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With the first phase of the reorganization of the structure of the executive branch under way, the mechanisms for Taiwan's science and technology policymaking and management will change significantly next year. As science and technology are crucial to Taiwan's industrial transformation and competitiveness, remodeling the decision-making structure is a key process. Under the existing framework, an unofficial task force, the Science and Technology Advisory Group (STAG), helps ministers without portfolio map out Taiwan's science and technology policy goals, while the National Science Council (NSC) is responsible for planning development strategies, evaluating research proposals and distributing resources, mainly concerning the promotion of upstream, basic research. The Ministry of Economic Affairs, Council of Agriculture and other Cabinet-level agencies related to R&D are in charge of managing the industrial application of research results. To close the gap between policymaking and the needs of industry the allocation of money and resources is a key factor. For example, the NSC's budget for science and technology far exceeds that of any other agency, but the lion's share goes to basic academic research, with only 7 % dedicated to applied work and the development of industrial technologies. Other agencies such as the MOEA have substantial budgets for applied and technical research, but their funds are often redirected as market conditions change, and the necessity of budgeting a year in advance leaves no flexibility for supporting timely R&D. In the new framework following government restructuring, according to the Organic Act of the Executive Yuan, STAG will become an official committee—tentatively known as the Science and Technology Policy Board (STPB), and the NSC will be converted into a Ministry of Science and Technology. The STPB will be responsible for planning overall policy and distributing relevant resources, as well as evaluating and administering major development projects. The new ministry will implement policy and promote both basic and applied research. This revamping is to improve cross-agency collaboration, increase connections between fundamental research and commercial applications, and consolidate policymaking.

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### **1. Taipei's first World Design Expo offers up 6,000 examples of international innovation**

(China Post, 01 10 2011)

On 30 Sep, Taipei opened its first international interdisciplinary design exhibition, marking the highlight of 2011 as the "Year of Design." With over 6,000 pieces of design by over 1,200 domestic as well as international designers from over 34 nations displayed, the 2011 Taipei World Design Expo enjoyed its grand opening at the Songshan Cultural & Creative Park, which was built in 1937 and covers 12,000 square meters. Bringing together businesses and various design organizations and schools, the expo seeks to interpret creativity and innovation through the theme "Design at the Edges" by investigating the edge between design disciplines and what is in common among industrial, communication, and interior architecture design, and what sets them apart; that between design and other fields; and the limits of the discipline itself — controversial as well as experimental works that are radically different and new, are on display. Three venues will be open to the public: the Songshan Cultural & Creative Park focuses on "design excellence," the Nangang Exhibition Hall features "design exchanges," and the Taiwan World Trade Center (TWTC) Exhibition Hall demonstrates "design creativity." The latter two venues will be open to public beginning Oct. 22. All three exhibitions are free for to the public, and will end on Oct. 30.

In addition to the theme exhibition of "Design at the Edges," also available at the Songshan Park site are the International Industrial Design Exhibition, which illustrates how intelligence and creativity have evolved over the course of history via design; the International Interior Design Exhibition, which defines the Taiwanese interior design from the perspective of "Influence & Confluence," a relational convergence product between the Western and Eastern cultures; the International Graphic Design Exhibition titled "Intertidal Age" that displayed four sub-themes: warm true love, temporary heaven, magical connection, and simple future; the International Craft Design Exhibition, which places emphasis on the power of humility, gentility, well-rounded thinking, and foresight as well as vision have on design; and the Interdisciplinary Creative Works on Asia's Cultural Creativity Exhibition, which promotes and passes on the art of Asian calligraphy. Also opened at the Songshan Cultural & Creative Park on 30 Sep was the Taiwan Design Museum, the first museum designated to design in the regions of Chinese descendants. It is expected that Taiwan's soft power could be further demonstrated through such cultural and creative development, organizers of the Expo said.

<http://www.chinapost.com.tw/taiwan/national/national-news/2011/10/01/318413/Taipeis-first.htm>

### **2. Hand gestures replacing keys, power switches**

(Central News Agency, 02 10 2011)

Doors can now be unlocked with just a wave of the hand rather than with traditional keys, the Technology and Science Institute of Northern Taiwan (TSINT) said. Tsai Yao-Pin, an instructor of Computer and Communication Engineering (CCE) at TSINT, has invented an "invisible key" that allows gestures to be preset that can unlock doors. The creation earned Tsai a gold medal at 2011 Taipei International Invention Show and Technomart that took place Sept.29 - Oct.2. Tsai said the "invisible key" uses triaxial accelerometer technology for door locks and uses a single-chip controller as the core control of the system. Aside from unlocking doors, the technology could also be used to turn home appliances off and on. The school's Department of Mechanical Engineering also won a gold medal at the show for a "smart suitcase" that has LEDs mounted to it, so that travelers can more easily identify their luggage on airport baggage-claim conveyor belts. In addition, the suitcase contains pressure sensors, RFID (Radio Frequency Identification), and an alarm that sounds if the case is opened or taken away without permission.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aALL&ID=201110020016](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201110020016)

