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The Taiwanese auto industry has unveiled the first electronic stability system platform for cars. It is mainly designed to manufacturers to test the stability of cars on dry and wet roads respectively.

Users of computers, tablets and mobile phones will soon need just one charger. New equipment invented in Taiwan is able to determine the right voltage automatically and supply the proper current to the device. Regarding batteries the National Cheng Kung University in Taipei has made significant technical breakthroughs of the next-generation magnesium batteries which could lead to a replacement of the lithium batteries.

The global ranking of national Taiwan University (NTU) has fallen to 155th in the latest assessment by the Times Higher Education magazine. It is the lowest ranking since launch in 2010.

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Taiwan shines at Poland invention show



(Central News Agency, 17 10 2014)

Taiwanese inventors have grabbed 38 gold, 33 silver and seven bronze medals at this year's International Warsaw Invention Show in Poland.

Wu Chih-yao, secretary-general of the Taipei-based Chinese Innovation and Invention Society and leader of the Taiwanese delegation, said that many of the inventions won recognition because they were practical and catered to people's needs.

The society introduced some of the winning works, such as a portable camping lamp that can play music and a mobile power pack.

It also presented a self-cleaning animal litter pan that not only stays clean but also comes with a training function that gives voice instructions.

The society noted that many of the delegates were students from high schools or technology universities who displayed immense inventing potential.

More than 400 works from 24 countries took part in the Oct. 14-16 show.

<http://focustaiwan.tw/news/ast/201410170030.aspx>

NCKU has breakthrough on magnesium batteries

(The Taipei Times, 17 10 2014)

National Cheng Kung University (NCKU) professors have made "significant technical breakthroughs" in the development of the next-generation magnesium batteries that could replace lithium batteries, the university said yesterday.

A professor at the university's department of materials science and engineering, Hung Fei-yi, said he teamed up with colleagues Lui Truan-sheng said Chen Li-hui and instrument center's Chen Kuan-jen on a research project into the next-generation of batteries. Of all materials, magnesium has the greatest potential, but there are still some issues to overcome, especially as magnesium ionic activity is high, Hung said.

The team has increased the stability of the magnesium battery prototype by controlling the reduction-oxidation effects and by the use of magnesium membrane electrodes and magnesium powder electrodes technology, Hung said. Magnesium batteries can hold eight to 12 times the capacity of lithium batteries and have five times the efficiency of lithium when charging or using stored energy, Hung said.

It is the team's hope that the next-generation battery would be more environmentally friendly, Hung said, because in the present generation the negative electrode is usually made from graphite, which is made from processed petroleum coke. He added that not only are graphite electrodes less capable of storing energy, the processing of petroleum is less environmentally friendly.

<http://www.taipeitimes.com/News/taiwan/archives/2014/10/17/2003602287>

Scholars to use satellites to unveil seafloor's secrets

(The China Post, 15 10 2014)

Cheinway Hwang, a professor at National Chiao Tung University, and Emmy T.Y. Chang, an associate professor at National Taiwan University, noted that researchers used to have to rely on research vessels to explore the sea, but said the gravity data provided by satellite can present faults in the ocean floor, which is a major discovery in marine geoscience.

Their research has been published in the October issue of the prestigious journal Science. They noted that trenches and ridges on the Earth's seafloor are shaped by tectonic processes such as seafloor spreading and plate subduction but added that detailed knowledge of seafloor tectonics is lacking in many areas. The most comprehensive data comes from satellite altimeters, which use the strength and waveform of the radar signal returned from the sea surface to determine the tectonic properties of the underlying seafloor. Hwang said changes in glaciers and frozen soil in Tibet, Central Asia, Siberia and Antarctica can be monitored through related technology. Satellite altimetry has also been used to observe land subsidence in the world's major agriculture regions due to the overuse of underground water.

