine of the Blue Course at scorching Congressional Country Club to win the AT&T National on Sunday. Woods trails Sam Snead, who had 82 wins.

RESULTS: AT&T National leaderboard

With a final-round, 2-under-par 69, Woods beat Van Pelt by two shots and became the first to win three times on the PGA Tour this season. It is the 12th season in which Woods has won at least three times. Woods has won three of his last seven starts, and his 30-month winless drought on Tour after a late-night car accident in November 2009 is becoming a distant memory.

"Pretty much everything," Woods said when asked which parts of his game have improved this year. "I remember there was a time when people were saying I could never win again. That was, I think, what, six months ago? "Well, here we are."

Woods, who went 41 holes without a bogey until he made 6 on the par-5 16th, took the outright lead by sinking a 6-foot par putt on the 17th as Van Pelt, who was trying to win for the second time in 310 starts on the Tour, made bogey. Woods made par on the 18th to finish at 8 under. Van Pelt shot 71. Adam Scott (67) finished third.

Woods, despite the win, remained No. 4 in the world golf rankings behind No. 1 Luke Donald, No. 2 Rory McIlroy and No. 3 Lee Westwood. But Van Pelt, after playing the final 36 holes with Woods, said he knows who No. 1 is. "No offense to any of those other guys, but I think (Woods) is the only guy to win three tournaments on Tour this year, right?" Van Pelt said. "On three different golf courses. And he was leading the U.S. Open after two days. So I'd say that he's playing the best golf in the world right now."

Woods next plays this week in the Greenbrier Classic in West Virginia. After an off week, he will resume his march toward Nicklaus' major record on July 19 in the British Open at Royal Lytham & St. Annes in England.

So, is he back? Has he returned to his pre-scandal form and is once again the best player in the world after going winless on the PGA Tour for 30 months, or does he have to win a major championship? And was his switch to coach Sean Foley the right move?

"Well, a lot of media people didn't think I could win again, and I had to deal with those questions for quite a bit," Woods said. "It was just a matter of time. I could see the pieces coming together. Sean and I were working, and we see what was coming, and we can see the consistency, and it's just a matter of time. Just stay the course, and if you look at my ball-striking so far this year, it's gotten more and more consistent.

"Give me a little time, and I feel like this is what I can do."

Van Pelt stayed with Woods shot-for-shot the final two rounds — until the final three holes. Van Pelt, who didn't buckle under the pressure or in the heat of the day, bogeyed 16, 17 and 18 Sunday. Still, while disappointed, he liked how he played and will pack some confidence in his luggage as he heads home for two weeks knowing he went toe-to-toe with the best.

"He's an amazing player. That's why you travel 30 weeks a year, why you get up in the morning and you make the sacrifices that you do, is to have the opportunity to play the best player in the world in the final round with a chance to win a tournament," Van Pelt said. "It seemed like he kept his rhythm for two days, and I think whenever you're working on something in your golf swing, that's the hardest thing to mesh, is to mesh the physical with the rhythm. He's always had beautiful rhythm, but it's hard for any player when you're trying to change something to stay in that rhythm.

"I think that just goes to show you he's getting way more comfortable with what he's doing golf-swing wise. That's because his rhythm stayed the same for 36 holes under the heat. I think he's got to be pleased with that."

Not only did Woods conquer the rugged Blue Course, where only 14 players finished under par, but the players dealt with a week of heat that saw temperatures near 100 and heat indexes soar by the century mark. As well, he dealt with an eerie and quiet third round to move within one shot of the lead after 54 holes. Following a massive storm that ripped through the Washington, D.C., metro area Friday night, leaving in its wake power outages, property damage and a great number of uprooted trees, fans were not allowed on the course Saturday due to safety concerns.

Officials cleaned up the course outside the ropes in time for play on Saturday, and Woods and the field played in front of a handful of media, security and essential volunteers.

Woods shot a third-round 67 on Saturday in front of tens of people, rather than the usual thousands.

On Sunday, the thousands were back, and they were loud.

"What an incredible week," said Woods, the host of the AT&T National and a winner for the second consecutive time it has come to Congressional.

"Everybody, thank you for being patient with us. Yesterday was a silent day. I think everyone saved up for today. What an atmosphere to play in front of."

As for being back, Woods said it's up to the news media to determine, with or without a major championship victory since his late-night car crash in November 2009. All he'll do is keep on working.

"I think that for me I just go out there and I give it everything I have each and every day I play," Woods said. "Some days it's better than others. We are all human. I try everything I possibly can and give everything I possibly can, and sometimes I don't quite hit the ball well or hit the ball well and not putt well and do everything right and not chip well. Welcome to golf.

"It's a game that tests our patience. I've been out here a long time, and I understand what it's like to have to grind because each shot means something."

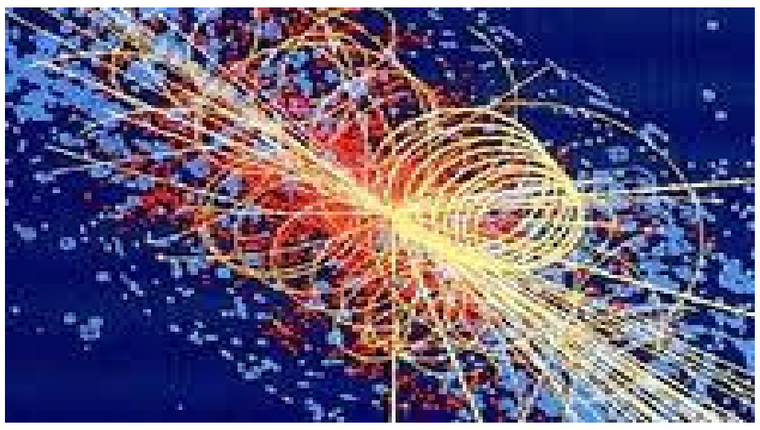
EDITORIAL

DEVELOP INDIA

English Weekly Newspaper
Year 4, Vol. 1, Issue 204, 1-8 July, 2012

THE 'GOD' OF ALL PARTICLES IS HERE, ALMOST

In a 'quantum' leap in physics, scientists claimed to have spotted a sub-atomic particle "consistent" with the Higgs boson or 'God particle', believed to be a crucial building block that led to the formation of the universe.Scientists at Switzerland's CERN research centre made the historic announcement, in a major milestone in the 50-year search for the elusive Higgs, that is believed to have been responsible for lending mass to the particles that eventually formed the stars and the planets after the Big Bang 13.7 billion years ago. "We have reached a milestone in our understanding of nature," said CERN Director General Rolf Heuer in Geneva on Wednesday. "The discovery of a particle consistent with the Higgs boson opens the way to more detailed studies, requiring larger statistics, which will pin down the new particle's properties, and is likely to shed light on other mysteries of our Universe," Heuer said. Joe Incandela, the leader of CMS, one of the two teams at the world's biggest atom smasher, told a packed audience of scientists at the European Centre for Nuclear Research (CERN) that the data has reached the level of certainty needed for a "discovery". But he did not yet confirm that the new particle is indeed the tiny and elusive Higgs boson, which is believed to give all matter in the universe size and shape. A second team of physicists ATLAS also claimed they have observed a new particle, probably the elusive Higgs boson. "We observe in our data clear signs of a new particle, at the level of 5 sigma, in the mass region around 126 GeV," said ATLAS experiment spokesperson Fabiola Gianotti, "but a little more time is needed to prepare these results for publication". A five sigma, that translates into over 99 percent certainty of discovery, is required before a particle is declared as being discovered. Plus, the Higgs is believed to lurk at the lower ends of the energy spectrum — between 120 and 140 GeV. The particle was hypothesized in 1964 by six physicists, including Briton Peter Higgs, whose name it came to bear. The announcements on Wednesday was made to huge applause by scientists including Higgs. Higgs said in a statement "I never expected this to happen in my lifetime and shall be asking my family to put some champagne in the fridge."