### **3. Taiwanese university launches 3D aboriginal science animation**

(Central News Agency, 03 10 2011)

Taiwan's National Tsing Hua University (NTHU) unveiled a series of 3D science animations featuring aboriginal characters and themes with the aim of fostering science education among the nation's indigenous children. The seven animations, produced by a local team of more than 100 artists, tribal people, musicians, scientists and science teachers over a period of five years, and partly funded by the National Science Council, are voiced in the Atayal tribal language and portray a vivid picture of aboriginal people in the 1940s and 50s, as well as the world as seen from the perspectives of four Atayal children.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?ID=201110030031&Type=aEDU](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?ID=201110030031&Type=aEDU)



#### **4. Taiwan's Biotech Industry Undergoes Vigorous Development in Q2**

(Taiwan Economic News, 04 10 2011)

The biotechnology industry in Taiwan underwent significant development and advancement in the first half of the year, driven by governmental policy support, according to the IEK-ITIS (Industry & Technology Intelligence Services) in Taiwan. The number of academic-to-manufacture technology-transfers increased, also true of international licensing, clinical development projects, partnerships and investment projects in Taiwan and especially China, with local biotech firms also going public to raise capital. The IEK-IT IS defines the biotech sector to include sub-industries as biopharmaceutical, regenerative medicine (stem-cell treatment etc.), medical testing and inspection, fine chemicals, good biotechnology, agricultural biotechnology, environment-protection biotechnology, and biotechnology/pharmaceutical services.

[http://cens.com/cens/html/en/news/news\\_inner\\_37979.html](http://cens.com/cens/html/en/news/news_inner_37979.html)

#### **5. ITRI unveils high-tech devices at nano exhibition**

(The China Post, 07 10 2011)

A high-speed memory chip that significantly increases computing speed and thermoelectric materials to allow cars and industrial plants to transform waste heat into electricity are among the various breakthrough technologies unveiled at the Oct. 5-7 2011 Taiwan Nano Exhibition by the Industrial Technology Research Institute (ITRI). The exhibition, now in its ninth year, showcases innovative nanotech devices produced by Taiwanese research institutes and foreign and domestic companies. Among the 19 devices on show at the ITRI booth is a high-speed non-volatile resistive random-access memory (RRAM) chip that could significantly improve the speed and power consumption of computers, memory cards, flash drives and other 3C products in the future. The chip can be up to 20 times faster than flash memory, and consumes only 20 percent of the power used by flash memory — currently the most dominant storage technology in consumer electronics products, Lin Wen-pin, an engineer on the team that developed the chip, said. The chip can survive for over 10 years at a temperature of 200 degrees Celsius said Fang Yung-nien, division director in the ITRI's Nanotechnology Research Center.

<http://www.chinapost.com.tw/taiwan/national/national-news/2011/10/07/319072/ITRI-unveils.htm>  
<http://www.taiwantoday.tw/ct.asp?xItem=177506&CtNode=419>

#### **6. Taiwan solar testing standards adopted globally**

(Taiwan Today, 05 10 2011)

The global photovoltaic industry association Semiconductor Equipment and Materials International has adopted a standard testing method from Taiwan for solar modules under vibrating conditions, according to the Industrial Technology Research Institute (ITRI). The method was developed by ITRI and 12 Taiwan-based photovoltaic companies to accurately measure the scale of vibrations that could influence and even damage solar modules during transportation. "The adoption enables Taiwan manufacturers to produce PV cells, modules and systems that comply with international standards," said Duann Jia-ruey, director of the ITRI Center for Measurement Standards. "It will also help lower the number of defective units incurred during air, land or sea transport," Duann said. The institute said current domestic regulations require PV module makers to guarantee their products for 20 to 30 years of use, so protection from damage in transit is very important. The testing standard will not only cut after-sale costs but is expected to speed up the development of technology for protection of solar module packages during transport. Terry Tsao, president of SEMI Taiwan and Southeast Asia, said, "Given that the standard will be introduced to other SEMI members, Taiwan may well be able to tap into new PV markets around the world." ITRI said solar cells from Taiwan and mainland China accounted for 62 % of the world's total output in 2010. This number is expected to grow to 80 % this year. The standard was first proposed by a Taiwanese research team 18 months ago, and passed in September with more than 60 votes from representatives from Japan, Europe and the U.S. Taiwan companies involved in the work include AU Optronics Corp., King Design Industrial Co. Ltd. and a2peak power Co. Ltd.