<http://www.chinapost.com.tw/taiwan/national/national-news/2014/10/15/419489/Scholars-to.htm>



Academia Sinica joins int'l alliance for climate change

(Central News Agency, 14 10 2014)

Academia Sinica, Taiwan's top research institution has joined an international alliance to enhance Taiwan's ability to tackle climate change and flood disasters, it announced on 13 Oct. On Sept. 23, Academia Sinica became an official member of the Rotterdam-based Foundation Delta Alliance International, a global network that seeks to improve the resilience of the world's river deltas regions, the institution said in a statement. It said it will partner with local universities to ensure the sustainable development of the four major river delta regions in Taiwan, reduce the impact of natural disasters, strengthen recovery from such disasters, and tackle food security and health and disease problems arising from climate change. "Through the network of Delta Alliance, Academia Sinica will be able to share knowledge and experience of Taiwan delta regions, and work together with other international members and environmental organizations," the English statement said.

<http://www.chinapost.com.tw/taiwan/intl-community/2014/10/14/419414/Academia-Sinica.htm>

Tang Prize encourages practical application of research: NTU president

(Central News Agency, 14 10 2014)

Unlike the Nobel Prize, the Tang Prize, a Taiwanese-founded international award, emphasizes the practical application of research, according to the president of National Taiwan University. In the category of biopharmaceutical science, for example, the award granted is for research that can be applied practically, Yang Pan-chyr told CNA in an interview earlier this month. Although basic medical research is very important, the public always hopes to see research findings applied to real-life situations, which is exactly the kind of work that the Tang Prize encourages, he said. The studies by the two Tang laureates in biopharmaceutical science -- immunologists James P. Allison of the United States and Tasuku Honjo of Japan -- represent a significant breakthrough in cancer treatment and could help improve human health, said Yang, who was on the selection panel for that category of the award. Allison and Honjo shared the Tang Prize for their discovery of cytotoxic T-lymphocyte antigen 4 (CTLA-4) and programmed cell death protein 1 (PD-1) as immune inhibitory molecules, which were later used in cancer immunotherapy. Recent clinical studies have shown that simultaneous targeting of both CTLA-4 and PD-1 immune checkpoints can be synergistic, and this success indicates that immunotherapy in cancer treatment can be effective, Allison said in Taipei in September. "We're entering an age when we can think of actually curing many types of cancer," he said. Yang said the Tang Prize is a great encouragement to researchers in the four categories -- biopharmaceutical science, sustainable development, sinology and rule of law -- which are not covered by the Nobel Prize. He said the award adheres to the high standards of the Nobel Prize, from nomination and selection to keeping the identity of the nominees confidential. The Tang Prize will help spur greater investment of resources in the four areas, and will raise Taiwan's international profile, he said. The organizers should set a short-term goal of building the reputation of the award, Yang suggested. In the mid- to long-term, they could consider whether to include other prize categories so as to encourage more researchers, he added. The biennial Tang Prize, which comes with a cash prize of NT\$40 million (US\$1.34 million) and a research grant of NT\$10 million, recognizes academic, scientific and social advances and contributions in the aforementioned four areas. It was established by Taiwanese entrepreneur Samuel Yin in 2012 in an effort to supplement the Nobel Prize.



http://www.taiwannews.com.tw/etn/news_content.php?id=2593154
http://www.taiwannews.com.tw/etn/news_content.php?id=2594238

Autos' electronic stability system test track lauded

(The Taipei Times, 07 10 2014)

The nation's first track for testing the electronic stability systems in cars was unveiled at the Chang Bin Industrial Park in Changhua County, and was hailed as a milestone for the nation's auto industry. According to the Automotive Research and Testing Center, the track allows the auto industry to test the reliability and safety of the Electronic Stability Program (ESP), which all new vehicles must be equipped with by 2018.



The track's manager, Huang Ping-cheng, said that the construction represented a major breakthrough for the nation's road pavement technology industry. "It [the track] proves that Taiwanese are perfectly capable of building the infrastructure needed to test vehicular safety," he said. Huang said that the design and construction of the track were carried out by Taiwanese, adding that they had faced many challenges during the process. "They managed to overcome the scorching heat in summer and the windy weather in winter," he said. "They also needed to have perfect control of the texture of the surface."

The track is divided into three sections. A section featuring a fan-shaped testing platform with an asphalt pavement was designed for vehicle tests requiring a larger buffer zone. The other two zones were designed to allow manufacturers to test the stability of cars on dry and wet roads respectively. They can test if drivers might skid out of control while making turns at high speeds.

