



30 September 2008

Science, Technology and Education News from Taiwan Number 03 — September 2008

Introduction

Taiwan has shifted its industrial paradigm from “Made in Taiwan” to “Designed by Taiwan.” This phenomenon is expected to have a great impact on Taiwan’s industrial development, including academic and university industry collaborative research directions. The National Science Council’s major missions include promoting national science and technology development, supporting academic research, cultivating and recruiting sci-tech personnel, and supervising the administration of science-based industrial parks. NCS’s budget allocation for 2007 amounted to US\$ 1’293 mio. 70.7 % of the total was allocated for academic research, 15.7 % for the promotion of S&T development, and 13.6 % for the development of science parks. The funding for research projects amounted to US\$ 559.1 mio., of which 29.5 % went into engineering, 28.6 % into life sciences, medicine and agriculture, 20.9 % into natural sciences, and 14 % into humanities and social sciences. The rest was for science education (3.6 %), sustainable development 1.3 %, applied technology 0.9 %, and others 6.4 %.

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1. ITRI invents multi-viewer auto-stereoscopic display technology

(NSC, 12.09.2008)

The Industrial Technology Research Institute (ITRI) has developed technology that allows auto-stereoscopic display for multiple viewing. Stereoscopic display is a method that enables viewers to see stereoscopic images; however, such a display requires the viewer to wear special goggles or glasses to see the images properly. Auto-stereoscopic displays create a stereoscopic effect that the viewer can perceive without glasses, but the existing technology allows only one person to see the image at a time.

Article

http://stn.nsc.gov.tw/en/view_detail.asp?doc_uid=0970903030&kind_no=A06

2. Education, R&D spending will take lion's share of 2009 budget

(Central News Agency, 30.08.2008)

Education, science-technology research and cultural development will take the lion's share of the government's budget for 2009, according to a Cabinet-drafted budget plan referred to the Legislative Yuan for screening and approval. The draft budget plan allocates NT\$343 bio. for education, research and cultural spending for the coming year, accounting for 18.5 % of the government's total annual budget. The amount marks an 8.4 % increase from the 2008 level and the ratio registers a marginal growth of 0.2 percentage point.

Article:

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=132442&CtNode=10>

3. Taiwan`s ITRI Teams Up With Japanese and Korean Institutes to Develop 3D Image Technologies

(China Economic News Service, 01.09.2008)

Taiwan`s government-funded ITRI (Industrial Technology Research Institute) recently announced an alliance with Japan`s URFC (Ultra-Realistic Communications Forum) and Korea`s ARMI (Association of Realistic Media Industry), which will focus on development of 3D (3-dimension) image and animation sectors in the three countries.

Article:

http://cens.com/cens/html/en/news/news_inner_24502.html

4. Hiwin Technology to Set up Robotic Arm Laboratory

(China Economic News Service, 01.09.2008)

Hiwin Technologies Corp., one of Taiwan`s leading manufacturers of linear motion components, recently announced it would invest NT\$100 million to develop intelligent robot industry by cooperating with the Department of Mechanical Engineering of the National Taiwan University. The proposed laboratory will serve as a base for the development of intelligent robotic arms domestically.

Article:

http://cens.com/cens/html/en/news/news_inner_24492.html

5. Taiwan to Cooperate With EU-FP7 Program Nations on Three Fields

(China Economic News Service, 01.09.2008)

The Ministry of Economic Affairs (MOEA) has decided to work with several member nations of the European Union Seventh Frame Programme (EU-FP7) on three technology projects including organic solar cell and will subsidize participating Taiwanese companies.

The ministry has chosen Hungary, Czech Republic, and Germany as Taiwan`s cooperation partners in the program in consideration of their excellent development in organic solar cell, fuel cell, and Galileo global positioning technology.

Article:

http://cens.com/cens/html/en/news/news_inner_24496.html

Related News:



<http://www.taipeitimes.com/News/taiwan/archives/2008/09/02/2003422092>

6. Researchers make map of odd lightning phenomena

(Taipei Times, 01.09.2008)

Three years of observation of atmospheric lightning phenomena — a temporary colorful lightning appearing high in the sky during thunderstorms — recently allowed a research team at National Cheng Kung University's Department of Physics to be first in the world to present a detailed global map of the events.