CERN said the particle they found at LHC is "consistent with (the) long-sought Higgs boson," but more data was needed to identify the find. Boson, on the other hand, is derived from the surname of Indian physicist, Satyendra Nath Bose, a contemporary of Albert Einstein. Bose's work on Quantum Mechanics was adopted by Einstein, who extended it to the concept of the Bose-Einstein condensate — a dense collection of bosons, sub-atomic particles with integer spin. For 50 years, finding the missing Higgs was one of the most puzzling riddles of Quantum Physics, and led scientists to set up the 3 billion euros Large Hadron Collider, the world's biggest and most powerful particle accelerator. The 27-km looped pipe set up in a tunnel 100 metres underground on the Switzerland-France border created artificially simulated conditions similar to the Big Bang, triggering collisions between accelerated particles. In the LHC experiment, two beams of protons are fired in opposite directions to smash millions of particles into each other every second, a set up that recreates conditions that existed a fraction of a second after the Big Bang. This is the time when the Higgs field is believed to have come into play. The Higgs particles are believed to have transferred mass to the millions of other particles in the process of creation of the universe. The scientists then look into conditions that might point to the existence of the mysterious particle. As the Higgs cannot be seen, its existence is only to be inferred from circumstances. The Standard Model — a hypothesis devised in the 1970s to explain the events after the Big Bang — identifies the building blocks for matter. Finding the Higgs particle would validate the Standard Model that is a hugely successful theory but has several gaps, the biggest of which is why some particles have mass but others do not. Without the Higgs boson, the universe could not exist, as everything would behave as light does, floating freely and not combining with anything else, the scientists believe. CERN's data was kept closely guarded but just before the official announcement a video from the CERN centre that mistakenly found its way on the web, appeared to have given away the secret. "We've observed a new particle," Incandela was seen as saying in the video that appeared on the Science News website before being picked up elsewhere.

Finland to block ESM secondary market bond buying

Finland will block the euro zone's permanent bailout fund from buying government bonds in the open market, the Finnish government said on Monday, while The Netherlands also indicated opposition to the bond-buying idea.

Comments suggesting a rough time ahead for the idea followed euro zone leaders' agreement at a summit last week to take steps to shore up their monetary union and bring down Spanish and Italian borrowing costs.

They gave few details on how they might use the temporary EFSF and permanent ESM rescue funds to buy bonds.

A Dutch finance ministry spokesman said on Monday his government did not like the bond-buying idea but did not explicitly say the Netherlands would block the plan, saying only that it would evaluate purchases on a case-by-case basis.

"The prime minister said on Friday he is not in favour of buying up bonds," said Niels Redeker, spokesman for the Dutch finance ministry. "Using the existing instruments to buy up bonds will be expensive and can only be done if there is unanimity (between member states). That means the Netherlands would need to vote in favour."

On the insistence of Spain and Italy, now in the eye of the euro debt storm, euro zone leaders decided last week to soften slightly the terms on which countries that observe EU rules and recommendations can get euro zone help to lower market premiums.

The agreement after last week's summit said interventions on bonds markets by the ESM and EFSF rescue funds would be carried out by the European Central Bank, acting as an agent for the funds. But ESM bond buying on the open market would require unanimous approval from the 17 euro countries and that seems unlikely because Finland and the Netherlands are against it, the Finnish government said a report to a parliamentary committee.

"Finland finds it an inefficient way to stabilise markets," said a senior Finnish government official.

"Due to intervention of Finland and, among others, the Netherlands, the possibility of ESM operations in the secondary markets was blocked," the government said in the report, to parliament's influential Grand Committee. It was not immediately clear which other governments were opposed to the move.

Facebook to Remain on Nasdaq

Facebook Inc. executives have decided to keep the company's stock listing on the Nasdaq Stock Market, despite lingering frustration with the exchange's bungling of its widely anticipated initial public offering.

They determined a move would further drain confidence in the company's battered shares.

Facebook executives have quietly blamed Nasdaq OMX Group Inc. for the technical glitches that marred the stock's May 18 debut.

While the company considered a switch in the days after the IPO, Facebook had decided by mid-June to stay put for now, according to people familiar with the company's plans.

The NASDAQ Stock Market, also known as simply the NASDAQ, is an American stock exchange. "NASDAQ" originally stood for "National Association of Securities Dealers Automated Quotations". It is the second-largest stock exchange by market capitalization in the world, after the New York Stock Exchange. As of January 25, 2011, there are 2,711 listings, with a total capitalization of over $4.5 trillion. The NASDAQ has more trading volume than any other electronic stock exchange in the world. The exchange is owned by NASDAQ OMX Group, which also owns the OMX stock exchange network.

NASDAQ was founded in 1971 by the National Association of Securities Dealers (NASD), who divested themselves of it in a series of sales in 2000 and 2001. It is owned and operated by the NASDAQ OMX Group, the stock of which was listed on its own stock exchange beginning July 2, 2002, under the ticker symbol NASDAQ: NDAQ. It is regulated by the Financial Industry Regulatory Authority (FINRA), the successor to the NASD.

When the NASDAQ stock exchange began trading on February 8, 1971, it was the world's first electronic stock market. At first, it was merely a computer bulletin board system and did not actually connect buyers and sellers[6].

The NASDAQ helped lower the spread (the difference between the bid price and the ask price of the stock) but somewhat paradoxically was unpopular among brokerages because they made much of their money on the spread.

NASDAQ was the successor to the over-the-counter (OTC) system of trading. As late as 1987, the NASDAQ exchange was still commonly referred to as the OTC in media and also in the monthly Stock Guides issued by Standard & Poor's Corporation.

Over the years, NASDAQ became more of a stock market by adding trade and volume reporting and automated trading systems. NASDAQ was also the first stock market in the United States to start trading online. Nobody before them had ever done this, highlighting NASDAQ-traded companies (usually in technology) and closing with the declaration that NASDAQ is "the stock market for the next hundred years." Its main index is the NASDAQ Composite, which has been published since its inception. However, its exchange-traded fund tracks the large-cap NASDAQ-100 index, which was introduced in 1985 alongside the NASDAQ 100 Financial Index.

Until 1987, most trading occurred via the telephone, but during the October 1987 stock market crash, market makers often didn't answer their phones. To counteract this, the Small Order Execution System (SOES) was established, which provides an electronic method for dealers to enter their trades. NASDAQ requires market makers to honor trades over SOES.

In 1992, it joined with the London Stock Exchange to form the first intercontinental linkage of securities markets. NASD spun off NASDAQ in 2000 to form a publicly traded company, the NASDAQ Stock Market, Inc.

In 2006 NASDAQ changed from stock market to licensed national exchange.

On November 8, 2007, NASDAQ bought the Philadelphia Stock Exchange (PHLX) for US$652 million. PHLX is the oldest stock exchange in America—having been in operation since 1790.

To qualify for listing on the exchange, a company must be registered with the United States Securities and Exchange Commission (SEC), have at least three market makers (financial firms that act as brokers or dealers for specific securities) and meet minimum requirements for assets, capital, public shares, and shareholders.

In February, 2011, in the wake of an announced merger of NYSE Euronext with Deutsche Börse, speculation developed that Nasdaq and IntercontinentalExchange (ICE) could mount a counter-bid of their own for NYSE. Nasdaq could be looking to acquire the American exchange's cash equities business, ICE the derivatives business. As of the time of the speculation, "NYSE Euronext's market value was $9.75 billion. Nasdaq was valued at $5.78 billion, while ICE was valued at $9.45 billion." Late in the month, Nasdaq was reported to be considering asking either ICE or the Chicago Merc to join in what would probably have to be, if it proceeded, an $11–12 billion counterbid.

EASDAQ (European Association of Securities Dealers Automatic Quotation System) founded originally as a European equivalent to NASDAQ, it was purchased by NASDAQ in 2001 and became NASDAQ Eur03, it shut down operations as a result of the burst of the dot-com bubble. In 2007, NASDAQ Europe was revived as Equiduct and is currently operating under Börse Berlin.

UK to launch parliamentary inquiry into Libor scandal

Britain's parliament will investigate an interest-rate fixing scandal that has rocked London's banking sector, in a wide-ranging inquiry which a source said would encompass issues such as culture and standards in the industry.

"I want us to establish a full parliamentary committee of inquiry involving both houses," Prime Minister David Cameron told parliament on Monday, stopping short of giving further details on its full remit.

"This committee will be able to take evidence under oath, it will have full access to papers and officials and ministers including ministers and special advisers from the last government."

The government has come under increasing pressure to take a closer look at the bank sector, which has felt the force of public anger since taxpayers bailed out several banks during the 2008-9 financial crisis.

