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In order to encourage industrial research and innovation, Taiwan has been taking the initiative to actively invite global companies and prestigious universities to set up research centers in Taiwan in order to promote Taiwan as an Asia-Pacific corporate R&D headquarters and its transition to an innovation-oriented country. Its main technological R&D policies focuses on strengthening talent training, promoting technological and cultural interaction and developing comprehensive legislation of science and technology, which contribute towards all round industrial development and thereby enhancing Taiwan's sustainable competitiveness.

**News Highlights:**

*A National Cheng Kung University (NCKU) research team has developed a vapor grown carbon fiber mat (VGCF mat) which exhibits ultra-high thermal conductivity - Academia Sinica Researchers Unveil Regulatory Mechanisms of an Acid-activated Type VI Secretion System in Agrobacterium Tumefaciens – the Indian National Science Academy signed a revised agreement on scientific cooperation – a Taiwan team developed a fluorescent pink fish - a Taiwan researcher said he has come up with a formula to predict with an 80 % accuracy rate the chances of someone getting a stroke within 10 years, based on their medical records - Synthetic hydroxyapatite, a material that functions as a medical contrast agent as well as a targeted therapy drug carrier that can transmit heat during thermal therapy, has been awarded the 9th National Innovation award - Taiwanese have won a prototype prize at the European Satellite Navigation Competition - AU Optronics Corp. has been recognized as one of Taiwan's five most innovative enterprises in 2012 - Johannes Buchmann, a German expert in cryptography and computer algebra research, was named winner of the 2012 Tsungming Tu Award - Taiwan won four medals at Brussels invention fair - ITRI won seven of the 2012 R&D 100 Awards, given to the 100 most technologically-significant products introduced to market over the past year - The Ministry of Economic Affairs and the European Business & Innovation Centre Network (EBN) signed an MOU to aid start-ups - a laboratory at National Cheng Kung University (NCKU) has developed two human-sized robots that can engage in a variety of sports activities and help with household chores - 19 research papers from Taiwan's business and academic sectors have been selected for presentation at the major conference of the Solid-State Circuits Society in the US next February - a new supercomputer was installed at the Central Weather Bureau to forecast weather patterns - Academia Sinica and Taiwan's National Science Council signed the agreement with the European Molecular Biology Organization (EMBO) and its inter-governmental funding body, the European Molecular Biology Conference (EMBC) to increase cooperation.*

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### 1. NCKU and AD Group Sign Licensing Agreement for Carbon Fiber Mat

(NCKU News, 26 10 2012)

A National Cheng Kung University (NCKU) research team has developed a vapor grown carbon fiber mat (VGCF mat) which exhibits ultra-high thermal conductivity, an ideal heat spreader material for potential use in electronic devices such as smart phones and tablet computers. Dr. Jyh-Ming Ting, Chairman of the Department of Materials Science and Engineering, pointed out that the material with VGCF has an outstanding thermal conductivity of 1950 W/m-K which is 5 times that of copper and will be the most preferable cooling material for mobile devices. VGCF mats are suitable for high-functioning and thin electronic products which may include flat-screen TV and laptop computers, according to Dr. Ting, adding that high-density LED, Li-ion battery module are also possible applications of the material. The theory behind the production of VGCF is simple but the technical threshold is rather high, according to Dr. Ting's research team which is capable of carrying out the mass production of the material. The technology has attracted attention from industry executives and AD Group, a Taiwan-based golf manufacturing company, has just signed a technology licensing agreement with NCKU and launched a new business unit to commercialize the product. The technology transfer contract signing ceremony held on October 26 with representatives of both side, Director Mi-Ching Tsai, NCKU Research and Services Headquarters (RSH), and Bernard Cheng, Chairman of the AD Group.

<http://web1.nsc.gov.tw/techwp.aspx?id=1011028002&ctunit=208&ctnode=287&mp=7>

### 2. Academia Sinica Researchers Unveil Regulatory Mechanisms of an Acid-activated Type VI Secretion System in Agrobacterium Tumefaciens

(Academia Sinica Newsletter 26 10 2012)