<http://www.taiwantoday.tw/ct.asp?xItem=177404&CtNode=419>

#### **7. Taiwan academician receives US National Medal of Science**

(Taiwan Today, 05 10 2011)

Shu Chien, an academician of Taiwan's top research body Academia Sinica, will be one of seven scientists to receive the U.S. National Medal of Science for 2011 from President Barack Obama at a White House ceremony Oct. 21, Academia Sinica announced. The U.S.-based Chien, 80, is being recognized for his "pioneering work in cardiovascular physiology and bioengineering, which has had tremendous impact in the fields of microcirculation,



blood rheology and mechanotransduction in human health and disease,” according to a Sept. 27 White House statement. Chien is currently director of the Institute of Engineering in Medicine at the University of California. With an academic career spanning more than five decades, he is one of the few scholars to be a member of four of the prestigious U.S. academies: the Institute of Medicine, National Academy of Engineering, National Academy of Sciences and American Academy of Arts and Sciences, Academia Sinica said. He was elected Academia Sinica Academician in 1976, and has made important contributions to the development of biomedical research in Taiwan. He led the establishment of Academia Sinica’s Institute of Biomedical Sciences in 1993, and the National Health Research Institutes in 1996.

According to Academia Sinica, six other members of the body have received the medal: Yuan-Tseh Lee (1986), Chen Ning Yang (1986), Paul Ching-wu Chu (1988), Alfred Y. Cho (1993), Shing-Tung Yau (1997) and Yuan-Cheng Fung (2000).

<http://www.taiwantoday.tw/ct.asp?xItem=177402&CtNode=419>

## **8. NCKU research team discovers key protein in treating osteoporosis**

(Taipei Times, 08 10 2011)

A National Cheng Kung University (NCKU) research team has discovered that a protein called interleukin (IL)-20 is a key to treating osteoporosis, a disease that lowers a person's bone density. The discovery by the team led by Ming-Shi Chang, professor of the Department of Biochemistry and Molecular Biology, was published in the Journal of Experimental Medicine and has drawn huge attention in the academic circle and the biotechnology industry. The chief editor of Nature Reviews wrote a research highlight in the Sept. issue of Nature Reviews Rheumatology commenting on this finding while the Science-Business eXchange published a cover story reporting on the discovery in the same month. Chang's team has discovered that osteoporosis patients have higher than normal amounts of IL-20 in their blood, which suggests that IL-20 is involved in the progression of the disease. IL-20 increases the amount of two proteins important for bone metabolism-RANK on osteoclast precursors and RANKL on osteoblasts-and so stimulates osteoclast formation. Ming-Shi Chang's team has provided evidence that IL-20 is a novel and undiscovered molecule involved in the formation of osteoclasts — a revolutionary discovery and a significant contribution to basic medicine. The team has also showed that IL-20 is a novel target for osteoporosis and the IL-20 antibody could be a potent new anti-osteoporosis drug that will have a significant effect on biotechnology.

<http://www.chinapost.com.tw/taiwan/national/national-news/2011/10/11/319445/NCKU-research.htm>  
<http://www.taipetimes.com/News/taiwan/archives/2011/10/08/2003515227>

## **9. National Science Council introduces medicine’s future**

(Taipei Times, 09 10 2011)

The latest 3D organ printing technology might be able to reproduce biological tissue or a human organ to solve current organ transplant rejection problems and cancer cells could be “tamed” to become normal stable cells in the future, National Science Council (NSC) researchers said. At a press conference called to introduce the council’s “2011 Science Season: Technologies of the Future” exhibition, which includes a section on “Future Medical Care,” exhibition project co-director Shy Sheng-yang said: “Future medical care will not be stressing the cure for diseases, but focused on how to take care of the body and soul with the help of medical technology.” Shy, a professor at the National Central University’s Department of Mechanical Engineering, said that by combining preventive, clinical and rehabilitative medicine with the newest technology, future medical care would look after a patient through the stages of pre-disease, disease and recovery. Academia Sinica Genomics Research Center assistant research fellow Shen Chia-ning, who led the 3D organ printing research team, said the technology works by scanning a 3D image of the organ and taking stem cells from the patient to engineer biomaterials that serve as the “ink” for printing, then assembling thousands of 2D prints layer over layer to create a 3D organ. Shen said the biggest obstacle in developing this technology is learning how to control the division of the stem cells into diverse specialized cell types that can form a functioning 3D organizational structure. At present, only simple body tissues such as veins have been successfully printed, but researchers believe that simple organs could be replicated in a decade, and complex organs such as the liver could be printed in two or three decades when the technology is fully developed, Shen said, adding that a working bladder has already been printed by a US research team and proved functional for at least three months. Meanwhile, Chien Chung-liang, section convener and a professor at National Taiwan University’s Department of Anatomy and Cell Biology, led a research team in trying to “tame” cancerous stem cells into stable nerve cells that won’t divide into other cells (through mitosis) as a way to control malignant tumors. “What I often tell my students is that cancer stem cells and normal stem cells differ in our controllability of its growth. Those [cells] that we don’t know what they will grow into, or that grow out of control, are called cancer,” Chien said. Cancer stem cells function like stem cells in having self-renewal features that can reproduce cancer cells rapidly and are more





resistant to radiation therapy or chemotherapy, Chien said. The team said the efficacy rate in the current experimental stage is about 20 percent to 30 percent, and that nerve cells are relatively stable and easier to control, but more research has to be done to understand which compounds can induce the cancer stem cells to divide into healthy cells.