That pressure intensified last week when Barclays was fined for trying to manipulate the London Interbank Offered Rate (Libor), used worldwide as a benchmark for prices on about $350 trillion of derivatives and other financial products.

The opposition Labour Party had threatened to trigger a vote in parliament on whether there should be a judge-led independent inquiry into the banking sector's excesses, culture and blunders.

The UK source said the investigation, to be outlined by finance minister George Osborne at around 1530 GMT, would be "wider than a narrow review into Libor and criminal sanctions ... (and) will encompass culture and sanctions."

The government is likely to come under fire for not establishing an independent inquiry - similar to the current Leveson inquiry which is investigating standards in the media.

However, some ministers may be wary of any investigation which could make their own planned overhaul of the industry's current regulatory regime look inadequate.

While it is politically expedient to "bash the bankers," the Conservative-led government will also be wary of attacking a crucial sector in Britain's economy which is still struggling to function properly after the credit crunch.

Labour leader Ed Miliband has called on Barclays Chief Executive Bob Diamond to resign after the bank's involvement in the interest rate-fixing scandal.

That case is likely to be just the tip of the iceberg, with several other banks under scrutiny for trying to manipulate Libor.

Barclays Chairman Marcus Agius fell on his sword in an effort to stem the scandal, but critics say that is not enough and that the whole industry needs to change.

"I want to see a new code of conduct for bankers ... For all we know, some of the people who were part of this scandal might still be working in other banks," Miliband told ITV on Monday.

"There also needs to be that full inquiry, that full public inquiry into exactly what has happened throughout our banking industry."

Report describes brutal torture in Syria

"Basat al reeh." "Dulab." "Falaqa." They are Arabic names for torture techniques that send chills through the hearts of Syrians, particularly the untold thousands who are believed to have been detained during the uprising of the last 15 months.

"We suffered torture all the time," said Tariq, an opposition activist from the port city of Latakia who spent 40 days in solitary confinement in spring 2011. He told CNN he endured "dulab," in which torturers force the prisoner's legs and head into a car tire before beating them, and "basat al reeh," in which the prisoner is tied to a board and beaten.

"They threw cold water on our naked bodies and they also urinated on us ... they are really good at what they do," said Tariq, who now is in Turkey helping mobilize men and weapons to rebels inside Syria.

Illustrations from the Human Rights Watch report show torture techniques called "basat al reeh," left, and "dulab."

The group commissioned a Syrian artist for the sketches based on descriptions from former detainees and defectors.

According to a report published Tuesday by the New York-based human rights organization Human Rights Watch, the Syrian government has been carrying out "a state policy of torture" as part of an effort to crush dissent throughout the unrest.

Human Rights Watch identified 27 detention centers across Syria where torture was systematically inflicted on prisoners, according to testimonies from more than 200 former prisoners and security officers who defected.

Rights group cites 'state policy of torture' in Syria as stream of defectors reported

"It is a network of torture chambers that the authorities are using to intimidate and punish people who dare to oppose the government," said Ole Solvang, a Human Rights Watch researcher.

"Nobody knows how many people are being detained, how many are being tortured," he added. "But one local activist group has collected names of 25,000 people in detention. The numbers are absolutely staggering."

Human Rights Watch titled its report "The Torture Archipelago" in an overt attempt to link the Syrian prison system to the notorious Siberian gulags described in Alexander Solzhenitsyn's Soviet dissident novel "The Gulag Archipelago."

The system is being run by at least four intelligence agencies collectively referred to as mukhabarat, or secret police, the report says. Those agencies include the Department of Military Intelligence, the Political Security Directorate, the General Intelligence Directorate and the Air Force Intelligence Directorate.

Syrian activist: It's hell over here

"The authorities also established numerous temporary unofficial holding centers in places such as stadiums, military bases, schools and hospitals where the authorities rounded up and held people during massive detention campaigns before transporting them to branches of the intelligence agencies," Human Rights Watch reported.

The Syrian government routinely denies allegations of such abuses. Recently, Syria's ambassador to the United Nations walked out of a meeting of the U.N. Human Rights Council in protest after the Syrian regime was accused of committing crimes against humanity. But the eyewitness accounts gathered by Human Rights Watch as well as by CNN throughout the 15-month crisis are overwhelming.

Though most of the torture victims in Human Rights Watch's report were men ranging from 18 to 35 years of age, the organization also interviewed women, senior citizens and children who said they were tortured.

"They electrocuted me on my stomach, with a prod. I fell unconscious," said Hossam, a 13-year-old boy who told Human Rights Watch he was detained in the town of Tal Kalakh in May 2011.

"When they interrogated me the second time, they beat me and electrocuted me again.

"The third time, they had some pliers and they pulled out my toenail. They said, 'Remember this saying, always keep it in mind: We take both kids and adults, and we killed them both.' I started to cry, and they returned me to the cell."

More than a dozen Syrians who described enduring beatings, electrocution and horribly crowded conditions in prison cells.

A dentist who was arrested for secretly providing medical care to wounded demonstrators told CNN in February that he endured beatings, near-drownings in buckets of toilet water and electric shocks to his genitals during 45 days in a prison cell that was built for 60 people but held 130 prisoners.

"They started beating me and asked me, 'Who did you help?' " the dentist recounted. "I said, 'I helped an old lady.' Then they started beating me even harder."

The accounts of brutality match those shared by a former mukhabarat officer who said he was repeatedly ordered to torture prisoners until he defected and fled to Turkey with his family last year.

"Whatever we wanted the prisoner to say, he would say. "We took their fingernails out with pliers and we made them eat them. We made them suck their own blood of the floor," the officer added.

The officer's descriptions of the detention facility where he worked in Damascus matched the descriptions of a former prisoner who had spent months incarcerated in the same building. That former prisoner's finger was still mangled after it was crushed during a torture session in the Damascus facility.

We took their fingernails out with pliers and we made them eat them. We made them suck their own blood of the floor.

Former Syrian secret police officer

The officer said prison guards used grim humor during their interrogation sessions.

"We would bring the prisoner and put him in the 'basat al reeh' or the 'dulab' and start beating him," he said. "He would scream 'for God's sake,' and we would say OK, bring the 'for God's sake' stick. He would scream 'for my mother, please" or 'for [the prophet] Mohammed.' And we would bring the 'my mother' stick and the 'for Mohammed' stick. Every stick had a name."

"At the core, the crisis in Syria is about human rights violations," said Solvang, who has traveled into Syria to gather evidence and testimony for "Torture Archipelago." "That is what is driving the crisis and driving people to take up arms."

The Human Rights Watch report includes satellite maps showing the exact location of detention centers. It also lists the names of commanders of individual detention centers.

Human Rights Watch is urging the U.N. Security Council to refer Syrian officials to the International Criminal Court for alleged crimes against humanity.

"Those who commit these abuses do so with complete impunity, thinking they will never have to answer for this," Solvang said. "By publishing these names, we are really putting them on notice, saying they will have to answer for these violations."

Pakistan to reopen supply lines to Nato Afghan forces

Pakistan will reopen crucial supply routes to Nato-led forces in Afghanistan after the US apologised for killing 24 of its soldiers in November, Washington and Islamabad have said.

US Secretary of State Hillary Clinton said: "We are sorry for the losses suffered by the Pakistani military."

The Pakistani Taliban promptly threatened to attack the convoys.

The routes are increasingly important as Nato prepares to withdraw all combat troops from Afghanistan in 2014.

The row over the supply lines has been hugely damaging to relations between Pakistan and the US.

The dispute began in November last year when two dozen Pakistani soldiers were killed as US air strikes hit two posts on the Afghan border.

At the time, Afghan officials said that Nato forces had been retaliating for gunfire from the Pakistani side of the volatile border, but Pakistan rejected that claim.

Mrs Clinton made the announcement in Washington after talks by phone with her Pakistani counterpart, Hina Rabbani Khar.

"I offered our sincere condolences to the families of the Pakistani soldiers who lost their lives," she said in the statement.

"Foreign Minister Khar and I acknowledged the mistakes that resulted in the loss of Pakistani military lives.

"We are sorry for the losses suffered by the Pakistani military. We are committed to working closely with Pakistan and Afghanistan to prevent this from ever happening again."

Islamabad confirmed it would not raise transit fees when the lines re-open.

US officials say the existing charge of $250 (£160) per truck will not change - Washington had baulked at a Pakistani demand for $5,000 per container to let supplies flow again.