A research team led by Dr. Erh-Min Lai, Associate Research Fellow at the Institute of Plant and Microbial Biology, Academia Sinica, recently reported the regulatory mechanisms of a bacterial protein secretion system named type VI (T6SS). The research team used a soil bacterium *Agrobacterium tumefaciens*, a causal agent of crown gall disease (a common plant disease) and an important gene transfer tool, as a model system to unravel the molecular mechanisms underlying how T6SS is activated by acid. This work was published in the Sept. 27 issue of the scholarly journal *PLoS Pathogens*. The laboratory of Dr. Erh-Min Lai previously discovered T6SS in *Agrobacterium tumefaciens* and has since focused on understanding the mechanistic and biological functions of T6SS in this disease-causing bacterium. *Agrobacterium tumefaciens* is capable of transferring cancer-causing genes from bacterial cells into plant cells to induce plant tumors. Because of this unique interkingdom DNA transfer ability, *Agrobacterium tumefaciens* has become the most popular gene transfer agent for creating transgenic plants for research and agriculture. Structural and functional studies revealed that T6SS assembles into a phage tail-like needle structure to inject cytotoxic effectors into host cells to allow disease development and/or increase bacterial survival. Thus, a smart bacterium must properly control the expression and activity of T6SS to cope with diverse environments when necessary. However, the signals and regulatory mechanisms of most T6SSs remain largely unknown. In this report, the research team discovered that T6SS is activated by acidity via an ExoR-ChvG/ChvI cascade. In a neutral pH (7.0) growth environment, T6SS is off as the sensor kinase ChvG is inactivated by binding with ExoR repressor. When *Agrobacterium tumefaciens* senses the acidic signal (pH 5.5), ExoR is rapidly degraded and thereby derepresses ChvG to activate T6SS. This is the first report to unravel the molecular mechanisms underlying the acid-activated T6SS.

<http://web1.nsc.gov.tw/techwp.aspx?id=1011028001&ctunit=208&ctnode=287&mp=7>

### 3. Academia Sinica Pledges Continued Collaboration with Indian National Science Academy

(Academia Sinica Newsletter, 30 10 2012)

To further facilitate scientific corporation between Academia Sinica and Indian academic community, President Chi-Huey Wong and President Krishan Lal of the Indian National Science Academy signed a revised agreement on scientific cooperation on October 29 at Academia Sinica on behalf of their respective academies. It is hoped that the agreement will foster closer future collaboration between the two academies. The agreement aims to promote a cooperative relationship between the Indian National Science Academy and Academia Sinica including such activities as exchange visits by scientists, joint workshops/symposia, and joint research projects. Academia Sinica and the Indian National Science Academy signed their first collaborative agreement in 2004. Since that time, visits between these two academies have been frequent and former Indian academy presidents Drs. Mamannamana Vijayan and Raghunath Anant Mashelkar were invited to participate in the Academy Presidents' Forum held at Academia Sinica in 2008. During their current stay in Taiwan, President LAL and the delegation from the Indian National Science Academy accompanying him also attended the 23rd Council for Science Committee on Data for Science and Technology (CODATA) International Conference, which was held at Academia Sinica from October 28 to 30. The Indian National Science Academy was established in 1935 with the object of promoting science in India and harnessing scientific knowledge for the cause of humanity and national welfare. It is the apex body of the Indian scientists representing all branches of science and technology and plays a crucial role in promoting, recognizing and rewarding excellence. The INSA has more than 800 Fellows.

<http://web1.nsc.gov.tw/techwp.aspx?id=1011030006&ctunit=208&ctnode=287&mp=7>



#### 4. Taiwan team develops fluorescent pink fish

(Taiwan Today, 08 11 2012)

A public-private team of Taiwan researchers announced the development of the world's first fluorescent pink ornamental fish Nov. 7. The fish was developed from common angelfish native to the Amazon River with a gene for fluorescent pink protein extracted from *Acropora* coral by Chen Ming-chyuan of National Kaohsiung Marine University. A group led by Gong Hong-yi of National Taiwan Ocean University microinjected the gene into angelfish eggs, leading to fry giving off a fluorescent pink color. "The success of our gene transfer techniques has progressed to one percent, from the original rate of one out of 10,000," Gong said. This will help advance commercial production of the fish, he noted. Glowing pink lionhead goldfish have also been created as part of the project by Wu Jen-leih and Chen Jyh-yih of Academia Sinica's Institute of Cellular and Organismic Biology. Ou Mei-ju, president of Jy Lin Trading Co. Ltd., another participant in the research, said fluorescent fish currently on the market are mainly green or red zebra cichlids that only glow in the dark. "But these fish glow a beautiful pink even in the daytime." The next step in the research is to evaluate the fish's biological safety, to confirm its sterility before it is marketed, the team said. Two years of field studies will be necessary to ensure that the genetically modified organism cannot reproduce and thus potentially cause an ecological disaster. The fluorescent pink fish will be featured at the 2012 Taiwan International Aquarium Expo Nov. 9-12 at the Taipei World Trade Center Nangang Exhibition Hall. A foreign buyer has already offered NT\$100,000 (US\$3,435) for one, according to Ou. The team estimated annual revenues for a new type of fluorescent fish at roughly NT\$200 million in the U.S. market alone.



