



31 May 2013

**Science, Technology and Education News from Taiwan
Number 05 — May 2013**



Stefan M. Moser, Associate Professor of Information Theory Lab, Department of Electrical and Computer Engineering at National Chiao Tung University (NCTU) was presented with the 2013 Wu Ta-You Memorial Award on 3 May at the National Science Council Academic Research Award celebration in Taipei for his research at NCTU to investigate the theoretical foundations of communication systems of today and the future.

Established in 2007 by the National Science Council (NSC), the top government agency in Taiwan responsible for promoting the development of science and technology, the "Wu Ta-You Memorial Award," has been designated as one of the highest academic honors given to the maximum of 40 scholars annually to encourage young researchers (under 42 years

old). The Award recognizes outstanding researchers and scientists who, early in their careers, have already demonstrated or shown exceptional accomplishments in science and technology. Through this Award, NSC identifies the most promising of a new generation of cutting edge researchers in fields that are critical to Taiwan's science and technology development. Moreover, it is extremely rare that a foreign researcher in Taiwan is being considered for this Award.

Professor Moser was born in Switzerland. He received the diploma (M.Sc.) in electrical engineering (with distinction) in 1999, the M.Sc. degree in industrial management (M.B.A.) in 2003, and the Ph.D. degree (Dr. sc. techn.) in the field of information theory in 2004, all from ETH Zurich, Switzerland. He is current an Associate Professor in the Department of Electrical Engineering at the National Chiao Tung University (NCTU), Hsinchu, Taiwan, where he has worked since 2005. His research interests are in information theory and digital communications. In addition to 2013 Wu Ta-You Memorial Award, Dr. Moser has also received many awards for his work and teaching, including the Honors of 2012 Wu Ta-You Memorial Award, the Best Paper Award for Young Scholars by the IEEE Communications Society and IT Society (Taipei/Tainan Chapters) in 2009, the NCTU Excellent Teaching Award, and the NCTU Outstanding Mentoring Award (both in 2007), and he was presented with the Willi Studer Award of ETH and the ETH Medal both in 1999, and the Sandoz (Novartis) Basler Maturandenpreis in 1993.

"I am very much honored and extremely happy to have received the Award, especially as I am one of only very few international university faculty members in Taiwan," Professor Moser said. He went on to say that "Taiwan is very open to outsiders and integrates them very well into their society. I very much hope that in future more international researchers will discover the excellent working environment found in the academic field in Taiwan and will come to enjoy life and work in Taiwan."

Contents

1.	Taiwan unveils cutting-edge smart technology	2
2.	TVGH plans heavy ion radiotherapy unit	2
3.	Taiwanese scientist enters international scientific commission	2
4.	University research team produces security robot	3
5.	Taiwanese scientists develop fast virus genome sequencing method	3
6.	NRPB, Glaxo ink clinical trial research pact	3
7.	NCTU develops fast DNA sequencer	4
8.	Researcher explains how biology can improve crops	4
9.	Observatory cooperation forged by Taiwan, Mexico	5
10.	Taiwanese wins New Product Innovation Award for the first time	5
11.	ARTC Wins Gold and Silver at 41st Inventions Geneva	5
12.	NSC unveils research on developing nano-drugs	6
13.	NSPO extends life of research satellite	6
14.	Taiwan expands PV inverter testing capability	6
15.	ROC sets up international rice genomics center	7



1. Taiwan unveils cutting-edge smart technology

(Taiwan Today, 01 05 2013)