The department's Imager of Sprite and Upper Atmosphere Lightning (ISUAL) research team said that images taken over the past three years by the satellite FORMOSAT-2 showed that 80 % of the luminous phenomena the team recorded were "elves," or red bursts of light in the shape of donuts in the sky caused by lightning.

The other 20 % of the luminous events recorded by the team were made up of "sprites" — a bell-shaped flash of light appearing about 50 to 90 kilometers in the air during thunderstorms — and two other types of lightning: "halos" and "gigantic jets," the release said.

The university organized the nation's first "sprite" research team in 1998 and has cooperated with National Central University, National Chiao Tung University, the University of California, Berkeley, and Japan's Tohoku University, in its research into atmospheric lightning phenomena over the past decade.

Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/09/01/2003421988>

7. New technology developed to grow blood-thinning herb

(Central News Agency, 01.09.2008)

The Agricultural Research Institute under the Cabinet-level Council of Agriculture (COA) has developed a new technology to grow "danshen," an herb widely used in traditional Chinese medicine to treat cardiac and vascular disorders, the institute announced Monday.

Danshen, also known as *Salvia miltiorrhiza*, is widely used in herbal medicine to treat atherosclerosis -- the hardening of the arteries with cholesterol plaques -- and blood clotting abnormalities.

It has been well documented that the tanshinones extracted from the roots of danshen have the ability to thin the blood and reduce blood clotting. Recent studies also show that tanshinones possess anti-toxin properties and can dilate coronary arteries.

Article:

<http://www.cna.com.tw/CNAeng/RealTimeNews/NewsDetail.aspx?strType=EM>

8. Team makes bacteria breakthrough

(Taipei Times, 04.09.2008)

Better control of cross contamination in hospitals may be available within the next 4-5 years after a group of researchers touted success in discovering a new way to apply thrombomodulin, a natural anticoagulant that helps to prevent and curtail inflammatory responses caused by bacteria. The breakthrough, which could potentially replace the use of antibiotics in infection prevention and treatment, was published in the journal *Blood* on 18 August.

Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/09/04/2003422264>

9. Researchers build green scooter that runs on air

(China Economic News Service, 03.09.2008)

Taiwan Semiconductor Manufacturing Co. (TSMC) plans to add high-K metal gate (HKMG) technology to its 32-nanometer process, which it plans to roll out some time next year.

HKMG technology will allow the process to make microprocessors, incurring speculations that the chipmaker is preparing the technology for shooting for orders from microprocessor suppliers including Advanced Micro Devices (AMD).

Article:

http://cens.com/cens/html/en/news/news_inner_24521.html



10. Gov't to allocate additional funds for energy research: premier

(Central News Agency, 04.09.2008)

Premier Liu Chao-shuan announced on 4/9 that the government will appropriate an additional NT\$30 billion over the next five years to facilitate the development of the domestic energy industry. Liu said the money will be allocated to the National Science and Technology Program, to which a sub-program for energy will soon be added. Currently, Taiwan's National Science and Technology Program covers R&D in nine key areas, including hazards mitigation, digital archives, and nanoscience/nanotechnology. Officials explained that the new sub-program for energy will focus on areas such as research on energy efficiency and conservation, development of new energy sources, control of greenhouse gas emissions, and the establishment of a domestic carbon exchange mechanism. Liu also gave a directive that individual energy-related projects operated by different government agencies should be integrated to eliminate redundant expenditures and to maximize the synergetic effects.