<http://www.taipeitimes.com/News/taiwan/archives/2011/10/09/2003515304>  
[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aALL&ID=201110120017](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201110120017)

## 10. Taiwanese researchers find key to treating autoimmune diseases

(Central News Agency, 12 10 2011)

A local research team has identified a protein kinase -- an enzyme that modifies other proteins -- that could be a key to treating autoimmune diseases and even leukemia or lymphoma, the National Health Research Institutes (NHRI) said. Tan Tse-hua, director of the NHRI's Immunology Research Center, who headed the research team, said the protein kinase MAP4K3/GLK is found in higher-than-normal amounts in the blood of patients with systemic lupus erythematosus (SLE), or lupus, an autoimmune disease. "The kinase MAP4K3/GLK acts like a faucet in the human immune system. The higher the amount of this substance in T cells, the more severe the autoimmune disease," Tan said. That means that the kinase MAP4K3/GLK can be used as a new diagnostic biomarker and therapeutic target for lupus patients, Tan said. The findings were based in part on experiments in mice. Tan said MAP4K3/GLK-deficient mice had impaired immune responses and were resistant to experimental autoimmune encephalomyelitis -- an experimental form of multiple sclerosis that scientists use in laboratory animals. The discovery was published in the latest issue of Nature Immunology, a prestigious peer-reviewed magazine. The research team, composed of researchers from the NHRI and Taichung Veterans General Hospital, has applied for patents for the discovery with Taiwanese and U.S. authorities, and Tan said the U.S. Patent and Trademark Office has already granted a provisional patent. He said the research team will cooperate with the NHRI's Institute of Biotechnology and Pharmaceutical Research to develop target drugs based on the discovery. Tan said the NHRI research team worked with Taichung Veterans General Hospital in studying the conditions of more than 100 lupus patients. "Over 80 percent of them endure debilitating pain because existing drugs do not function in a satisfactory manner," Tan said, but that could change if the discovery leads to methods of treatment. "We believe that so long as we can develop something to inhibit the secretion of MAP4K3/GLK, we will be able to effectively treat lupus and other autoimmune diseases, and even leukemia," Tan said.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aTPS&ID=201110120006](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aTPS&ID=201110120006)

## 11. Taiwan to join global oral cancer immunotherapy clinical trials

(Central News Agency, 12 10 2011)

Taiwan will join the global clinical trials of biopharmaceutical drug developed to treat oral cancer, one of the participating hospitals said. Eight countries including the United States (U.S.) and Canada, will be taking part in simultaneous phase III clinical trials starting this month, said Hao Sheng-po, chief of Otolaryngology at Shin Kuang Wu Ho-Su Memorial Hospital. 800 patients worldwide, including 88 in Taiwan will be participating in the trials. Biopharmaceuticals are drugs manufactured through the use of live organisms or their active components and work by boosting the human immune system. Examples of these drugs include insulin and vaccines. The importance of the new clinical trials is that it will change the role of immunotherapy from an aid and last resort in cancer therapy to first-stage treatment, Hao said. In the trials, immunotherapy in the form of biopharmaceutical injections will be administered to 88 cancer patients with oral tumors, Hao said. The aim is to strengthen the immune system against cancer before turning to traditional forms of therapy such as surgery, chemotherapy, radiotherapy and targeted therapy, he explained. The survival rates of the patients in the trials will be tracked, he said. Only patients with late third or fourth stage of oral cancer or those have not received chemotherapy will be allowed to participate in the clinical trials, he said. This is because it has been found in previous research that immunotherapy tends to fail in patients who have already received traditional cancer treatments, he said. In such cases, immunotherapy drugs are less effective because the patients' immune systems have been battered by surgery, chemotherapy and radiotherapy, he added. In the phase II clinical trials of the biopharmaceuticals, it was found that on average the treatment helped reduce the size of tumors in oral cancer patients by 50 percent. In 12 percent of the cases, the tumors disappeared after one month of treatment. The overall survival rate among the patients in the trial increased by 33 percent over a period of 3.5 years compared with the control group. No poisoning or autoimmune disorders were observed in the first two phases of the clinical trials, and other studies have indicated that the biopharmaceutical drug were found to also be capable of suppressing cervical cancer.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aALL&ID=201110120040](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201110120040)



## 12. III cloud technology invention wins 2011 R&D 100 award

(Central News Agency, 14 10 2011)