Washington had resisted saying sorry as there is deep anger among Americans about the death of US soldiers in Afghanistan from attacks by militant groups with alleged connections to Pakistan's ISI intelligence agency.

Nato has 100,000 personnel in Afghanistan. How will it get them out?

Shortly before Tuesday's announcement, Pakistani Prime Minister Raja Pervez Ashraf said the issue had damaged his country's relations with the US, as well as the 28 other Nato member states.

During the dispute the US reduced its reliance on Pakistan by using a more costly route through Central Asia.

US Defence Secretary Leon Panetta welcomed Pakistan's decision on Tuesday.

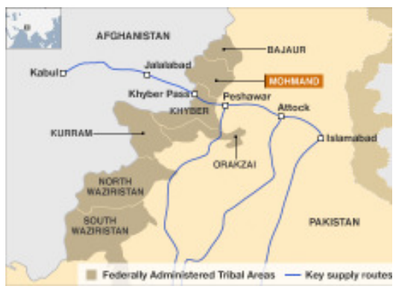
"We remain committed to improving our partnership with Pakistan and to working closely together as our two nations confront common security challenges in the region," he said in a statement.

General John Allen, the US commander of Nato troops in Afghanistan, said the decision to open the supply lines was "a demonstration of Pakistan's desire to help secure a brighter future for both Afghanistan and the region at large".

Gen Allen had held talks in Islamabad twice in the last six days.

In April, Pakistani lawmakers approved new guidelines for ties with the US, but demanded that the country provide an unconditional apology for the November attack, and stop drone strikes.

The standoff cast a diplomatic shadow over a Nato summit two months ago in Chicago where correspondents said US President Barack Obama snubbed his Pakistani counterpart, Asif Ali Zardari.



Relations between the US and Pakistan were severely strained for much of last year, reaching crisis levels following the killing of al-Qaeda leader Osama Bin Laden by US forces in Pakistan in May.

US-Pakistan: Uneasy allies

30 Sept 2010: Nato helicopters kill two Pakistani soldiers - border closure follows

22 April 2011: Supplies to Nato in Afghanistan halted for three days in protest over drone attacks

2 May: US announces Bin Laden's death and says Pakistan not warned of raid

26 Nov: Nato air strikes on checkpoints on Afghan border kill 24 Pakistani troops

27 Nov: Pakistan closes Nato supply routes to Afghanistan

12 Dec: Pakistan's prime minister says neither country trusts the other

Jan-Jun 2012: Drone strikes kill dozens of militants on the Afghan/Pakistan border, with a brief hiatus during April

3 July: US confirms supply routes are to be reopened after apologising to Pakistan for troop deaths

Plagiarism charges are political game: Romanian PM

Romanian Prime Minister Victor Ponta said on Tuesday he would not resign over accusations of plagiarism against him, accusing the country's president of orchestrating them as part of their political feud.

Plagiarism charges have forced several European politicians to step down in recent months, including Hungary's president, a German defense minister who was tipped as a possible successor to Chancellor Angela Merkel and even Ponta's nomination as Romanian education minister. But Ponta, a leftist who took power in May on a mandate to keep Romania's 5 billion euro ($6.3 billion) International Monetary Fund-led aid deal on track, said he had done nothing to harm his country. As he defended himself, he sought to quickly remove any uncertainty over his position that could hurt Romania's currency and borrowing costs.

"Have I done something against Romania's interests as prime minister? Why should I resign? No way," Ponta told a news conference, a day after magazine Nature published the plagiarism accusations.

Nature said it had seen documents indicating that more than half of Ponta's 432-page, 2003 Romanian-language thesis on the International Criminal Court for his doctorate at the University of Bucharest consisted of duplicated text.

Ponta, who leads the governing Social Liberal Union (USL), is favorite to win a majority in a November election.

Uncertainty over his position and the government could knock Romanian asset prices, already under pressure after it failed to sell one-year debt this week and with the leu currency close to all time lows.

"At first sight the leu should have seen a tiny loss today, but so far it's been pretty stable," said a Bucharest trader. "But the leu could weaken if this escalates."

The prime minister said the charges were part of a political battle with President Traian Basescu, who has close links to the centre-right opposition Democrat-Liberal Party (PDL).

Ponta criticized Basescu - who wielded influence on previous governments despite a largely ceremonial position - for pushing austerity measures, and

now the two are arguing over who will represent Romania at a European Council meeting this month.
"You know very well this is a pretext of a political war between President Basescu and I, a war each of us leads with their own weapons," Ponta said.
Officials in Basescu's office declined comment.
Ponta said his thesis' bibliography listed the papers he had consulted. He noted the foreword had been written by Ion Diaconu, one of the writers whose work he was accused of plagiarizing.
The prime minister said he was prepared to submit his work to education ministry commission checks, if needed.
"I want to clear things up as soon as possible," Ponta said.
"If the commission tells me I wasn't supposed to list the bibliography at the end but insert it as footnotes, of course I will give up my doctor's title immediately. I am not mad about titles, I don't care about this one." ($1 = 0.7949 euros)

Activists rally in Ramallah against police violence

RAMALLAH, Palestinian Territories — Hundreds of Palestinian activists demonstrated in the West Bank city of Ramallah on Tuesday to protest against the violent dispersal of two similar rallies at the weekend.
Watched by only a handful of local police, the activists waved Palestinian flags in a rare expression of public discontent with the West Bank's ruling Palestinian Authority headed by president Mahmud Abbas.
The demonstration, called by the youth group "Palestinians for Dignity" after Palestinian police broke up protests on Saturday and Sunday, passed without incident.
"With this march we emphasise that the people are the source of authority, and that we reject the use of violence against the Palestinian people by any and all hands," said the group.
On Sunday evening, Palestinian police and plainclothes security officials beat a crowd of about 200 demonstrators in Manara Square, injuring at least three and arresting several others.
It came a day after a demonstration called by activists to protest against a planned meeting between Abbas and Israeli vice prime minister Shaul Mofaz, who they accused of "crimes" against the Palestinians.
During that demonstration, Palestinian security forces prevented protesters from marching to Abbas's Ramallah headquarters, and clashes broke out.
At least three activists were hospitalised, and security forces also attacked journalists covering the rally.
At least seven people were arrested.
Following Sunday's violence, Abbas's office said it would establish a commission to investigate the incidents.
In a statement carried by the official WAFA news agency, Abbas's office said the commission would be headed by Munib al-Masri, an independent political figure.
"We will not permit any type of violation of freedom of expression and the right to free assembly, including the right to protest in a manner consistent with the law," Abbas said in the statement.
"We will not permit any abuse on the part of official bodies against our people," he said, adding that "we will not accept any attack on the prestige of official institutions."
In a statement after its weekly meeting, the cabinet affirmed "its commitment to the protection of freedom of opinion and expression" while noting such incidents cannot be repeated and holding accountable those who break the law.
The protests were sparked by a bid last week by activists to prevent a scheduled meeting between Abbas and Mofaz in Ramallah, which was later cancelled with neither side giving an explanation for the decision.
The demonstrators on Tuesday called on Abbas to abandon peace talks with Israel altogether, waving signs reading: "No to negotiations with the murderer Mofaz."

Mosaic in Israel shows biblical Samson

Archaeologists are reveling in the discovery of an ancient synagogue in northern Israel, a "monumental" structure with a mosaic floor depicting the biblical figure of Samson and a Hebrew inscription.
The synagogue -- dating to the fourth and fifth centuries in both the Talmudic and late Roman periods -- is in Huqoq, an ancient Jewish village in the country's Galilee region, the Israeli Antiquities Authority said.
Jodi Magness, a professor of early Judaism in the Department of Religious Studies at the University of North Carolina at Chapel Hill, said the building was found in a recent excavation.
She called the find "exciting" and described the "very high quality of the artwork" in the mosaic, crafted with "tiny colored stone cubes." Only a few late Roman period synagogues contained mosaics with biblical scenes, said Magness, one of the leaders of a U.S., Israeli and Canadian team engaged in the digs.
"This discovery is significant," she said, calling the site "extraordinary" and "stunning."
Samson was known for enormous physical strength and his fighting prowess against the Philistines, the enemy of the Israelites.
His story, recounted in the Bible's Book of Judges, mentions Delilah, a Philistine woman who worked to undermine Samson. She cut his hair after she persuaded Samson to reveal that his long hair was the secret to this strength.
Magness said the mosaic scene shows Samson putting torches between the tails of foxes. That image, from a vignette in the Book of Judges, is a reference to Samson exacting revenge on the Philistines by sending out flame-laden foxes to burn their lands.
She said the only other images of Samson in synagogues are at one nearby place in the Galilee known as Wadi Hamam, where Samson is seen "smiting" the Philistines with the jawbone of an ass. Another is in what is now modern Turkey, depicting scenes from Samson's life.
Samson is also depicted in early Christian art, she said.
Why is Samson portrayed and apparently revered in two synagogues close to each other? Magness said she plans to find out.
The other image contains two apparently female faces flanking a circular medallion. It has a Hebrew inscription referring to rewards for carrying out good deeds.
"Our mosaics are also important because of their high artistic quality and the tiny size of the mosaic cubes. This, together with the monumental size of the stones used to construct the synagogue's walls, suggest a high level of prosperity in this village, as the building clearly was very costly," the authority said in its statement, citing Magness.