Article:

<http://www.cna.com.tw/CNAeng/RealTimeNews/NewsDetail.aspx?strNewsDate=&strNewsID=200809040020&strType=EM>

11. DNA vaccines for H5N1 virus in the works

(Taiwan News, 04.09.2008)

Scientists at the Academia Sinica are working on developing some novel vaccines for the avian influenza H5N1 virus and DNA-based vaccines have proven to be capable of providing protection for various H5N1 strains, researchers at the institution said. A team of researchers at Taiwan's leading academic body has also discovered that once new virus strains are found, the strains' genetic information can be incorporated into the vaccine database to produce new vaccines that can induce immunity against new strains of H5N1, one of the academics said. The findings of the team, led by David Ho of the Rockefeller University and Chi-huey Wong of Academia Sinica's Genomics Research Center, were published on September 2 in "Proceedings of the National Academy of Sciences."

Article:

http://www.taiwannews.com.tw/etn/news_content.php?id=730933&lang=eng_news&cate_img=49.jpg&cate_rss=news_Society_TAIWAN

12. Researchers link liver cancer to male hormone receptors

(Taipei Times, 05.09.2008)

Researchers from Chang Gung Memorial Hospital have found that male hormone receptors play a role in influencing the growth of liver cancer cells, which could explain why liver cancer, one of the major causes of death in Taiwan, occurs in males five to seven times more often than in females. The breakthrough, which could lead to ways to inhibit cancer cell growth in the liver, will be published as the editor's pick in this month's edition of Gastroenterology, a first-tier journal in the field of gastrointestinal disease.

Article:

<http://www.taipetimes.com/News/taiwan/archives/2008/09/05/2003422336>

13. Taiwan's first brain education museum inaugurated in Pingtung

(Central News Agency, 06.09.2008)

The Brain Education Museum, located in Sinpi township, was built under the joint sponsorship of the Pingtung County government and the Calo Psychiatric Center, a local hospital specializing in the treatment and rehabilitation of patients suffering from mental disorders. The museum is divided into two sections, one of them an exhibition section where visitors can learn about the structure and different functions of the brain through introduction displays and models. The exhibition showcases the brain's structure, emotions, perceptions and memory, ways to maintain brain health, diseases affecting the brain, and perception and sensory disorders. The second section is an interactive area for people to experience how the brain works.

Article:

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=133185&CtNode=9>



14. Taiwan wins 1st prize at international earth science Olympiad

(Central News Agency, 07.09.2008)

Taiwan's secondary school students have grabbed first prize at the International Earth Science Olympiad (IESO), one of the International Science Olympiads for the second straight year, the Ministry of Education reported. Taiwan won two gold medals and two silver medals to take the 2008 IESO competition along with South Korea, which also won two golds and two silvers.

Article:

http://www.etaiwannews.com/etn/news_content.php?id=733541&lang=eng_news&cate_rss=TAIWAN_eng

15. SYM, Media Lab & ITRI Make History with Foldable Electric RoboScooter

(China Economic News Service, 09.09.2008)

Local makers' innovative attempt is the prototype RoboScooter, a compact and foldable electric scooter:

The main backers of the RoboScooter include Sanyang Industry Co., Ltd. (SYM brand), the second-largest powered two-wheeler (PTW) maker in Taiwan; Industrial Technology Research Institute (ITRI) Creativity Laboratory, who aims to generate, evaluate, demonstrate ideas by tapping in-house mechanisms and intensive interactions with industry; and MIT Media Lab, a globally-famous research unit at the Massachusetts Institute of Technology devoted to integrating multimedia and technology.

The RoboScooter adopts an electrically-driven "robot" wheel in the scooter's folding mechanism, which sizably reduces the number of parts and weight; with the portable battery pack enabling multi-recharging modes for riders. "SYM anticipates the RoboScooter to change existing urban transport modes through integrating various applications and services," the president said, "and hopes to see the trendy, environment-friendly scooter on roads in the second half of 2009." Featuring strong, lightweight aluminum alloy and simplified overall design, the RoboScooter tips the scale at only 50kg, about half of its 50cc gasoline-engine counterpart. Initial tests show that the RoboScooter has maximum speed of 40 and 50 kph, and cruises for about 30 kilometers. SYM aims to cut the gross weight to 40 kg and extend the cruise range to 60 kilometer for commercialization.