<http://www.taiwantoday.tw/ct.asp?xItem=198379&ctNode=445>

#### 5. Nobel laureate hopes to collaborate with Taiwan on biological studies

(Central News Agency, 10 11 2012)

Nobel laureate Elizabeth Blackburn said that she hopes to collaborate with Taiwan on studies of her Nobel winning research that sheds light on how diseases are closely linked to a structure that sits at the end of chromosomes. The Australian-born biologist is in Taiwan for the first time to speak on her groundbreaking research into the correlation between the structures, called "telomeres," and mortality risks and aging-related diseases. The recipient of the 2009 Nobel Prize in Medicine, now based at the University of California, San Francisco, expressed the hope that her visit will "prompt interest" in future collaboration. International collaboration is becoming the way to go in science because expertise and strengths can come from different places, she told CNA on the sidelines of a symposium in Taipei. "There are wonderful scientists, studies and clinical opportunities for study in Taiwan, perhaps unique in some way," she added. Telomeres can be thought of as plastic caps on the ends of shoelaces, which stop things from unraveling. They protect the ends of chromosomes from damage when cells undergo division, but every time cells divide, their telomeres shorten and eventually they stop replicating and die. Age-related diseases such as pulmonary fibrosis, cardiovascular disease, certain cancers, diabetes, and immune dysfunction are often associated with telomere shortening in human cells, she said. Having done a number of studies on what can be done to enhance telomere maintenance in people, Blackburn is now working on studies to find out what interventions can be demonstrably shown to either be useful or not useful. "There's no shortage of ideas," she said. "This kind of work sort of provokes people to think about many things they think about, so one has to carefully design studies to test if somebody's favored idea is actually verifiable." Aiming to apply the knowledge to the arena of public health, the professor said she wants to devote herself to research that can affect a lot of people. As the length of telomeres can be modified by non-genetic influences, such as lifestyle, stress level and exercise, Blackburn even suggested people try the popular South Korean dance moves from PSY's song "Gangnam Style," which has become a worldwide phenomenon. "It's exercise, isn't it?" she asked, giggling. "And people are happy doing it, so there we are."

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=289336&CtNode=9>

<http://www.taipeitimes.com/News/taiwan/archives/2012/11/12/2003547500>

#### 6. Researcher finds formula to predict probability of strokes

(Central News Agency, 11 11 2012)

A Taiwan researcher said he has come up with a formula to predict with an 80 percent accuracy rate the chances of someone getting a stroke within 10 years, based on their medical records. After analyzing the medical records of 500,000 people, Wen Chi-pang said, he found that there are five main factors relating to the probability of a stroke -- whether the person smokes, lacks exercise, drinks alcohol, is a vegetarian, or is overweight. The answers to these five questions, plus the data on blood pressure, blood sugar, cholesterol level, anemia, chronic kidney disease and uric acid levels, can help predict a stroke with an 80 accuracy rate, Wen said at a seminar. If the answer is yes to all five basic questions, the person has a 45 percent chance of being hit by a stroke in 10 years, said Wen, a researcher at the National Health Research Institute. The likelihood of a stroke goes up to 93 percent if the individual also suffers from abnormal blood pressure and diabetes, he said. If other problems such high cholesterol, anemia, chronic kidney



disease and high uric acid levels are included, the probability of suffering a stroke rises to 100 percent, he added. For example, a 60-year-old male vegetarian with normal body weight, who smokes, drinks, and does not exercise, would have an 11.1 percent chance of suffering a stroke in the next 10 years, Wen said. The probability will soar to 84.7 percent if the man answers yes to all five basic questions, but if he quits smoking, the probability will drop to 54.4 percent, the researcher said. It will fall further to below 20 percent if the man's cholesterol and blood pressure return to normal levels, Wen said. While the ideal total cholesterol level for local people is between 200 mg/dL and 300 mg/dL, studies both at home and abroad show that vegetarians usually have a level of below 130 mg/dL -- which puts them at a risk twice as high as others of suffering a hemorrhagic stroke, he explained. A reading of 160 mg/dL means a 50 percent chance higher than others of getting a hemorrhagic stroke, the researcher said. Vegetarians tend to have lower cholesterol levels because they lack nutrients obtained from meat, he said. This does not just increase their chances of stroke but also of cancer, he added. He suggested that non-meat eaters eat a balanced diet and exercise more.