Taiwan's Institute for Information Industry unveiled smart technologies it developed over the past year, together with R&D plans for 2013, at a news conference April 30 in Taipei City. "Our plan for this year is to continue R&D in big data analytics, enterprise cloud systems, information security, smart green energy, smart living and smart networks," institute President Wu Ruey-bee said. "We hope through the development of relevant communication technologies to transform the nation into an information society." Wu gave as an example the institute-developed Cloud Appliance for Enterprise, which through its Cloud Appliance Kernel Environment, Personal Cloud Computer and Cloud Object Storage Appliance fully meets the service demands of industrial cloud computing markets. The organization will further assist Taiwan firms in applying the technology for commercial purposes and developing products such as a platform for integrating cloud information, he added. With regard to environmental protection and energy conservation, the institute has developed two technologies to monitor and control electricity usage at home and in firms, Wu noted. Another technology allows drivers to inspect their vehicles using smartphone connections to a cloud system, and make basic repairs following step-by-step instructions from the cloud. In line with changing consumer behavior and the virtual integration of mobile commerce, the institute has also invented a technology incorporating all types of smart terminal apparatuses, such as smartphones, iPads and outdoor digital signage to provide various value-added services, Wu said. "The technology is undergoing empirical testing at the Dream Mall in Kaohsiung City," he said. "It offers consumers an opportunity to interact with signs via their smartphones, bringing extra fun to the shopping experience."

<http://www.taiwantoday.tw/ct.asp?xItem=204627&ctNode=445>

2. TVGH plans heavy ion radiotherapy unit

(Liberty Times, 03 05 2013)

Taipei Veterans General Hospital said May 2 it plans to build a heavy ion radiotherapy treatment center, specializing in difficult cancer cases. "Heavy ion radiotherapy is particularly suited to topical treatment of hard-to-reach tumors, or those that are too large to treat by conventional means," said Chang Cheng-yen, head of TVGH's Radiotherapy Division. "This is about 3 to 5 percent of all cancer cases, which equates to about 3,000 people in Taiwan per year." Heavy, or carbon, ion therapy involves accelerating a stream of charged carbon ions to near the speed of light and then firing them at the diseased tissue. The ionizing reactions selectively kill the cancerous cells. Traditional ion radiotherapy uses protons, but the lower mass of the proton means they are more easily absorbed by other tissues and have less penetrating power. This produces side effects such as epidermal tissue fibrosis and bone necrosis, as well as making patients feel sick, Chang said. "Patients usually have to rest after treatment. But with heavy ion therapy they are able to return straight to work," he said. TVGH is considering a build-operate-transfer to construct the treatment center at a projected cost of NT\$4 billion (US\$135 million) to NT\$5 billion. It will be four years at the earliest before the center becomes operational, Chang said.



<http://www.taiwantoday.tw/ct.asp?xItem=204705&ctNode=445>

3. Taiwanese scientist enters international scientific commission

(Central News Agency, 04 05 2013)

A Taiwanese robot and artificial intelligence specialist has become a member of the scientific commission under the G8 & G20 Alumni Association, allowing him to help create the agenda of the association's events and select their participants. Ricky Lee, an assistant professor at National Taiwan University of Science and Technology's Graduate Institute of Automation and Control, will serve on the commission for three years until 2015. It is a rare opportunity for Taiwan to be on the commission, as it is not a G20 member, Lee told CNA. Lee expressed the hope that his membership will help raise the global profile of research by Taiwanese scholars. The scholar said he is planning to propose a forum under the name of the scientific commission in Taiwan later this year, to which science officials in the Asia-Pacific region will be invited. Lee was one of six representatives of the university invited to the association's G20 Youth Forum in St. Petersburg in April, where he spoke at a roundtable conference on innovation and technology. Academic conferences held by G20-affiliated bodies are considered influential, with results of discussions compiled into publications that are given to leaders of the G20 countries, the International Monetary Fund and the World Bank. Lee told CNA that the website of the youth forum used "Taiwan, Province of China" before the Ministry of Foreign Affairs filed complaints seeking a correction. The correction has been made, Lee said. Lee said he was glad the Republic of China flag was shown alongside flags of other participating countries, which included China, Japan, Canada and the United Kingdom, at the closing ceremony of the forum.



The Geneva-based association is an international non-government body that reunites participants in the association's previous youth forums and independent experts related to the G8 and G20 members.