<http://www.taipeitimes.com/News/taiwan/archives/2014/10/07/2003601499>

New multi-device battery charger locally developed

(Central News Agency, 05 10 2014)

Computers, tablets and mobile phones are musts for many people today, but their batteries — all with different voltages — need different chargers, creating hassle for travelers who have to carry a number of cords for their devices. Liang Tsorng-juu, a professor in the Department of Electrical Engineering at National Cheng Kung University, has come up with a solution: a charger which can provide energy to any electronic device.

Normally, batteries of different voltages could be destroyed if connected to the wrong charger, and may even explode if overcharged.

Liang's charger can determine the right voltage automatically and supply the proper current. What makes this charger unique is that it eliminates the communicating loop, a chip which identifies batteries in many multi-voltage chargers, which means it can be made cheaper, according to Liang. The university said it is applying for a patent for the new device before transferring it to manufacturers for mass production.

<http://www.chinapost.com.tw/taiwan/national/national-news/2014/10/05/418749/New-multi-device.htm>

NTU drops to 155th in Times university rankings

(Central News Agency, 02 10 2014)

The global ranking of National Taiwan University (NTU) has fallen to 155th in the latest assessment by the Times Higher Education magazine, published on 1 Oct. The ranking, which represents a decline of 13 spots from last year, is the lowest ever for NTU since the Times Higher Education World University Rankings was launched in 2010. Phil Baty, an editor responsible for the rankings, said the result should serve as a warning to Taiwan's government. Taiwan needs a flagship university that can represent the country internationally and should focus on ensuring that the country's top school can maintain a high ranking globally, Baty said. Also, the government must continue to invest in higher education to help the country's universities remain competitive, he said. NTU is the only institution in Taiwan to make the top 200 list. Universities ranking lower than 200 are not assigned individual rankings, but are presented within various ranges. National Tsing Hua University is rated 251-275 and National Chiao Tung University 276-300. National Cheng Kung University, National Sun Yat-sen University, and National Taiwan University of Science and Technology are in the 351-400 bracket. The top five institutions this year are the California Institute of Technology, Harvard University, Oxford University, Stanford University and the University of Cambridge, in that order. The University of Tokyo, which is ranked 23rd, is the best-performing institution in Asia. National University of Singapore is ranked 25th. A total of 24 universities in Asia are listed among the top 200 this year, up from 20 last year. The performance of the universities is measured using 13 indicators in five main categories: teaching, research, citations, international outlook and industry income, which refers to a university's ability to reinforce industry with innovation.

http://www.taiwannews.com.tw/etn/news_content.php?id=2584453
<http://www.taipeitimes.com/News/taiwan/archives/2014/10/03/2003601172>

Lab unveils deep-diving ocean-floor seismometer

(The Taipei Times, 01 10 2014)

The National Applied Research Laboratories (NARL) unveiled its ocean-bottom seismometer array plan, which it said would help the nation obtain more accurate data about underwater earthquakes and marine geology, while also being capable of analyzing underwater landslides to assess the risks of projects. The seismometer, named the "YardBird" by developers, was introduced by the institution's Taiwan Ocean Research Institute in 2010, with



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technical support from the Academia Sinica and National Sun Yat-sen University, and is capable of diving as deep as 5,000m below sea level, the laboratory said.

NARL assistant engineer Hsiao Yu-Hung said the device uses Faraday's law of induction by employing an electromagnet to transform movement into electricity that passes through a coil surrounding the magnet, allowing the seismometer to detect vibrations as light as a footstep, he said. Fitted with a micro seismometer balancing system — which Hsiao said is the device's core technology and which was developed and patented in Taiwan — the machine's sensor self-adjusts its slant so measurements are conducted perpendicular to the seabed, allowing for accurate gauging of earthquakes while minimizing the effects of underwater conditions, he said.

He said that the institution has since 2010 taken measurements with the seismometer from 28 sites in the waters surrounding the nation. The deepest was conducted on Sept. 6, 2012, in a sea basin off Taitung County, at 4,887m below sea level, he added. Highlighting the significance of the technology, he said Taiwan ranks No. 2 among all Asian nations in the application of ocean-bottom seismometers, second only to Japan, and that South Korea in 2011 and 2012 borrowed four devices from Taiwan for deployment off its eastern coast for six months.

<http://www.taipeitimes.com/News/taiwan/archives/2014/10/01/2003601011>