Egypt denies President Morsi will visit Iran

IIn the latest round of claim and denial between Iran and Egypt, a spokesman for Egyptian President Mohammed Morsi denied that the new leader, who has been in office since Saturday, will travel to Tehran, Israel Radio reported on Wednesday.
Spokesman Yassir Ali said that Morsi has not received any invitation to visit Iran, responding to previous media reports that the Egyptian president was to attend a conference at the request of Tehran.
Reports had quoted Iranian Foreign Minister Ali Akbar Salehi as saying he hoped the visit would strengthen ties between the two countries and lead to an upgrading of their diplomatic relations, with the re-opening of their embassies and an exchange of ambassadors.
Last week, Morsi denied outright an Iranian media report that claimed he gave an interview to the Fars News Agency in which he talked of building relations with Tehran.

China cancels copper plant amid protests

A Chinese city has announced it has scrapped plans for a copper plant after thousands of people protested the project's possible public health risks.
Shifang city in the southwestern province of Sichuan issued a statement on the Internet saying it had decided to stop the project.
The city's public security bureau earlier warned the public not to use the Internet or cellphones to organize more protests and asked those who had done so to turn themselves in within three days or face severe punishment.
Thousands of people — including high school students — concerned about pollution the plant would cause began to gather in front of the city government building and a public square Sunday night, and the protests turned bloody Monday afternoon after riot police moved in.
Public anger surged as Internet users circulated photos and videos of riot police using tear gas and batons to end the protests. Some Internet users said one protester had died.
"People are very upset. How could the police beat them?" said a 15-year-old middle school student surnamed Liu who did not join the protest.
A man who answered the phone at Shifang No. 2 Hospital said more than 30 people — including police officers and protesters — were injured but that they were discharged after minor treatment. The man, who declined to give his name, said no one had died.
City officials also have denied that anyone was killed.
In a public notice issued Wednesday, the municipal government said a small group of protesters threw pots, bricks and stones at police officers and government officials. It said 27 people were taken away by police, six of whom were formally detained for overturning police vehicles or throwing objects. The other 21 were released.
The city government had earlier said it would delay the project after the protest and educate residents about the plan.

Economic need

Shifang was badly hit in the 2008 Wenchuan earthquake that killed nearly 70,000 and left more than 18,000 missing. City officials say the copper plant project is needed to help Shifang rebuild its economy.
Liu said parents, classmates and teachers all objected to the project because of its environmental risks

"It will make our home city a town of death," Liu said.

Residents outspoken

Pollution problems are a leading cause of unrest as China undergoes rapid economic development, and citizens have become more outspoken against environmentally risky projects in their backyards.
Protests often bring at least a temporary halt to such projects, particularly when they involve the urban middle class. But local officials who are under pressure to deliver economic growth often restart them once the outrage dies down.

Last year, authorities swiftly closed and moved an urban chemical factory from Dalian in northeastern China when 12,000 people protested.

'Last rites' for ACTA? Europe rejects antipiracy treaty

The European Parliament has voted to overwhelmingly reject the Anti-Counterfeit Trade Agreement, also known as ACTA, following an all-parliamentary vote.
The controversial treaty is intended to harmonize anticounterfeit and copyright protection measures across all EU member states and other signing countries, including the United States.
The Parliament logged 478 votes against, and only 39 in favor. There were 146 abstentions.
The vote in the European Parliament means that the signing 22 European member states cannot ratify ACTA into their local sovereign law. However, non-EU countries will still be able to shape laws around the treaty's mandates, although ACTA's scope will be significantly reduced without Europe's backing.
To date, 22 of the 27 European member states have signed up to the treaty, including the United Kingdom. Germany, however, has yet to subscribe to ACTA following its foreign ministry calling for a delay to the signing process.
The politician charged with investigating the treaty, rapporteur David Martin, took over from Kader Arif following his resignation in protest earlier this year.
He was the first to recommend that the European Parliament should not accept the treaty, firing off a chain reaction of similar rejections.
Martin said today: "It's time to give [ACTA] its last rites."
In late May, three major European Parliament committees voted against ACTA: LIBE, the civil liberties committee; JURI, the legal affairs committee; and ITRE, the industry and energy committee.
EU trade committee INTA also rejected the ACTA in a vote three weeks later, sending the strongest signal yet to the European Parliament to reject the treaty.
ACTA stirred further controversy in June when EU Trade Commissioner Karel De Gucht said in a speech that the Commission would nonetheless press ahead with the treaty should it fail to pass the European Parliament.
In the speech, Karel also hinted that the treaty could be reintroduced at the next parliament in 2015 should it be rejected in the current one.
Earlier this year, protests erupted on Europe's streets and parliament buildings alike in opposition to ACTA.
At one point during the early negotiation process, ACTA specifically targeted illegal file-sharers, and included the implementation of widespread website blocking systems, such as those seen in SOPA.

Bob Diamond's evidence to MPs branded implausible

The ousted Barclays chief executive Bob Diamond is facing fresh pressure after the chairman of the House of Commons Treasury select committee described some of his evidence to MPs yesterday as "implausible", as the row grew over who was at the heart of manipulation of interest rates during the credit crisis.
Andrew Tyrie, who could take charge of a parliamentary inquiry into Britain's banking industry if MPs can reach agreement today, ratcheted up the pressure on Diamond by writing to Barclays over some of his evidence.
Hours after Diamond denounced the behaviour of some of his staff as "reprehensible", Tyrie said he would be asking Barclays for correspondence from the Financial Services Authority about its assessment of Diamond.
During a three-hour grilling by MPs yesterday Diamond told the treasury select committee of his disgust when he learned that traders at Barclays had manipulated interest rates in 2005.
"When I read the emails from those traders I got physically ill. It is reprehensible behaviour and if you are asking me should those actions be dealt with – absolutely."
Asked by the Conservative MP David Ruffley when he learnt of the practice of rate rigging – known as low balling – Diamond indicated that he only learnt about it when he was shown the FSA report a few days before its publication. "The finding of the investigation, other than the things I learnt as a witness, came to me four or five days before they were published."
Tyrie is concerned that Diamond said he was not aware of the manipulation of the Libor interest rate by Barclays traders between 2005 and 2009.
Tyrie asked Diamond whether it was true that the FSA had raised questions about his initial appointment as chief executive of Barclays in the autumn of 2010. Tyrie said he had also been told that the FSA had raised a number of concerns about the bank at a Barclays board meeting in February, which FSA officials attended.
A Barclays source said the allegation made by Tyrie about the FSA was selective leaking of highly confidential documents, which misrepresented the meeting.
As the pressure on Diamond was renewed yesterday, Chancellor George Osborne ramped up hostilities with Labour over Britain's banking culture, accusing Ed Balls and other Labour former ministers of being "clearly involved" in intervening over the Libor rate.
The carefully-staged intervention by Osborne, immediately dismissed by Balls's team as "desperate" and "frenzied", was designed to intensify the pressure on Labour as Ed Miliband tries to establish a judge-led inquiry into the banking scandal.
The Labour leader, who clashed with David Cameron in the Commons on Wednesday on the best way to investigate the manipulation of interest rates at Barclays, will table a motion calling for a time-limited inquiry along similar lines to the Leveson inquiry into press ethics.
If Miliband's proposal is rejected by MPs, it is expected that Labour will not block the prime minister's plan for a parliamentary inquiry to be chaired by Tyrie. However, Tyrie has said that he will not preside over an inquiry that is not backed by all three parties.
If Tyrie feels unable to chair the inquiry, Downing Street is expected to say that the Treasury select committee should simply continue its work. Labour is likely to deflect criticism of a climbdown by arguing that the prime minister, who had initially rejected an inquiry, has changed tack as the scale of the Barclays scandal has unfolded.
Tyrie moved to show his independence by criticising Diamond last night. He told the BBC: "We learnt that Bob Diamond says he didn't know anything about this until about month ago which I find rather surprising. We also learnt his Chief Operating Officer received a memo from his boss and asked him to fiddle the Libor rate and it didn't cross his mind that it might be a good idea to check out whether that's really what Bob Diamond meant him to say, and to act on, which of course Bob Diamond now says that was not the case."
A record £290m fine was levied on Barclays for attempting to manipulate the interest-rate benchmarks, supposedly based on the rates at which banks lend to one another – the London interbank offered rate (Libor) and its European equivalent, Euribor, between 2005 and 2009.
There were two significant findings – that Barclays traders did favours for colleagues ("submitters") to submit higher or lower rates to the Libor panel to help generate profits; and that during the 2008 banking crisis they reduced submissions to avoid any suggestion that the bank was in financial difficulty.
Barclays had raised the stakes on the eve of Diamond's evidence by releasing an internal note by its former chief executive. Diamond's note of a private conversation with the Bank of England deputy governor, Paul Tucker, suggested that Whitehall figures at the time of the last government may have encouraged Barclays to intervene on the Libor rate during October 2008.
Labour dismissed such suggestions out of hand. The shadow Treasury minister Chris Leslie said: "This is desperate stuff from George Osborne – lashing out in a frenzied way that demeans the office of the chancellor of the exchequer. It's now increasingly clear that he isn't interested in getting to the truth, only in playing party politics and throwing around false allegations with no evidence.
"This is why we need an independent, forensic, public and judge-led inquiry that can rise above party politics. David Cameron and George Osborne need to explain why they have spent the last week desperately trying to resist one."