<http://focustaiwan.tw/news/aall/201305040027.aspx>

4. University research team produces security robot

(Taipei Times, 04 05 2013)

A research team from National Taiwan Normal University (NTNU) has invented a robot that can carry out automated nighttime surveillance, climb stairs and move freely around buildings, the team announced. The team was comprised of researchers from the school's Computational Intelligence and Robotics Lab and led by Wang Wei-yen, a chair professor in the Department of Applied Electronics Technology. It took the team three years to develop the robot, named "NTNU-CIR-I," which is capable of carrying out surveillance patrols in complicated landscapes during the day and at night. The team said the robot was meant to fill the gap in the security of school campuses that are open to the public after class hours. The robot can patrol areas that are not patrolled so often by campus security and that the scope of mounted surveillance cameras cannot reach. Many other robots rely on four wheels to move and are thereby limited to flat surfaces, but the NTNU-CIR-I was designed to overcome this limitation by employing highly sensitive sensors to detect and navigate past obstacles, even in the dark, Wang said, adding that it can also calculate the angles of slopes or stairs to adjust its movements as it climbs. The team said they think the robot could be a useful addition to security systems in factories, buildings and campuses because it can transmit real-time footage through the Internet. It could also be used for educational purposes, such as though the application of its sensors, motor control, image processing and intelligence algorithm design, the team added. Wang was awarded the titles of Institute of Electrical and Electronics Engineers Fellow and Institution of Engineering and Technology Fellow this year for his contribution to the field of robotics, the school said, adding that the team is applying for a patent for the robot.



<http://www.taipeitimes.com/News/taiwan/archives/2013/05/07/2003561676>

5. Taiwanese scientists develop fast virus genome sequencing method

(Central News Agency, 07 05 2013)

Taiwanese researchers said they have developed a new technique that significantly reduces the time and money required for genetic sequencing of viruses, which is expected to speed up the process and cut the cost of developing vaccines and anti-viral drugs. The technique is applicable in the fields of genome research, preventive medicine, and the development of personalized medicine, in which medical treatment is customized on the basis of the individual's genetic code, said researchers at the National Chiao Tung University (NCTU) in Hsinchu. The new technique allows genome sequencing of a virus in just one hour instead of one day and reduces the cost from US\$5,000 to about US\$500, said G. Steven Huang, one of the scientists, who is a professor at NCTU's Department of Materials Science and Engineering. The research, conducted by Huang and Chen Yu-shiun, a professor at NCTU's Department of Biology Science and Technology, will be published in the journal Nature Nanotechnology in May. Huang said current techniques require the use of fluorescence and other external aides to enable the reading of polymerase synthesis. The new technique requires no external aides and reduces the error rate to nearly zero, he added. Huang said he has applied for patenting of the sequencing technique and is awaiting approval. The new technique is expected to replace the current method as a more affordable, accurate and faster approach, according to Huang.

<http://focustaiwan.tw/news/aall/201305070039.aspx>

6. NRPB, Glaxo ink clinical trial research pact

(Taiwan Today, 07 05 2013)

Taiwan's National Research Program for Biopharmaceuticals inked a memorandum of understanding on clinical vaccination trials with U.K.-based GlaxoSmithKline PLC May 7, further boosting local capabilities in this key biotech research area. Signed by NRPB Director Yang Pan-chyr and Glaxo Taiwan General Manager Thomas Willemsen in Taipei City, the pact calls for both organizations to collaborate on trialing vaccinations for diseases such as influenza type A and B, as well as tuberculosis and recurring lung cancer. Yang said the landmark agreement is Taiwan's largest clinical trial collaboration to date, and will focus on preventing some of the most common diseases around the world while benefiting millions of patients. "We hope this memorandum will further cement our partnership with