Article:

http://cens.com//cens/html/en/news/news_inner_24567.html

16. Local researchers aid CERN project

(Taipei Times, 10.09.2008)

Since 1999, Taiwan has helped fund the controversial Large Hadron Collider (LHC) in Europe by pumping approximately NT\$400 million (US\$12.6 million) into the project, the National Science Council said.

The experiment, organized by the European Organization for Nuclear Research (CERN), was designed to explore the interaction between basic particles in the universe, or what is known as the "standard model" in particle physics. CERN is scheduled to circulate a beam through the entire LHC — located beneath the border between France and Switzerland — on Wednesday at 3:30pm Taipei time. It plans to launch the first high-energy collision next month.

The council said that over the past 10 years researchers from the Academia Sinica, National Central University and National Taiwan University (NTU) have joined scientists from around the world to work on two experiments related to the LHC project: A Toroidal LHC Apparatus (ATLAS) and Compact Muon Solenoid.

Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/09/10/2003422802>

17. Mesenchymal stem cell transplant greenlighted for clinical test

(Central News Agency, 10.09.2008)

Taiwan's first-ever clinical testing of mesenchymal stem cell transplants will soon begin at China Medical University Hospital (CMUH) in Taichung, after the project was greenlighted by the Cabinet-level Department of Health.

The newly-approved project is one of a number of stem cell clinical experiments being conducted by Bionet Corp. -- a Taiwan-based biotech company -- and sponsored by the Ministry of Economic Affairs.

Following the mesenchymal stem cell transplant tests, another five projects will be conducted at several other domestic hospitals.



Article:

http://www.etaiwannews.com/etn/news_content.php?id=735735&lang=eng_news&cate_rss=TAIWAN_eng

18. New iron-based superconductor discovered

(Central News Agency, 11.09.2008)

Taipei, Sept. 11 (CNA) A group of Taiwanese physicists have discovered a new kind of iron-based superconductor that has no toxic ingredients and is easier to manipulate. A scientific report on the new compound was published Sept. 5 in the early online edition of the Proceedings of the National Academy of Sciences.

Article:

<http://www.cna.com.tw/CNAeng/RealTimeNews/NewsDetail.aspx?strNewsDate=&strNewsID=200809110033&strType=JD>

19. Taiwan, Netherlands to work on high-tech textiles

(Central News Agency, 16.09.2008)

Taiwan and the Netherlands will work together in developing high-tech textiles, which could be used in wind power generators and photovoltaic applications in the future. The announcement came after the Taiwan Textile Research Institute (TTRI) inked a memorandum of understanding (MOU) on the high-tech textile cooperation with the Netherlands Council for Trade Promotion (NCH) in Taipei City.

Article:

<http://www.cna.com.tw/cnaeng/RealTimeNews/NewsDetail.aspx?strNewsDate=&strNewsID=200809150031&strType=EM>

20. Asia's first vaccine production plant to open next year

(Taiwan News, 17.09.2008)

The ADImmune Corporation (ADI) unveiled plans to operate Asia's first vaccine production plant in line with European standards, with an aim to provide adequate supplies of influenza vaccines and to develop new vaccines. Under the NT\$2.8-bio. project, the plant is expected to be completed next year and it will have the capacity to produce more than 30 mio. doses of egg-based influenza vaccines per year. Chan said development of new vaccines, such as those against enterovirus 71 and the diphtheria-tetanus-a cellular pertussis (DTaP) vaccine, will be a part of the project.

Article:

http://www.taiwannews.com.tw/etn/news_content.php?id=740574&lang=eng_news&cate_img=49.jpg&cate_rss=news_Society_TAIWAN

21. Taiwan, Singapore to cooperate again on commercial satellite

(Taiwan News, 19.09.2008)