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=289486&CtNode=9>

## **7. Local scientists win award for cancer research**

(Taipei Times, 13 11 2012)

Synthetic hydroxyapatite — a material that functions as a medical contrast agent as well as a targeted therapy drug carrier that can transmit heat during thermal therapy — has been awarded the 9th National Innovation award and also received a national patent. Tatung University assistant professor Wu Hsi-chin said she discovered the potential use of the material for gene therapy and heat therapy while conducting research. Heat therapy is a new field of cancer treatment outside traditional chemotherapy, surgery and radiation therapy. Using magnetized hydroxyapatite (mHAP) as a thermal conductor, Wu and a research group — comprised of teams from National Taiwan University and National Tsing Hua University — were able to heat up isolated tumor cells to control the growth of cancer cells and leave isolated cells to die. Hydroxyapatite (HAP) is the main component in the bones and teeth of the human body. As such, the research group discovered it has a high compatibility with organic life forms, Wu said, adding that such a characteristic enabled it to become a contrast agent. Contrasting agents are used to improve the visibility of images of the inside of the human body and different methods of internal imaging require different kind of materials for contrasting. However, as all internal imaging contrasting agents are chemical in origin, their use has led to worries that it would be impossible to remove them entirely from the body after ingestion. Wu said that HAP was different as it would slowly dissolve in the body on its own, making the product more secure in comparison with other agents. The research team also discovered that HAP could be used as a targeted therapy drug carrier. While conducting experiments on mice, the research team discovered that five days after mHAP was injected, the tumor masses in the animals had shrunk by nearly 50 percent. A reduction of that size was significant therapeutic progress, the team said. However, as the injection of mHAP was considered to be a highly invasive therapy, Wu said that the nation's medical regulations prevented the material from being used in human experimentation for up to five years.

<http://www.taipeitimes.com/News/taiwan/archives/2012/11/13/2003547582>

## **8. Taiwanese claim prize at satellite navigation contest**

(Taipei Times, 16 11 2012)

Taiwanese have won a prototype prize at the European Satellite Navigation Competition, the state-funded Industrial Technology Research Institute (ITRI) said. Taiwan's entry, a "connected vehicle" prototype, was awarded the Galileo Pro title, the second-highest in the prototype category. The project, called "Driving with Safety, Responsiveness and Courtesy," uses integrated automobile and communication technology. It allows drivers to send warnings or thank-you signals to nearby vehicles by pressing a button, instead of using the common forms of traffic communication such as hand signals or horns, the ITRI said. The prototype, submitted by Hua-chuang Automobile Information Technical Center Co and the ITRI, vied with 64 other entries in that category, the institute said. The overall winner was a project from Portugal that aimed to offer seamless, reliable navigation, even indoors, by means of ultra-low-frequency magnetic field communication (ULF-MC), according to the competition Web site. The European Satellite Navigation Competition is an international competition aimed at stimulating ideas, incubation and development of applications and services made possible by the European satellite navigation system Galileo. Organized by Germany's Application Center for Satellite Navigation Oberpfaffenhofen (AZO) since 2004, the competition is geared toward companies, entrepreneurs, research institutes, universities and private individuals. This year, a total of 406 entries from more than 40 countries were submitted. At the award ceremony, Thorsten Rudolph, managing director of the AZO, pointed out that the competition has enjoyed a very successful partnership with Taiwan and the ITRI since 2008. He said that a total of 400 submissions from Taiwan have established the country as the competition's most valuable partner. Moreover, a Taiwanese initiative led to the start of a new chapter for the competition last year — the inauguration of a prototyping prize, he said. With the integration of the prototyping prize, the competition has expanded its scope to include both ideas and their development into fully fledged products, he said. Asked about the innovation power of the ITRI, Rudolph said the institute was good at transforming ideas or





concepts into substantial products, which was evidenced by its cooperation with Hua-chuang to win this year's prototyping prize.