Glaxo and expect it to be the start of more joint projects with pharmaceutical firms worldwide,” he said. “It should also help establish Taiwan as a front-runner in clinical trial research.” According to Willemssen, Taiwan has always been an important Glaxo research partner in the Asia-Pacific region, with more than 20 experiments taking place in the country representing 13 percent of the firm’s projects worldwide. “Taiwan possesses distinctive advantages in clinical trial research, including the ability to fast-track results, high reliability of data, and a plethora of medical professionals with international experience,” Willemssen said. Glaxo has spent over NT\$1 billion (US\$33.89 million) on joint R&D activities with local medical institutions since 2007, and remains committed to partnering with Taiwan going forward, he said. “We hope GSK can play a key role in helping Taiwan become a biotech research hub in Asia.” With an annual budget of NT\$2.5 billion, the NRPB aims to promote objective-oriented research for new pharmaceuticals and medical devices, as well as bridging the gap between academia and industry. It is supported by the Atomic Energy Council, Department of Health, Ministry of Economic Affairs and National Science Council. As part of government efforts to develop Taiwan’s biomedical sector, the Council for Economic Planning and Development approved a proposal May 6 to build a hospital in northern Taiwan’s Hsinchu Biomedical Science Park. The NT\$5.5 billion facility has a planned capacity of 728 beds and will be operated by National Taiwan University Hospital under the auspices of the Department of Health. Construction of the hospital will begin next year, the CEPD said, adding that the first patients are expected to be admitted in 2018. (JSM)

<http://www.taiwantoday.tw/ct.asp?xItem=204816&ctNode=445>

7. NCTU develops fast DNA sequencer

(Taiwan Today, 08 05 2013)

A team from Hsinchu City-based National Chiao Tung University has developed a rapid, precise and economical technique for single-molecule DNA sequencing, which could be used to develop a vaccine and anti-viral drugs to fight H7N9 bird flu, NCTU said May 7. “Recent research has shown H7N9 is a recombinant virus formed from three other flu strains, and the rapid speed at which it mutates means that fast sequencing is vital to combating the disease,” an NCTU representative said. The results of the research team, led by NCTU professors G. Steven Huang from the Department of Materials Science and Engineering and Chen Yu-shiun from the Department of Biological Science and Technology, is published in the latest issue of the journal Nature Nanotechnology. The new technique monitors the electrical conductance of a phi29 DNA polymerase as it incorporates unlabelled nucleotides into a template strand of DNA, where the conductance is measured by attaching it to a protein transistor. “With the new system a virus genome can be sequenced in just one hour, instead of one day,” Huang said. “This is also the first time people can see the entire process of polymerase synthesis without the use of fluorescence and other external aids,” Chen said. The team is currently exploring how to combine industrial knowledge with their groundbreaking bionanotechnology research to enhance its productivity and economic value, Huang said

<http://www.taiwantoday.tw/ct.asp?xItem=204880&CtNode=436>

8. Researcher explains how biology can improve crops

(Taipei Times, 09 05 2013)

The future of using cell-membrane transporters in plants to improve crops for sustainable food production was introduced at the National Science Council by Tsay Yi-fang, a research fellow at Academia Sinica’s Institute of Molecular Biology. The perspectives she reported on were suggested by an international collaborative team, which included Tsay and 11 researchers from the US, UK, Australia, Mexico and Japan, in the latest issue of Nature magazine. “The membrane is like a plastic bag wrapped around a plant’s cells, to block outside substances from affecting the cell. However, the cell needs to exchange substances with the outside environment, such as absorb nutrients and discharge waste, so it needs ‘holes’ in the ‘plastic bag,’ which are called transporters — a protein on the membrane [that lets certain substances through and blocks others],” Tsay said. Tsay’s contribution to the report was mainly expanded from her discovery in 2009 of the transporter in charge of absorbing nitrates. It not only transfers nitrates into the cell, but also act as a “gatekeeper” by detecting the level of nitrates in the soil and transmitting the information to the cell’s “control center” — the nucleus. “Knowing that the transporter has more than one function allows us to work on how to improve crops by modifying their transporters, such as improving a certain crop’s nitrates absorption rate. This in turn will reduce the amount of nitrogen-rich fertilizer used on those crops,” she said. Although nitrogen-rich fertilizer contributed to the “green revolution” in agriculture by greatly improving crop yields, about 1 percent of the world’s energy is spent on manufacturing the fertilizer every year, Tsay said. Moreover, only 30 percent to 50 percent of the fertilizer is absorbed by plants and the remaining fertilizer in the soil emits nitrous oxide into the air — a worse greenhouse gas than carbon dioxide — or is washed into bodies of water, causing eutrophication in rivers and oceans, she added. Tsay said the research results from different researchers in the team all show the possibility of improving crops and agricultural land use, such as modifying crops to resist pests or grow in salty soil, and can help solve the increasing demand for food by the world’s growing population. In response to concerns about the effects of genetically modified organisms on the