An Institute for Information Industry (III) invention dubbed Internet Smart Energy (In-Snergy) was selected as one of the top inventions of 2011 at the 49th R&D 100 awards ceremony in Orlando, Florida. In-Snergy is a smart energy-saving appliance that uses cloud technology software to monitor and manage energy usage. The appliance allows users to track and analyze energy usage with electronic devices and remote Internet server tools. The iSocket device that comes with the appliance helps calculate and measure electric current flows. Users can check home energy use any time and anywhere with the new technology, and will even be notified of a power switch that has not been turned off. Some convenience stores, factories, hotels and sheltered housing in Taiwan are already using the In-Snergy appliance and the III hopes its use can be expanded to supermarkets, shops and homes in the future. The III has found that the software is effective in reducing energy use in office buildings by 27%. The principal developer of the device, Chuang Chi-cheng, said the device was inspired by an electrical fire 10 years ago in which his house in Kaohsiung was consumed by flames. Chuang has been dedicated to electrical safety research ever since. The annual award was established in 1963 by U.S. technology magazine R&D to pick the 100 most innovative inventions of the year out of thousands of entries from around the world.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aECO&ID=201110140025](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aECO&ID=201110140025)

## 13. Taiwan showcases new orchid breeds at Tokyo flower show

(Central News Agency, 15 10 2011)

Taiwan officially introduced two newly developed breeds of Oncidium orchids to the world at the 2011 International Flower Expo Tokyo, drawing the attention of Japanese and international buyers. The yellowish "Baby Face" orchid and "Snow White," which reflects its name, were the centerpiece of the Taiwan pavilion at the largest flower and horticultural trade show in Asia Oct. 13-15. Tseng Ming-chin, secretary-general of the Chinese Development Association of Oncidium Production and Marketing, said Friday that "Baby Face" was developed from "Gower Ramsey," one of the most popular Taiwan-grown Oncidium orchids in the Japanese market. It was named after its round-shape and is expected to capture the hearts of Japanese orchid-lovers, he said. "Snow White," bred by the Floriculture Research Center of Taiwan's state-run Agricultural Research Institute, is one of Taiwan's top selling Oncidium orchids in Japan, he said. Taiwan exports around 20 million cut Gower Ramsey orchids to Japan each year, according to the institute. Apart from the orchids, the flaming lily was one of the Taiwan pavilion's big attractions at the Tokyo flower show, which was attended by 620 businesses, including seven from Taiwan.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aECO&ID=201110150021](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aECO&ID=201110150021)

## 14. Taiwan researchers win award for egg white application

(Central News Agency, 16 10 2011)

A local research team received an Outstanding Student Research Award for its study that proved egg white is not only a source of protein but can also function as an electric insulator. The team was not among the top three recipients of the Taiwan Semiconductor Manufacturing Company (TSMC) Outstanding Student Research Award, but was presented a special creativity award for its originality in using ordinary matter in a scientific application. The research was initiated by electro-optical engineering professor Guo Tzung-fang of National Cheng Kung University and conducted by doctoral student Chang Che-wei. Guo said the idea of whether the egg white could function as an insulator popped into his head while he was frying an egg for breakfast in the U.S. a few months ago and was watching the white coagulate. Staring at the coagulating protein, Guo said at the award ceremony, he called his student Chang in Taiwan and asked him to start the experiment. Chang admitted that at first he thought the idea was "crazy" but he and some other students gave it a try since the material was easy to obtain. The experiment took a month and half and they proved that egg white could work as an insulator in a transistor, Chang said. The award was presented to Hwung Hwung-Hweng, president of the university, on Oct. 12. Meanwhile, the research has been published in "Advanced Materials," a German weekly scientific journal. The research team said it is preparing to apply for a patent in the U.S. The TSMC Outstanding Student Research Award, now in its fifth year, attracted over 200 competing teams this year, including students from Massachusetts Institute of Technology; University of California, Berkeley; and Stanford University.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aECO&ID=201110160010](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aECO&ID=201110160010)

## 15. 'Spray-on' clothes showcased at science show

(Central News Agency, 17 10 2011)

Clothes that are "sprayed" instead of sewn or woven, and brain-wave detection devices that allow people to control



the movement of objects by "staring" were among the novel technologies showcased at a science exhibition in Taipei. These inventions showcased at the "Technologies of the Future" exhibition were among 20 innovations on display that offer a glimpse of the technologies that could shape the future. At one of the exhibition's zones, titled "Spiderman," visitors could see, through a demonstration video, models turning and twisting their bodies as a machine sprays layers of polyurethane (PU) fabrics onto their bodies. The customized clothes were created within only two minutes. Meanwhile, visitors could try to control the movement of an object by using their brainwaves, according to the exhibitor, National Central University. For example, to make a toy car go left, the controller, who wears a "brainwave-reading" device, only needed stare at a light-base brainwave stimulator that represents the concept of "left." Another exhibitor, the National Synchrotron Radiation Research Center, has applied its innovation to the medical science field. The center said its device was able to provide instant diagnoses and CT scans and help users check their health without bodily contact in the future. Also showcased is a toilet that in the future could help users monitor their health through analysis of their bodily excretions, and an idea for a technology that could help organ transplant patients grow customized organs. The exhibition, organized by Taiwan's National Science Council and more than 15 local universities and research institutes, ran till 25 Nov at the National Chiang Kai-shek Memorial Hall.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aLIV&ID=201110170021](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aLIV&ID=201110170021)