Mexican Elections: Partial Recount Needed Amid Inconsistencies

Over half the ballot boxes used in Mexico's presidential elections will be recounted after finding inconsistencies in the vote tallies.
Of the 143,000 ballot boxes used during Sunday's vote, 78,012 will be opened and the votes recounted, said Edmundo Jacobo, executive secretary of Mexico's Federal Electoral Institute.
Mexico's electoral law states that the votes should be recounted if there are inconsistencies in the final tally reports, when the result shows a difference of one percentage point or less between the first and second place finishers or if all the votes in a ballot box are in favor of the same candidate.
With 99 percent of the vote tallied in the preliminary count, Enrique Peña Nieto of the Institutional Revolutionary Party, or PRI, led with 38 percent of the vote. Andres Manuel López Obrador of the Democratic Revolution Party had 32 percent.
Authorities also will recount 61 percent of the ballot boxes in the vote for the Senate and 60 percent in the vote for the lower house of Congress, Jacobo said. López Obrador has refused to accept the preliminary vote tallies, saying the election campaign was marred by overspending, vote-buying and favorable treatment of Peña Nieto by Mexico's semi-monopolized television industry.
The leftist candidate said Tuesday that his team had detected irregularities at 113,855 polling places, and called for a total recount.
Feeding suspicion of large-scale vote-buying were scenes of thousands of people rushing to grocery stores this week to redeem pre-paid gift cards they said the PRI had given them ahead of the vote. Several told reporters they had been told to turn in a photocopy of their voter ID card in order to get the gift cards.
Under Mexican election law, giving voters gifts is not a crime unless the gift is conditioned on a certain vote or is meant to influence a vote. However, the cost of such gifts must be reported, and cannot exceed campaign spending limits. Violations are usually punished with fines, but generally aren't considered grounds for annulling an election.
Shoppers nearly stripped some shelves at a Soriana store in the poor district of Iztapalapa and officials in Mexico City, which is governed by Democratic Revolution, ordered at least one branch of the chain closed for alleged violation of safety codes.
Both the PRI and the supermarket company denied any irregularities.
PRI spokesman Eduardo Sanchez said that "Neither the PRI's executive committee, nor Enrique Peña Nieto's campaign has contracted any service from the Soriana grocery store chain.
Asked if some other local or congressional PRI candidate could have done it on behalf of Peña Nieto, he said "I don't know."
Humberto Fayad, a spokesman for the Soriana chain, denied the company had sold huge amounts of gift cards to the PRI.
"There is no agreement between the PRI and Soriana, or Soriana and any other political party. Soriana is a non-political company," Fayad said.
The PRI, too, accused rivals in many parts of the country of handing out groceries or using government programs to influence voters.
The governing National Action Party accused Peña Nieto's campaign of acquiring about 9,500 prepaid gift cards worth nearly $5.2 million (71 million pesos) to give away for votes.
Authorities said a business had bought that number of cards, but that they had found no direct evidence of vote-buying. That investigation continues.
Alfredo Figueroa, a council member of the Electoral Institute, said authorities were investigating complaints about the Soriana gift cards. Members of the institute have said they were aware of attempts to engage in vote buying.

Rangers newco refused SPL entry after chairmen vote

Rangers will not play in the Scottish Premier League this season.
SPL chairmen met at Hampden to vote on the new club's application to replace the old Rangers in the top flight.
BBC Scotland has learned that 10 of the 12 clubs were in opposition, with Kilmarnock abstaining and Rangers voting in favour.
The re-formed Ibrox club will now apply to play in the Scottish Football League but it is not clear which division they will enter.
"The decision to refuse access into the SPL was an overwhelming one and demonstrates the depth of feeling amongst everyone involved in Scottish football," read a statement from Rangers' great rivals Celtic.
"Whilst the financial implications of today's vote for Celtic and for the Scottish game as a whole will be very significant, we have already stated that Celtic has a business plan and strategy independent of any other club.
"In addition, we will be working with our other fellow SPL clubs in the days and weeks ahead to take all possible steps to maximise commercial returns, which remain crucial in these economically challenging circumstances."
As a result its registrations with the Scottish FA and Scottish Premier League were terminated
Charles Green led a consortium which bought Rangers' assets for £5.5m
The former Sheffield United chief executive is reforming Rangers as a new company But the 'newco' did not

get the required votes for re-admittance to the SPL
Instead the new Rangers could start life in Scottish Division One
Rangers FC plc entered administration in February owing up to £134m to unsecured creditors. The company will eventually be liquidated and has been replaced by a new company run by Charles Green.
The newco has since seen 10 first-team players refuse to transfer their contracts from the previous regime, including skipper Steven Davis and Scotland internationals Allan McGregor, Steven Naismith and Steven Whittaker.
There is uncertainty about who will replace Rangers in the SPL: Dunfermline, who were relegated last season, or First Division runners-up Dundee.
SFL clubs met on Tuesday to discuss a Scottish FA proposal for Rangers to enter Division One but the Glasgow giants could begin season 2012-13 in Division Three if that idea does not gain the support of a majority of clubs.
Eleven out of the 30 clubs have already indicated their opposition to Rangers entering Division One, with a vote scheduled to take place on 12 July.
SPL chief executive Neil Doncaster said prior to Wednesday's meeting that three options were available regarding where Rangers should play next season. He said: "The three viable options are effectively: bringing 'newco' Rangers back into the SPL with a range of appropriate sanctions; putting Rangers into the second tier of Scottish football; or Rangers going into the bottom of the pyramid into Division Three.
"The third option, I was keen to stress yesterday, would inflict massive damage on the whole of the game in Scotland and effectively punish 41 innocent clubs for the misdeeds of one."
Regarding the possibility of Rangers heading down to the First Division next season, Doncaster added: "There's lots of things that need to happen before that might take place.
"The SFL clubs will be meeting again next Thursday and will be voting on that. It remains to be seen how that plays out."