environment and human health, Tsay said research has shown that land use can often be improved through using these organisms. For example, a researcher in the team has used genetically modified organisms to improve the heavy-metal absorption rate of crops, which can help remove heavy metals from the soil, Tsay said, adding that there is no scientific evidence that these organisms are harmful to humans.

<http://www.taipeitimes.com/News/taiwan/archives/2013/05/09/2003561838>

9. Observatory cooperation forged by Taiwan, Mexico

(Taiwan Today, 09 05 2013)

Taiwan and Mexico broke ground May 2 on an astronomical project to measure small objects in the far reaches of the solar system, the first large-scale scientific collaboration between the two countries. The Transneptunian Automated Occultation Survey 2, based at the Mexican National Astronomical Observatory in northwest Baja California, will examine the size distribution of small objects in the solar system beyond Neptune, an official from the Academia Sinica Institute of Astronomy and Astrophysics said May 9. Such information is expected to increase understanding of the formation and dynamic evolution of the solar system, the official added. The first phase of the project, TAOS, involving the construction of four 50-centimeter robotic telescopes at Lulin Observatory in central Taiwan, produced important results on the number of small bodies in the outer solar system. Led by ASIAA, the TAOS-2 project will install three 1.3-meter robotic telescopes with the latest high speed cameras to conduct a census of stellar occultations—when one body is obscured by another body passing between it and the observer—the official said. TAOS-2 will be 100 times more sensitive than the first phase, the official added, because of the larger telescopes, faster cameras and minimal light pollution at the site, permitting better number densities for different sizes of these small bodies. Installation of the telescopes will be completed in 2014, and the cameras delivered the following year, allowing TAOS-2 to begin regular operation in 2016, the official said. ASIAA's partners in the project include the National Autonomous University of Mexico, Institute of Astronomy, and the Smithsonian Astrophysical Observatory. (SDH)

<http://www.taiwantoday.tw/ct.asp?xItem=204911&ctNode=445>

10. Taiwanese wins New Product Innovation Award for the first time

(Central News Agency, 14 05 2013)

Business tycoon Winston Wong, 62, has won the New Product Innovation Award, becoming the first Taiwanese to gain the prestigious prize that is awarded by a renowned market research firm based in the United States. Wong, chairman of Taiwan's Hung Jen Group, was recognized by Frost & Sullivan for his initiative in the development of genetic analytics technology to help customers select the best individual skincare solution. Frost & Sullivan sets high standards and the award for the personalized cosmetics service is meaningful encouragement to the research team from Imperial College in London, Wong said at the award ceremony in London. The new system allows for accurate on-site DNA results within 30 minutes through testing of saliva samples provided by customers, he said. Based on the results of the free DNA test, an individual will be able to select optimal skin care and cosmetic products, according to the website of Gene Onyx Ltd., the company that Wong funded to develop the system. Wong is the founder of the Winston Wong Centre for Bio-Inspired Technology at Imperial College, where he obtained degrees in physics, applied optics, and chemical engineering. He invested in Gene Onyx and funded the research work on the unique over-the-counter, cloud-based genetic analytics technology. The first flagship store offering on-site personalized DNA testing will be opened on Bond Street in central London by the end of this year, he said. This will allow the research team from Imperial College to provide ready support, added Wong, who is also the first Asian to win the award. It is his goal to expand the business to countries around the world, once the technology proves effective, he said. The silicon chips used to test the saliva samples were made by Taiwan Semiconductor Manufacturing Company (TSMC), Wong said, adding that TSMC is the world's largest dedicated semiconductor foundry and is capable of making anything. Christopher Toumazou, head of the research project, said it took seven years to develop the personalized DNA testing technology and the chip can also be used to detect cancer, HIV and other diseases. Frost & Sullivan recognizes and confers annual awards on companies with the most innovative products, said Dorman Followwill, director of the global business consulting company that is headquartered in Mountain View, California.