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## **9. AU Optronics wins Thomson Reuters innovation award**

(Central News Agency, 14 11 2012)

AU Optronics Corp. said it has been recognized as one of Taiwan's five most innovative enterprises in 2012. AU Optronics, along with Taiwan Semiconductor Manufacturing Company Ltd., ASUSTek Computer Inc., Hon Hai Precision Industry Co., and MediaTek Inc., was named Wednesday as a winner of the Thomson Reuters Taiwan Innovation Awards 2012. "We are very honored to gain the Thomson Reuters Taiwan Innovation Awards 2012," AUO President Paul Peng said in a statement. The enterprise, one of the world's leading providers of optoelectronic products, has long been dedicated to the research and development of innovative technologies, he said. "We utilize self-developed patents to continuously increase the company's competitiveness and assets value," Peng said. "The complete patent portfolio is able to support the various new product innovations and establish a benchmark for the enterprise to constantly advance its technological research and development." The award is granted by the Intellectual Property and Science business of Thomson Reuters, a provider of information for the world's businesses and professionals. It is given to enterprises and academic institutions headquartered in Taiwan for their innovation in research and development. Four metrics were used to assess the level of innovation of candidate companies, including size of patent portfolio, success rate, extent of globalization, and influence of innovation. Five corporations and five academic organizations received the award this year. The academic organizations honored are the Industrial Technology Research Institute, National Chiao Tung University, National Chung Hsing University, National Taiwan University and National Tsing Hua University.

[http://focustaiwan.tw/ShowNews/WebNews\\_Detail.aspx?Type=aECO&ID=201211140037](http://focustaiwan.tw/ShowNews/WebNews_Detail.aspx?Type=aECO&ID=201211140037)

## **10. German scientist wins Taiwan's top academic prize**

(Taiwan Today, 15 11 2012)

Johannes Buchmann, a German expert in cryptography and computer algebra research, was named winner of the 2012 Tsungming Tu Award, the highest academic honor bestowed on foreign scientists by the ROC government. "Buchmann is recognized for his long-term efforts in promoting Taiwan-German exchanges in the field of cryptography and information security," Cyrus C. Y Chu, minister of the ROC National Science Council, said Nov. 14 at a ceremony in Taipei City. Chu said Buchmann has brought scientists together from both nations at seminars and hosted many doctoral students and young scholars from Taiwan to study in related fields. Buchmann, who also received a grant of US\$75,000 as part of the award, said he felt extremely honored and will continue promoting bilateral scientific exchanges and collaboration. Vice director of the Technical University of Darmstadt's Center for Advanced Security Research Darmstadt, Buchmann is an authority on post-quantum cryptography studies and information security. He has won various awards, including Germany's highest research honor, the Gottfried Wilhelm Leibniz Prize. Since 2007, the NSC and Germany's Alexander von Humboldt Foundation have presented reciprocal awards for scientific research. The Tsungming Tu Award, named after the first Taiwan-born medical doctor, has been given to seven German scientists, while Germany's Humboldt Research Award, named after the 19th-century Prussian scientist and philosopher, has been given to four Taiwan researchers.

<http://www.taiwantoday.tw/ct.asp?xitem=198615&CtNode=416>

## **11. Taiwan wins four medals at Brussels invention fair**

(Taipei Times, 19 11 2012)

Taiwan had a successful debut at the 61st Brussels Innova, a world invention exhibition, with all four Taiwanese inventions on display winning medals. The Taiwanese inventions took home a gold, three silvers and a special prize that was the event's highest honor. A LED light bulb powered by solar power received the special prize and a silver medal for its portability and energy efficiency. Developed by Liu Yi-chuan, who works for Shenzhen Yuchuang Electronic Technology in China, the bulb lasts four hours without batteries after being fully charged and consumes only six watts of electricity. The gold-winning invention was a teacup with a curved brim on which the threads of teabags can be hooked. The cup also dries more easily, said its inventor Lin Li-wei, an Asia University commercial design student. The other two inventions that won silver medals were a rubber band hand grip used for exercise and a solar magnetic levitation motor and generator that helps reduce machine energy consumption. The organizer said the Brussels fair will open a Taiwan pavilion next year to showcase Taiwanese creations. The Brussels city government also presented the Taiwanese delegation with a medal in recognition of their outstanding debut performance.