South Korea unveils 'scientific' whaling proposal

South Korea is proposing to hunt whales under regulations permitting scientific research whaling, echoing the programmes of its neighbour, Japan.
Hunting would take place near the Korean coast on minke whales. How many would be caught is unclear.
The South Korean delegation to the International Whaling Commission (IWC) said the research was needed "for the proper assessment of whale stocks".
Many governments at the IWC meeting condemned the Korean announcement.
There are several different stocks, or groups, of minke whales in the region, and one of the them, the so-called J-stock, is severely depleted.
Given that fact, "we believe that scientific whaling on this stock borders on the reckless," New Zealand's delegation head, Gerard van Bohemen said.
But Joon-Suk Kang, the head of the South Korean delegation, said the programme was necessary to answer questions about minke whale stocks that non-lethal research had been unable to solve.
He said the proposal was not finalised, and that whaling would not begin until plans had been discussed by an international group of expert scientists convened by the IWC.
The Koreans' eventual stated aim is to prepare the ground for a resumption of "coastal whaling" - a rather vague concept that Japan is also pursuing, and that would see whale hunting return as a normal activity.
'Breach of faith'
The region around the port of Ulsan, in the south-east of South Korea, has a whale-eating tradition that appears to date back thousands of years, judging by prehistoric cave art.
Fishermen in the region already catch whales in fishing nets. Officially, this happens accidentally, but local environment groups say the minkes are deliberately caught, and that the meat is easily bought in markets and restaurants.
Dr Kang said that fishermen in the area are now complaining that a growing whale population is eating more and more fish.
Any government is entitled under the International Convention for the Regulation of Whaling (ICRW) to embark unilaterally on a scientific hunting programme, although Japan is the only one that currently does so.
Anti-whaling governments and conservation groups argue that Japan's programmes in the North Pacific and Antarctic are an abuse of process, as the regulation was originally designed to allow for the taking of a few whales here and there, and not hundreds per year.
They argue that the real purpose is to provide a supply of whale meat, albeit to a dwindling customer base.
"Scientific whaling is an obsolete and sad consequence of a document drafted 60 years ago," said Monaco's IWC commissioner, Frederic Briand.
"There's no reason to do it, given the enormous body of scientific literature [on cetaceans] obtained via non-lethal means."
South Korea was one of the first countries to take the scientific whaling route after the global moratorium on commercial hunting came into place in 1986, but the programme was in operation for just a single season.
Then, the country came under intense diplomatic pressure to stop, and Dr Kang admitted to BBC News that his government is now likely to feel a similarly huge pressure not to start.
However, Korea, Japan, Iceland and Norway all complain regularly that anti-whaling governments have no intention of ever agreeing to a resumption of hunting anywhere, however healthy the stocks, and that this amounts to a breach of promises made when the moratorium came into existence.
Troubled waters
Earlier, Japan lodged a proposal to allow coastal whaling by four villages around the coast - among them Ayukawa, which was devastated by the 2011 tsunami.
It has tabled similar bids for many years, and they have always been defeated by anti-whaling governments, who view the move as a way of breaking the whaling moratorium.
Here, Australia's Donna Petrochenko was one of many taking the same line, telling the meeting: "This is commercial whaling, clear and simple."
Japan put its proposal to one side and it will be discussed again later in the meeting, although it is doubtful whether it will go to a vote, given that Japan clearly does not have the three-quarters share of the vote it would need to win.

Syria files: Wikileaks releases 2m 'embarrassing' emails

The whistle-blowing website Wikileaks says it is releasing more than two million emails from Syrian political figures, ministries and corporations.
"Ground-breaking" news stories derived from the "Syria files" will be published over the next two months, Wikileaks said.
Its founder Julian Assange was quoted as saying the material was embarrassing - not only to Syria but its opponents.
The emails are said to date from August 2006 to March 2012.
Syrian authorities have been fighting an internal rebellion for some 16 months. Some 15,800 people have died, activists say.
Intimate correspondence'
Emails from the Syrian ministries of presidential affairs, foreign affairs, finance, information, transport and culture are all represented among the data to be released, Sarah Harrison from Wikileaks told reporters in London.
"The range of information extends from the intimate correspondence of the most senior [governing] Baath party figures to records of financial transfers sent from Syrian ministries to other nations," she said.
Mr Assange remains in the Ecuadorean embassy in London, where he is trying to avoid extradition to Sweden over accusations of rape and sexual assault. But Ms Harrison quoted him as saying that this material "helps us not merely to criticise one group or another, but to understand their interests, actions and thoughts. It is only through understanding this conflict that we can hope to resolve it."
Some of the 2,434,899 emails would reveal, Wikileaks promises, "how the West and Western companies say one thing and do another".
News stories based on the emails will be published by news providers including US news agency Associated Press, Spain's Publico.es and Egypt's al-Masry al-Youm.
Some stories which have already appeared seem to concern communications between Syrian representatives and Western suppliers of equipment that could be used for military purposes.

Severe flooding in Newcastle and Newry in County Down

In Newcastle, Mourneview Road was under 18 inches of water. Down District Council has opened its centre on the promenade for those needing shelter.
A woman was rescued by firefighters in Castlewellan after she became trapped in her car by flood water.
Police said the Drumbanagher Road in Poyntzpass near Newry was closed after part of a boundary wall was "swept away" by flood water.
They have also advised motorists to avoid Shimna Road in Newcastle and Hilltown Road in Newry.
A PSNI spokeswoman added the Lidl supermarket in Newcastle had also been flooded.
Down District Council has declared an emergency in the area. It has distributed sandbags to residents.
Northern Ireland Water also said its workers are on site in Newcastle responding to flooding calls.
Newcastle SDLP councillor Carmel O'Boyle said flood water was "several feet deep" in some areas of the town.
Petra Ruddy, from Bleary in Craigavon, is holidaying at a caravan park in Newcastle.
She said the park had flooded by about 08.30 BST on Thursday and while the caravans had so far escaped damage she was afraid of what would happen if the rain returned.

"The sky is very grey with heavy clouds - I'd be worried if the rain comes back - we couldn't cope if the water gets any higher," she said
Sinn Fein councillor Stephen Burns said on Twitter that flooding "has caused sewage problems at Burrendale Park and Dundrum Road, Newcastle".
His Alliance colleague Patrick Clarke said the situation in the town was "horrendous".
"It would appear no lessons have been learnt from what happened in Belfast last week," he said.
"Representatives on the ground from the water and roads service are working hard to resolve the situation, but people have found difficulties in using the floodline to report problems, which is absolutely unacceptable," he said.
Executive measures
Meanwhile, the Northern Ireland Executive has announced a series of measures aimed at mitigating the impact of flooding.
It said projects costing more than £10m are being accelerated to improve infrastructure at Sicily Park in south Belfast, along the Loop River in east Belfast and in Cushendall, north Antrim.
A major upgrade is also planned for the Flooding Incident Line call centre to ensure more calls can be handled.

Barclays credit rating outlook cut by Moody's and S&P

Rating agencies Moody's and Standard and Poor's have lowered their outlook on Barclays from stable to negative amid the bank rate-rigging scandal.
Moody's said shareholder and political pressure was creating uncertainty about the bank's future.
S&P said the emergence of "weak business practices" had hit the company's prospects.
The move comes a day after ex-Barclays chief executive Bob Diamond told MPs the rate fixing was "reprehensible".
One MP, however, called some of Mr Diamond's evidence "implausible".
On Thursday, MPs rejected Labour's request for a judge-led inquiry, in favour of a parliamentary one proposed by ministers.
Moody's said pressure on the bank could force it to move away from investment banking.
"Although this could have potentially positive implications over the longer term, the uncertainty surrounding such a change in direction is credit negative in the short term," the agency said.
It added that Barclays may find it difficult to replace Mr Diamond, chief operating officer Jerry del Missier, and chairman Marcus Agius, all of whom resigned this week. Mr Agius is staying on at the bank to oversee finding a replacement for Mr Diamond, but will step down once someone has been found.
S&P said "weak compliance" and "current management flux" had knocked the company's outlook.