<http://focustaiwan.tw/news/aeco/201305150044.aspx>

11. ARTC Wins Gold and Silver at 41st Inventions Geneva

(Central News Agency, 16 05 2013)

Taiwan's Automotive Research & Testing Center (ARTC), a key vehicle testing and R&D hub on the island, once again proved its mettle at the 41st International Exhibition of Inventions of Geneva (Inventions Geneva), held April 10-14 in Geneva, Switzerland, taking both gold and silver prizes. The ARTC outdid over 1,000 other submissions



from 45 nations, winning for its wireless charging system with magnetic field shaping (Gold Award), and stimulus-based steering sensor (Silver). Joy Huang, ARTC president, says that the center's R&D goal is to develop advanced automotive products fully meeting global trends and requirements, so the ARTC has been aggressively focusing on auto-electronic and clean-energy fields. To date, he stresses, the ARTC has won 13 gold, 15 silver and one bronze in some of the most coveted international invention contests. Another of the ARTC's goals is to help local companies acquire technologies to build key automotive parts to upgrade global competitiveness.

http://cens.com/cens/html/en/news/news_inner_42695.html

12. NSC unveils research on developing nano-drugs

(Taipei Times, 16 05 2013)

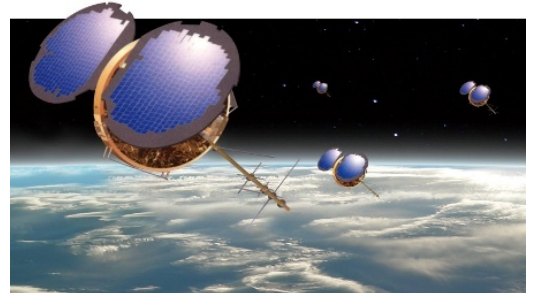
The National Science Council (NSC) announced the results of research on developing new types of targeted drug delivery using magnetic nanoparticles that could improve the treatment of malignant tumors. In a council-sponsored project, Hua Mu-yi, a professor from Chang Gung University's chemical and materials engineering department, and her student Yang Hung-wei designed a series of nano-drugs without biological toxicity, which have high magnetic permeability and can be used in molecular targeted therapy and magnetic resonance imaging. Hua said chemotherapy for treating cancer often requires the injection of heavy doses of drugs to treat cancer cells that have many side effects and could harm other cells in the body. By synthesizing the new drugs with magnetic nanoparticles and placing a magnetic field around the tumor, the drugs can be effectively delivered to the targeted cancer cells and the doses of the drugs can be reduced, she said. Experiments with laboratory mice show that these types of drugs are more stable and more effective in treating lethal multidrug-resistant bladder cancer, prostate cancer and malignant brain tumor. Hua said with the positive experiment results in the lab, the team is looking forward to seeing clinical trials of the new type of nano drug. However, to enhance precision targeting, she said a machine that can create a focusable magnetic field still has to be invented. This way, drugs delivered by magnetic nanoparticles can reach the targeted cancer cells with the aid of the focusable magnetic field, regardless of the depth, size, or location of the tumor in the body.