#### **16. TTRI's foldable fabric capacitor receives R&D Magazine nod**

(China Post, 17 10 2011)

The Taiwan Textile Research Institute (TTRI) developed "All-Foldable Fabric Ultra-Capacitor" was recognized as one of the 100 most technologically significant products introduced into the marketplace in the 2011 R&D 100 Awards held in Orlando, Florida. The R&D Awards saluted the top 100 high-tech products for 2011 on Oct. 13 after fielding innovation entries from all over the world and receiving products as diversified as electronic paper, renewable methane, a 3D camera, ceramic capacitors, and a composite bridge. Co-developed by Litnertex Co. Ltd. the All-Foldable Fabric Ultra-Capacitor is the first textile capacitor flexible enough to be incorporated into textile-like material. R&D Magazine described the product as an electrochemical device "designed to store power at high densities" through "the formation of an electric double-layer on the surface of both negative and positive electrode." The award-winning product, designed in Taipei by developers Tsai Chung-po, Ho Wen-hsien and Y.R. Chen, can operate at 1 to 2 V and at room temperature. The ultra-capacitors can achieve capacitance from 0.1 to 110 F, depending on the fabric size. Earning a spot in the top 100 tech products can help local developers gain recognition and translate to success in the marketplace. Rita Peters, editorial director of R&D Magazine, described the level of innovation that went into the development of such products, in spite of less than favorable circumstances. "During the recent economic downturn, industry, academia, and government labs continued to innovate. The editors were impressed with the strong field of candidates for this year's R&D 100 Awards. The number of entries exceeded that of recent years," she said. Since 1963, the R&D 100 Awards has represented a benchmark of excellence for industry sectors as diverse as telecommunications, high-energy physics, software, manufacturing, and biotechnology. The winning technologies are used in medical, industrial, research, consumer, and manufacturing applications.

<http://www.chinapost.com.tw/business/asia-taiwan/2011/10/17/320116/TTRIs-foldable.htm>

#### **17. Council launches volcano research center in Datun**

(Taipei Times, 18 10 2011)

The National Science Council's Taiwan Volcano Observatory Datun (TVO), an observation and research center to monitor volcanic activity at Datun Mountain in Taipei, was officially launched at the Jingshan Nature Center. Addressing the opening ceremony, Deputy Minister of the Interior Lin Tzu-ling said that although geological research reports showed that the Datun volcano group had not erupted for a very long time, observations and analyses in the past decade have shown that they could be dormant active volcanoes. The government therefore asked the council to set up the observatory to serve as a volcanic data integration platform, combining various pieces of information collected by the Ministry of Economic Affairs' Central Geological Survey, the Central Weather Bureau, Academia Sinica and other academic units. Lin Cheng-hong, director of the Taiwan Volcano Observatory project and a research fellow at Academia Sinica's Institute of Earth Sciences, said that in the initial stage the observatory would monitor earthquakes, movements of the earth's crust, earth temperature and fumarole images, as well as analyze geochemical aspects, including volcanic gas and water from hot springs. The observatory can simulate the range of tephra — debris spewed out during a volcanic eruption — according to location and the direction of the wind during each season, he said. Yang Tsan-yao, a professor at National Taiwan University's Department of Geosciences, said there are various levels of indicators for volcanic eruptions, such as changes in temperature, particles in water from



hot springs and gas releases, that can be observed weeks or months before an eruption, as well as movement of the earth's crust during the days before an eruption.

<http://www.taipeitimes.com/News/taiwan/archives/2011/10/18/2003516055>

#### **18. Taiwan to unveil software that converts photos into comics**

(Central News Agency, 20 10 2011)

A newly developed software in Taiwan will give all users a chance to instantly become cartoonists, as it automatically converts photographs into cartoon format. The software, called "Manga Director," will make its debut at Taiwan's top research institute on Oct. 22 and be available for free public use through Facebook within three months, the developers said. Tu Yen-chen, one of the software's developers at Academia Sinica, said that users only need to load photographs into the software, which will then convert the pictures into cartoon images. The user can choose the best quality cartoons and add dialogue, thus creating an e-comic book, Tu said. The software seeks to revolutionize the concept of photo albums and comic books, she added. "Manga Director" is one of the many inventions that will be showcased at an open house event. Research-related lectures, exhibitions, and parent-child activities such as treasure hunts and quizzes will be held at the annual event.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aALL&ID=201110200015](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201110200015)

#### **19. Taiwanese professor named chair of magnetic research association**

(Central News Agency, 23 10 2011)