Taiwan's Chunghwa Telecom (CHT) will set up a joint venture with a Singapore counterpart to prepare for the launch of Taiwan's second commercial satellite in the fourth quarter of 2010. CHT's subsidiary in Singapore will invest NT\$1.35 bio. (US\$42 mio.) in the joint venture, giving it a 38 percent share, while the remaining 62 percent will belong to Singapore Telecom. The new satellite, dubbed ST-2, will be launched into a geostationary orbit to replace its predecessor, the ST-1, which was launched by the two companies in August 1998. The ST-2, which has a 15-year lifespan -- three years longer than the ST-1 -- will cover a wider area including Taiwan, Singapore, Japan, South Korea, China, India and the Middle East. It has stronger transmission power than ST-1, and will help CHT's existing business in remote communications, video and audio broadcasting, and information transmission, adding that the ST-2 will also help develop applications in Internet protocol. The new satellite, along with CHT's multipath routing submarine cable system, will allow the company to become East Asia's communications center,

Article:

http://www.taiwannews.com.tw/etn/news_content.php?id=743027&lang=eng_news&cate_img=49.jpg&cate_rss=news_Society_TAIWAN



22. Engineered enzyme protects against herpes: report

(Taipei Times, 19.09.2008)

A group of researchers at National Cheng Kung University Hospital found a genetically engineered enzyme capable of inhibiting fatal encephalitis caused by the HSV-1 strain of herpes, HSV-1 may induce various syndromes in humans. Encephalitis is the most deadly — its mortality rate is 70 percent or higher if left untreated, with only 2.5 percent of all patients able to reestablish normal neural functions, the researchers said in a scientific paper published on September 2 in the Journal of Clinical Investigation.

Article:

<http://www.taipeitimes.com/News/taiwan/archives/2008/09/19/2003423642>

23. ITRI, IBM Team Up to Develop Advanced IT Technologies

(Central News Agency, 25.09.2008)

The government-backed Industrial Technology Research Institute (ITRI) has recently partnered with International Business Machines (IBM) Corp. to develop next-generation multi-core computing platform and next-generation memory technology.

For the next-generation computing platform program, the institute has opened an incubator center to develop the platform based on IBM's Cell/B.E. multi-core computing engine. Major task of the center is to develop software for the platform and cultivate talents to support the technology.

The two organizations' next-generation memory technology program will focus on IBM's "Racetrack" technology. IBM codenames the memory "Racetrack" because the data "race" around a nanowire track. The technology could enable a MP3 player to store about 500,000 songs or 3,500 movies--100 times more than is currently possible -- with lightning-fast boot times, far lower cost and unprecedented stability and durability.

Article:

http://cens.com/cens/html/en/news/news_inner_24796.html

24. Taiwan wins 9 golds in international contest for young inventors

(Central News Agency, 29.09.2008)

Taiwan's students grabbed nine golds at the International Exhibition for Young Inventors (IEYI) held this past weekend in Taipei with inventions that helped cope with small problems in daily life. Taiwan's teams also won 11 silvers and 14 bronze medals, giving it the best showing of any participant in the tournament. Japan and Singapore finished second and third. This year's competition drew 500 elementary, junior high and senior high students from 13 countries, vying for gold in 16 events in eight broad categories. Next year's contest will be held in Nigeria.

Article:

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=135766&CtNode=9>

25. Taiwanese scientist wins award for genetic research

(Central News Agency, 30.09.2008)

Li Wen-hsiung, an academican of Academia Sinica, has received the 2008 HUGO/Chen Award for Distinguished Academic Achievement in Human Genetic and Genomic Research for his achievement in genetic and genomic research from the Human Genome Organization (HUGO). The award, given this year for the first time, honors scientists who produced extraordinary work in human genetic and genomic research which has changed the thinking in the field. Li, whose expertise is in evolution biology, human genetics and genomics, is a researcher and director of Academia Sinica's Biodiversity Research Center. He is also chief executive officer of the institute's Division of Bioinformatics, Genomics Research Center.

He has won many other honors for his academic achievements, including the Balzan Prize in genetics and evolution in 2003. The prize, awarded by the International Balzan Prize Foundation, is the highest honor in celebration of a scientist's achievement in this field. Li was the first ethnic Chinese scientist ever to win the award.

Article:

<http://www.cna.com.tw/CNAeng/RealTimeNews/NewsDetail.aspx?strNewsDate=&strNewsID=200809300028&strType=JD>

30/9/2008