<http://www.taipeitimes.com/News/taiwan/archives/2012/11/19/2003548080>



## 12. Taiwan Wins 7 Prestigious 2012 R&D 100 Awards

(Central News Agency, 20 11 2012)

Taiwan once again proves its technology innovation capability, in a contest among the world's leading R&D labs. The Taiwanese team sponsored by the Ministry of Economic Affairs (MOEA) won seven of the 2012 R&D 100 Awards, given to the 100 most technologically-significant products introduced to market over the past year. The overwhelming winner is Taiwan's Industrial Technology Research Institute (ITRI), generally seen as the hotbed of technological invention and innovation in Taiwan, who claimed six top finishes at the R&D 100 Awards, this year celebrating its 50th anniversary as being the world's most coveted technology-innovation competitions, trailing only Oak Ridge National Laboratory of the U.S. The government-backed ITRI's winning entries include: the Atmospheric Environment Plasma Coating Technology (Thin Film and Vacuum Technologies category); Clamp-on voltage and Current Meter Technology (Electronic Instrumentation); A9 LED Light Bulb Technology (Electrical Devices); LBP (lignin-based polymer) Technology (Materials Science); and Optical Microstructure-based Concentrator Photovoltaic Technology (Energy Technologies); and Thermoelectric Material and Module Technology (Materials Sciences). Another Taiwanese winner, the Institute for Information Industry (III), won for its Metal-friendly RFID Technology for Metallic Objects (Communications).

### Vote of Confidence

Having begun participating in the R&D 100 Awards in 2008, Taiwan has won several awards yearly, including four in 2011 and the record seven in 2012. The R&D 100 Awards have since 1963 honored many life-quality-enhancing technologies, many of which have not only changed lifestyles in the U.S., as the automated teller machine, but also that globally. Calling such innovations "household names" almost trivializes the enormous brainstorming, motivation and resources invested in their developments, for product as the fax machine, precursor to the scanner, enabled any individual with a phone line to transmit even complicated graphics in the pre-Net era, with other equally groundbreaking winners including the flashcube, halogen lamp, liquid crystal display, Kodak Photo CD, Nicoderm anti-smoking patch, Taxol anticancer drug, lab on a chip, and HDTV.

[http://cens.com/cens/html/en/news/news\\_inner\\_42127.html](http://cens.com/cens/html/en/news/news_inner_42127.html)

## 13. Taiwan, European center sign MOU on aiding start-ups

(Taipei Times, 21 11 2012)

The Ministry of Economic Affairs and the European Business & Innovation Centre Network (EBN) have agreed to assist and cultivate start-ups in Taiwan and European countries. The ministry's Small and Medium Enterprise Administration yesterday said that the two sides signed a memorandum of understanding (MOU) on Wednesday last week to strengthen partnerships between Taiwanese and Europeans incubation centers.

### FINANCING

"Our mission is to help incubator centers cultivate start-ups by providing them financial support or establishing partnerships between governments," administration official Yang Chia-hsien (楊佳憲) said by telephone. Through the MOU, Taiwanese start-ups can seek assistance from incubation centers in EBN member countries, while searching for business or cooperation opportunities in those countries, Yang said, adding that it would benefit both Taiwanese and European firms as they try to expand their global market shares. With the MOU, Taiwanese incubator centers will have more opportunities to attend annual seminars in Europe, exchange entrepreneur cultivation resources and information, and promote brand awareness, Yang said. "We hope more start-ups can obtain aid from incubator centers and go international with the help of the MOU," he said.

### COMPETITIVE

"The signing of the MOU marked another milestone in the country's bid to stay competitive in the global market. We believe more innovative start-ups will emerge with the help of local incubator centers in the future, leading the country to higher economic growth," Yang added. According to the ministry, there are a total of 130 incubator centers in Taiwan. Among these, four — at the Industrial Technology Research Institute, Nangang Software Park, National Tsing Hua University and National Chiao Tung University — have been certified by the National Business Incubation Association as "soft-landing" incubators with specialized programs designed to help start-ups or small and medium-sized enterprises break into new markets

<http://www.taipetimes.com/News/biz/archives/2012/11/21/2003548200>

## 14. University unveils robots for sports, housekeeping

(Taipei Times, 22 11 2012)