A Taiwanese physics professor was elected as the new president of the Asia Union of Magnetic Societies (AUMS), becoming the first Chinese-speaking scholar to chair the organization. National Taiwan University (NTU) announced that day that Chang Ching-ray, the dean of its College of Science, was named AUMS president at a board member meeting held in Ningbo, China. Chang will also attend the next International Conference of the Asian Union of Magnetism Societies on behalf of the AUMS in Nara, Japan, from Oct. 2-5, 2012, NTU said. The AUMS, established in January 2009 in Japan to promote the development of magnetism knowledge and research in the Asia-Pacific region, is composed of the Magnetism Society of Japan, the Taiwan Association of Magnetic Technology, the Korean Magnetism Society and the Chinese Society of Magnetic Materials and Applications. The university said the support Chang received in the poll was a result of his outstanding dedication in the field of spin transport electronics and magnetism. Chang is currently on the International Advisor Board of Japan's National Institute for Materials Science. He also received the American Physical Society fellowship in 2009 and was named as one of the 2011 fellows of the Institute of Electrical and Electronics Engineers.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aALL&ID=201110230026](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aALL&ID=201110230026)

#### **20. Austronesian research center opens at Pingtung polytechnic**

(Taiwan Today, 25 10 2011)

National Pingtung University of Science and Technology unveiled its new Center for Austronesian Medical and Agriculture Research Oct. 24. According to the university, the center will combine special industries promoted by the government of the southern county, the Pingtung Agricultural Biotechnology Park and a medical team from Pingtung Christian Hospital in researching traditional Austronesian herbal medicines. The university said that as Austronesian communities span a wide geographical area from Taiwan south to New Zealand, encompassing Indonesia, the Philippines, Malaysia, New Guinea and the Pacific islands, with most located in tropical and subtropical regions, there is a rich variety of medicinal herbs with a long history of use. These Austronesian herbal remedies, which have undergone relatively little scientific research on their efficacy as compared to their traditional Chinese counterparts, possess significant potential for development, the university stated. "Our hope is that by investigating the wisdom of the first peoples from a scientific perspective, we can expand the use of these herbal medicines and even raise the economic value of traditional agriculture in the process," NPUST President Ku Yuan-kung said. The new center signed a cooperative memorandum of understanding with Pingtung Christian Hospital, the Wutai Township Office and the U.S.-based company Young Living Essential Oils the same day. The university said that in the wake of the devastation wrought by Typhoon Morakot when it swept across southern Taiwan in August 2009, technology for the development of ecological agriculture was transferred to Wutai, and the office currently promotes organic and chemical-free farming. According to the university, the center will assist manufacturers based in the Pingtung Agricultural Biotechnology Park with production capacity expansion, and work with them on utilizing organic agricultural raw materials produced in Wutai and other parts of Pingtung to develop a range of new goods, including essential oils, aroma therapy and massage products, cosmetics, cleaning supplies and health care products.

<http://www.taiwantoday.tw/ct.asp?xItem=178703&ctNode=445>





## 21. CPC Plans to Set Up Green Energy Research Institute by 2015

(Taiwan Economic News, 26 10 2011)

To comply with the government's policy of upgrading Taiwan's petrochemical industry, the state-run Chinese Petroleum Corp. (CPC) plans to invest NT\$100-200 million to set up two institutions in 2015, namely a green energy research institution and a new material trial production and certification center. The company disclosed that the projected two institutions would be set up in its refinery plant in Kaohsiung, southern Taiwan, which occupies a large area of 67 hectares and is slated to be relocated by 2015. The planned green energy research institute will focus on the development of physic nut, blue-green algae, cellulose fermentation, thin film solar materials, and electric vehicle parts. Besides, CPC is planning to launch investment in 2012 in 4-6 high-value-added chemical products, which should have the characteristics of high investment return, high technology, durability, and eco-friendliness. To enhance R&D capability, the company intends to gradually raise its research budget to NT\$5 billion a year from the current NT\$1.5 billion.

[http://cens.com/cens/html/en/news/news\\_inner\\_38192.html](http://cens.com/cens/html/en/news/news_inner_38192.html)

## 22. Taiwan projects selected for most powerful astronomical device

(Central News Agency, 25 10 2011)

Astronomers in several Taiwanese projects will be able to make their observations using the world's most powerful astronomical device, Academia Sinica said. Out of around 900 world-wide applications seeking to use the Atacama Large Millimeter/submillimeter Array (ALMA), Taiwan has succeeded in leading eight of the 112 projects accepted, according to Taiwan's top research institution. Jointly built by Europe, the United States, Japan and Chile, the ground-based astronomy observatory, located 5,000 meters above sea level in northern Chile, was opened for its first round of scientific operations Sept. 30. Upon completion in 2013, the facility will be a 16-km-wide array of 66 ultra-precision telescopes that will work as a single giant telescope, Academia Sinica said in a statement.