Qatar's Shard the tallest building in Europe now

The Shard of Glass skyscraper in London, majority owned by Qatar, has become the tallest building in Europe, rising higher than Canary Wharf's main tower, Frankfurt's Commerzbank and the Ostankino television tower in Moscow.
The 310m-high (1,017ft) building is scheduled to open in June, The Guardian has reported while describing that a view from the 67th floor makes the city of 8mn people look like a toy town.
The spectacular views will next year go on sale to the highest bidder when apartments could fetch tens of millions of pounds each.
In all, there will be 27 floors of offices, three floors of fine-dining restaurants, an 18-floor, five-star Shangri-La hotel with a spa, and 10 palatial apartments, each on average seven times bigger than a semi-detached home.
A four-storey public viewing area is being built starting on the 68th floor which is likely to cost around £20 to access.
So far no office tenants have signed up, although the developers say they are in talks with several and are being selective.
From spring 2009, when construction began, Qatari investments poured into the project. As the global economic crisis forced builders to down tools on sites across the UK, around £1.5bn – mostly from the Gulf – bankrolled the Shard.
The Guardian reports that the Shard, 80% owned through Qatar's central bank, is now "the jewel in the crown" of the Gulf state's growing London estate, which also includes Harrods, the American embassy building in Grosvenor Square and Chelsea Barracks.
The Guardian also quoted Qatar Central Bank governor HE Sheikh Abdullah bin Saud al-Thani as saying that he was confident the Shard would become "a symbol of the close ties between Qatar and the UK".
Dr Christopher Davidson, an expert in the politics of the Gulf at Durham University, said the Shard would celebrate community, the sense of the city, the sense of exchange.
The building's developer Irvine Sellar believes the Shard is the kind of counter-cyclical investment the UK economy needs.

Yahoo, Facebook ad alliance

Facebook and Yahoo have agreed to settle a months-long patent dispute, averting a potentially expensive battle over the technology running two of the Internet's most popular destinations.
In dropping the lawsuits, the companies agreed to license their patents to each other and form an advertising and content-sharing alliance that expands their existing partnership.
Friday's settlement involves no exchange of money.
Now that the antagonism is dissolving into an accord that could benefit both companies, the hundreds of millions of Web surfers who use both Yahoo and Facebook should find even more common ground on the two services..
The advertising alliance could help Yahoo recover some of the revenue that it has been losing as marketers shift more of their spending to a larger and more engaged audience on Facebook's online social network.
Facebook, in turn, gains the opportunity to show the ads tailored to fit the individual interests of its 900 million users in other heavily trafficked areas besides its own website.
The truce ends a conflict provoked by Yahoo's short-lived CEO, Scott Thompson, who was dumped from the job two months ago after misinformation on his official biography raised questions about his integrity.
Under Thompson, Yahoo filed the patent lawsuit in March, wielding it as a weapon against a company that Thompson believed had been prospering from the ideas of its older rival. The complaint alleged that Facebook infringed on 10 Yahoo patents covering Internet advertising, privacy controls and social networks. Yahoo Inc. later added two more patents to the lawsuit.
But Thompson's attack on Facebook Inc. quickly turned into a public-relations disaster. Much of the technology industry railed against Yahoo's tactics. Critics viewed the lawsuit as a financial shakedown by a desperate company whose well of innovation had run dry.
New York venture capitalist Fred Wilson summed up the enmity toward Yahoo in an acerbic blog post that ended with this denouement: "I am writing this in outrage at Yahoo. I used to care about that company for some reason. No more. They are dead to me. Dead and gone. I hate them now."
When Yahoo replaced Thompson in May with interim CEO Ross Levinsohn, it opened the door for the company to settle the dispute under a reshuffled board of directors. Six of Yahoo's 11 directors joined the board after the patent suit was filed.
Yahoo's legal assault had exposed Facebook's vulnerability to patent claims as it prepared to complete the biggest initial public offering of stock by an Internet company. Facebook insulated itself by buying 750 patents from IBM Corp. for an undisclosed amount and spending $550 million to acquire another 650 patents that one of its biggest shareholders, Microsoft Corp., had purchased from AOL Inc. Armed with its own arsenal of intellectual property, Facebook signaled that it wasn't backing down and filed its own patent infringement lawsuit against Yahoo in April.
With Thompson out, Levinsohn quickly began working on a deal with Facebook's chief operating officer, Sheryl Sandberg. The two issued statements Friday praising each other for working toward an agreement.
Yahoo already had been tying many of its services and content to Facebook before the lawsuit was filed. Now the two companies plan to display ads on each other's sites, while Yahoo plans to feed even more of its coverage of major events to the social network.
Although it has been growing at a robust clip, Facebook is still trying to win over skeptical investors. Doubts about the company's revenue potential have weighed on Facebook's stock, which has remained well below its IPO price of $38. The stock gained 26 cents, or nearly 1 percent, to close Friday at $31.73.
Yahoo is trying to snap out of a long-running financial funk brought up by Facebook's success and Google Inc.'s dominance of Internet search and advertising.
Yahoo has gone through four fulltime CEOs in five years in the hopes of engineering a turnaround and sparking revenue growth. The foibles have depressed Yahoo's stock, frustrating shareholders still angry about a squandered opportunity to sell the entire company to Microsoft in May 2008 for $47.5 billion, or $33 per share.
The stock dipped 7 cents to close at $15.78 Friday.
The Facebook pact may have pushed Levinsohn closer to being anointed as Yahoo's permanent CEO. Jason Kilar, CEO of online TV service Hulu, had been under serious consideration for the top job at Yahoo, but Hulu said Friday that he had decided not to pursue the position. The statement was issued in response to several published reports citing unnamed people who described Kilar as Levinsohn's primary competition for the Yahoo post.

UN: peacekeeper killed in volatile eastern Congo

The United Nations said a peacekeeper in Congo was killed by an exploding shell as rebels allegedly backed by Rwanda made major advances in the country's volatile east, taking a border crossing into Uganda and threatening a strategic town.
Panicked residents were fleeing the town of Rutshuru on Friday night amid reports that the rebels had advanced within shelling distance, according to a statement from the North Kivu Civil Society. Fears were heightened by the evacuation of U.N. and independent aid agencies, followed in the late afternoon by the retreat of Congolese army soldiers, it said.
The Indian peacekeeper was killed overnight on Thursday as fighters from the M23 rebel group attempted to take the town of Bunagana, said Madnodje Mounoubai, the United Nations spokesman in Congo.
"I confirm the death of a peacekeeper of Indian origin working for the United Nations mission in Congo," he said. "He was hit by shrapnel from an exploding shell during an attack by the M23 mutineers in Bunagana last night."
Congo's two-year-long peace was shattered in April when an army unit led by Gen. Bosco Ntaganda defected.
rebels were integrated into the very army they have now deserted once more.
After controlling mountaintops along Congo's border with Rwanda, the rebels earlier this week made a push and seized the strategic village of Jambo, cutting access to the border crossing of Bunagana into Uganda and Rwanda. Then overnight Thursday, they took Bunagana, according to a spokesman for the rebels as well as a resident of the town who requested anonymity fearing reprisal.
"We took the town of Bunagana this morning at around 6 a.m. but we do not plan to stay," said M23 spokesman Vianney Kazarama, who was reached by telephone in eastern Congo. "We plan to leave our police there for security, but we are going to return to our initial positions in the surrounding hills. ... We do not need to take the towns or the villages even if we control several now. We are only asking the government of Kinshasa to respond to our demands, which are known by all."
A United Nations report says that the rebels are led by Ntaganda, who is wanted by the International Criminal Court, and backed by Rwanda—a charge Rwanda denies.
On Thursday, U.S. Ambassador R. Barrie Walkley said he had issued a strong message to Rwanda. "I'm coming from Kigali, where I passed on a forceful message that outside support to the M23 group must stop, must cease," said the recently appointed U.S. special representative to the Great Lakes region that includes Rwanda and Congo.
The notoriously ill-equipped Congolese army has been struggling to contain the rebellion. On Friday, the spokesman for the Ugandan army Capt. Peter Mugisa said that around 600 Congolese soldiers had sought refuge in Uganda after an intense battle with the rebels.
Mugisa were in the custody of the Ugandan military and did not want to go back home yet, fearing they might be massacred by the rebels they were sent to fight.
Analysts fear that the new conflict could once again drag Congo into the cycle of violence it had only recently started to stem. In the country's lawless east, entire wards have been set up to treat rape victims, one of the many atrocities that have become widespread as a result of years of fighting.
At the United Nations in New York, Secretary-General Ban Ki-Moon said in a statement that he regrets the peacekeeper's death and called for an "immediate end to all violence perpetrated by armed groups."
The rebellion has caused more than 200,000 people to abandon their homes and flee, some displaced inside Congo others across the borders into Rwanda and Uganda. The U.N. World Food Program is asking for an additional $45 million to feed them.

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