A laboratory at National Cheng Kung University (NCKU) has developed two human-sized robots that can engage in a variety of sports activities and help with household chores. The robots have won International robot championship awards, and represent an advancement in domestic-designed robots for the household environment, the university said. At a seminar at the National Science Council yesterday, the aiRobots Laboratory, led by NCKU electrical engineering professor Li Tzue-hseng, demonstrated the abilities of the robots. One robot walks on two legs and is capable of many sport movements ("David") and the other is a household service robot ("May"). Li said the most difficult part of designing David was to make it balance and move on two legs, but it has demonstrated outstanding



performances in basketball, weightlifting, obstacle course, sprint and penalty-kick competitions at the Federation of International Robot-soccer Association's (FIRA) RoboWorld Cup events in recent years, even coming second last year. Robot May said: "I will start to follow you," "Do you want soda?" and "Are you ready? Be careful," after receiving voice commands from a member of the research team, and was able to differentiate between different bottled drinks to bring the person the soft drink they requested. Both robots are equipped with a vision and strategy system so that they can learn to recognize objects, the surrounding environment and even faces, which are viewed using a video camera, Li said. Although the robots can already perform several functions and interact with humans, Li said it may still take at least five years for household service robots to enter people's homes. Li said that there remain challenges ahead in designing the robots to understand Chinese, Taiwanese or Hakka, establishing regulations on the use of robots and producing robots at affordable prices for consumers.

<http://www.taipeitimes.com/News/taiwan/archives/2012/11/22/2003548332>

#### **15. International conference selects 19 research papers from Taiwan**

(Central News Agency, 22 11 2012)

Nineteen research papers from Taiwan's business and academic sectors have been selected for presentation at the major conference of the Solid-State Circuits Society in the US next February. The papers cover areas such as advanced nanometer processes, green energy applications and architectural improvement, according to the International Solid-State Circuits Conference (ISSCC). They were selected from National Taiwan University, National Tsing Hua University, National Cheng Kung University and National Chung Cheng University, among others. From the local private sector, a paper on wireless transmission will be presented by MediaTek Inc., while Taiwan Semiconductor Manufacturing Company Ltd and Macronix International Co., Ltd will also make presentations. The conference will be held in San Francisco, California from February 17-21 under the theme "60 Years of (Em) Powering the Future" in recognition of the ISSCC's 60th anniversary. The ISSCC is the flagship conference of the Solid-State Circuits Society and the premier forum on solid-state circuits and systems-on-a-chip. Some 209 research papers from around the world are expected to be read at the conference.

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#### **16. New supercomputer to augment weather bureau's forecasting accuracy**

(Central News Agency, 25 11 2012)

The Central Weather Bureau said that a supercomputer that will be used to forecast weather starting in December will greatly enhance the accuracy of weather reports. The bureau said it had purchased the new system to allow constant weather updates as the older system could no longer support the forecasting software in terms of speed and definition. Compared with the old system, the supercomputer is smaller in size but nearly hundred times faster, it added. The bureau said it was currently conducting trial runs and the system was scheduled to commence official forecasts from Dec. 11. The new system was purchased from Japan for NT\$500 million (US\$17.2 million) and was expected to be delivered over three years in stages, the bureau said.

<http://www.taiwanheadlines.gov.tw/ct.asp?xItem=291071&CtNode=9>

#### **17. Taiwan signs agreement with European life science organization**

(Central News Agency, 30 11 2012)

Taiwan has signed an agreement with a major European life science organization to increase cooperation between Taiwanese scientists and their European counterparts, Taiwan's top research institute Academia Sinica said. Academia Sinica and Taiwan's National Science Council signed the agreement late this month with the European Molecular Biology Organization (EMBO) and its inter-governmental funding body, the European Molecular Biology Conference (EMBC). The agreement will allow Taiwanese scientists to participate in EMBO training programs and apply for EMBO fellowships, while EMBO courses and workshops will be held at Taiwan research institutes, Academia Sinica said. "We encourage the global mobility of scientists and we look forward to the increased scientific collaboration that this agreement will bring," EMBO Director Maria Leptin said in a statement. "This agreement opens up a gateway for Taiwanese life scientists to interact with some of the world's brightest minds," Taiwan's National Science Council head Cyrus C.Y. Chu said in the statement. "We anticipate that more Taiwanese scientists will form affiliations with leading European life scientists because of this agreement," he said. The EMBO, based in Heidelberg, Germany, supports life science research and provides a platform for scientific exchanges and training. Established in 1964, it now has about 1,500 members, 57 of whom have received the Nobel Prize. Its major funding body, the EMBC, comprises 27 member states, including most of the European Union countries.

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