ALMA could allow a person in Kenting near the southernmost tip of Taiwan to see a NT\$1 coin on the top of Taipei 101, said Lee Chin-fei, an assistant researcher at Academia Sinica Institute of Astronomy and Astrophysics (ASIAA). Academia Sinica said the successful projects were chosen based on their scientific value, regional diversity and relevance to ALMA's major science goals. Wang Wei-hao, an assistant researcher at Academia Sinica who leads one of the projects, said his team will use ALMA to understand how fast certain galaxies are forming young and massive stars, and to gain a better understanding of distant galaxies. Taiwan's success is the result of its dedication and commitment to ALMA, said ASIAA Director Paul Ho. Taiwan joined the ALMA project in 2005.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aSOC&ID=201110250048](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aSOC&ID=201110250048)

<http://www.taiwantoday.tw/ct.asp?xItem=178790&ctNode=445>

## 23. Hepatologist honored by US liver group's award

(China Post, 27 10 2011)

Academia Sinica member Chen Ding-shinn has been selected as the recipient of the 2011 Distinguished Clinician Educator/Mentor Award by the American Association for the Study of Liver Diseases (AASLD) in recognition of his contributions to hepatology, Taiwan's top academic institute said. The award presentation is scheduled to take place Nov. 6 at the 62nd annual meeting of the AASLD in San Francisco. According to an AASLD statement, Chen, a distinguished chair professor of medicine at National Taiwan University College of Medicine, has devoted his life to teaching and research at the National Taiwan University Hospital since 1975. "He has trained over 90 gastroenterologists and hepatologists, many of whom now hold key positions in major teaching hospitals in Taiwan," the statement read. He was also instrumental in creating a public health program that has immunized most newborns in Taiwan against hepatitis B, it added.

<http://www.chinapost.com.tw/taiwan/national/national-news/2011/10/27/321108/Hepatologist-honored.htm>

## 24. NCU uncovers gas potential of mud volcanoes

(Taiwan Today, 27 10 2011)

National Central University researchers have discovered that the many mud diapirs, or "mud volcanoes," located on the seabed off Taiwan's southwestern coast release methane gas during regular seabed pulsations caused by tidal movements. If suitable methods can be developed to collect methane from the rich natural reserves of methane hydrate in these waters, it could become an important source of energy to help meet the country's power needs, according to NCU earth sciences professor Hsu Shu-kun. "There has been little prior research on the relationship



between the ebb and flow of tides and the release of methane from the seabed,” Hsu said at a National Science Council news conference Oct. 26.

Hsu explained that in May researchers placed eight seismographs for 21 days near some of the approximately 100-meter-high mud volcanoes, in waters about 500 meters deep. Seismographic readings revealed the regular pulsations. According to the team’s findings, water pressure near the seabed is reduced during low tide, leading to a release of methane into the water from the seabed’s methane hydrate—a solid compound in which a large amount of methane is trapped within a crystal structure of water. During the periods near high tide and low tide, when water level changes and consequently water pressure changes are most pronounced, methane and carbon dioxide concentrations in the waters near the seabed around the mud volcanoes are more than 100 times regular levels, Hsu pointed out. The diapirs are not actual volcanoes but instead formations created by geo-excreted gases and liquids, he noted.

<http://www.taiwantoday.tw/ct.asp?xItem=178908&ctNode=445>

## **25. Supra Incubation Center readies for opening**

(Taiwan Today, 31 10 2011)

The Supra Incubation Center, devoted to integrating resources for biotechnology, will begin operations Nov. 1 under the Executive Yuan, according to SIC Director Soo Whai-jen. To boost Taiwan’s burgeoning biotech industry, Soo said, the center will focus on identifying profitable new drugs and equipment, formulating complete industry value chains for each case and bringing products to market in the shortest time possible. Soo said he will conduct a comprehensive review of biotech research projects presented by local academics to identify potentially profitable drugs. “We plan to select three to five types of medical equipment and five to 10 kinds of therapeutic medicine with potential markets and global competitiveness as candidates for the SIC’s first wave of products,” Soo said. In the beginning, the Asia-Pacific region is the targeted market, where Taiwan is strong in certain areas of medical treatment such as stomach cancer, liver cancer and certain contagious diseases, he added. With the center on track, Taiwan will become a biotech leader in Asia, attracting experts from Hong Kong, Singapore and Vietnam for joint clinical trials, which will further expand the nation’s biotech strength, Soo predicted. Regarding the vast market in mainland China, he noted that regular meetings between Taipei and Beijing authorities are needed to promote official cooperation and bridge regulatory gaps. According to the Cabinet, the SIC launch is part of the government’s Biotechnology Takeoff Package, proposed in 2009 to capitalize on research achievements in pharmaceuticals and medical devices. Other efforts include a biotechnology venture capital fund of over NT\$10 billion, being raised from the private and public sectors, and the Taiwan Food and Drug Administration, established last year to strengthen the management of local medicine. Soo is currently senior vice president of U.S.-based Shire PLC’s Human Genetic Therapy division. Before that he spent 18 years supervising clinical trials in new drug development at Hoffmann La-Roche Inc. The center will initially be funded by the National Science Council and Science and Technology Advisory Group under the Executive Yuan and remodeled as a privatized company in January 2013.

<http://taiwantoday.tw/ct.asp?xItem=179102&CtNode=413>