<http://www.taipeitimes.com/News/taiwan/archives/2013/05/16/2003562403>

13. NSPO extends life of research satellite

(Taiwan Today, 17 05 2013)

The ROC National Space Organization announced May 16 it has recently developed a unique procedure to extend the life of batteries powering satellite FORMOSAT-3, the first microsatellite constellation designed to observe the earth's atmosphere through global positioning system radio occultation. The system has been called "the most accurate earth thermometer in space." The satellite network is capable of taking temperature measurements over oceans, high mountains, deserts and arctic wastes that are inaccessible to land-based measurement, the NSPO's parent organization National Applied Research Laboratories said in a press release. The data collected can be used to give much more accurate forecasts of temperatures in the middle and upper reaches of the atmosphere, and will also prove useful to research on climate change and global warming, NARL said. Since its launch in 2006, FORMOSAT-3 has collected more than 7 million atmospheric and ionospheric profiles, which have been made available to more than 2,100 researchers in 67 countries for use in weather reports, and research into climate change and the upper atmosphere, among other uses. The data provided by the system can be used to modify satellite positioning error by up to 4 percent, equivalent to a height correction of up to 12 centimeters and level correction of up to 10 meters. This has applications in such fields as telecommunications, positioning and navigation, NARL said. Because storms in the outer atmosphere can produce sudden changes in the strength of ionospheric radio waves and transmission pathways, NSPO researchers have also produced the world's first global scintillation index empirical model, which can give early warning of the occurrence of such events, NARL said.



<http://www.taiwantoday.tw/ct.asp?xItem=205302&CtNode=436>

14. Taiwan expands PV inverter testing capability

(Taiwan Today, 24 05 2013)

Taiwan will set up a testing laboratory for high-power photovoltaic inverters, the Industrial Technology Research Institute announced May 22. ITRI is creating the lab with the backing of the ROC Bureau of Energy, under the Ministry of Economic Affairs, said Duan Jia-ruey, head of ITRI's Center for Measurement Standards. The new lab



will test PV inverter up to 120 kilowatts in capacity and is equipped with a range of key system measures, including protection from electric shock, temperature, conversion efficiency and anti-islanding capability independently developed by ITRI, Duan said. The need for the high-power testing facility comes as 100 kW converters have emerged as an important industry standard in recent years, and domestic manufacturers are targeting this market. The new lab will benefit the PV inverter and solar power generating system manufacturers, Duan added. The lab will also help PV inverter manufacturers to streamline procedures, as at present different countries have different standards for the equipment. To sell to a particular country, the converter must first be sent to a lab in Canada, Europe or the U.S. for testing, which is time-consuming and costly.

The new lab offers a complete set of highly integrated testing services and testing on preproduction prototypes to confirm they meet design specifications.

<http://www.taiwantoday.tw/ct.asp?xItem=205545&CtNode=436>

15. ROC sets up international rice genomics center

(Taiwan Today, 29 05 2013)

An international rice genomics center, set up by National Chung Hsing University and Academia Sinica, was inaugurated May 28 in Taichung City. Headed by Academia Sinica researchers Yu Su-may and Ho Tuan-hua, the center, located in the NCHU Biotechnology Center, will study rice genes, with a view to developing new and improved strains of rice and other staple grains, NCHU said. The center will cooperate with the ROC Council of Agriculture's Agricultural Research Institute and other Taiwan universities in conducting research. The world faces a global food shortage due to its burgeoning population, coupled with the impacts of global warming, climate change and environmental degradation, a researcher said. Taiwan's current food self-sufficiency rate is only 32 percent, among the world's lowest. Given rising global food demand, the nation will be forced to pay an increasing amount to feed itself. "Food security is also an integral part of national security," NCHU said. "Boosting the self-sufficiency rate, improving production techniques, lowering farmer's costs and increasing output are all crucial to boosting Taiwan's international competitiveness given the trend towards free trade." The center also aims to develop new high-yield rice strains which require less pesticide, fertilizer and water, and are suitable for both human consumption and feedstock use. From 2003 to 2012, Yu led a team from the Academia Sinica, the ARI and Asian University in establishing a Taiwan Rice Insertional Mutants Database, which has been extensively used by rice researchers around the world. Between 1999 and 2004, Ho gained international recognition by leading a team that sequenced rice's fifth chromosome.

<http://www.taiwantoday.tw/ct.asp?xItem=205711&CtNode=419>

<http://www.taipeitimes.com/News/taiwan/archives/2013/05/31/2003563627>