

NTU



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Political Scientist Fu Hu Receives Honorary Doctorate

Bravo to Outstanding Young Scholars

Online Courses Across Borders

Unsung Hero: NTU Veteran Takes Care of Campus Bikes

Special Report
Int'l Academic Exchange



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★ President's Statement

NTU is celebrating its 82nd anniversary this year and it is setting a new goal. With the completion of the first stage of the Aim for the Top University Project, the university now ranks among the world's 100 leading universities and stands out as the best university in Taiwan, Hong Kong, Macao and China. NTU has also become one of the top ten universities in Asia. In stage two of the project, for which NTU is awaiting approval, the university aims to choose the University of Illinois at Urbana-Champaign as benchmark University and join the ranks of the world's top 50 universities.

Stage two calls for the expansion of NTU's international cooperation efforts, such as establishing a strategic partnership with MIT and founding research centers with Intel and IBM. NTU also aims to promote cooperation with universities across the Taiwan Strait and has recently opened a clinical medicine center with the Chinese University of Hong Kong and formed a strategic partnership with Peking University.

While stressing research and education, stage two also seeks to boost NTU's contribution to humanity's sustainable development. The university has already established a center for climate change and sustainable development.

Students need to take the initiative in exploiting the university's plentiful resources. In addition to improving their English skills, students should take advantage of the university's numerous short-term exchange programs. And, when it comes to expressing opinions on social issues, students are free to speak their minds, but should not limit themselves to discussions on the Ptt bulletin board system.

李嗣涔

President
Dr. Si-chen Lee

Honorary Doctorate Presented to Prof. Fu Hu at NTU's 82nd Anniversary Ceremony

NTU held its 82nd anniversary celebration at the NTU Sports Center on November 15. At the ceremony, university officials awarded an honorary doctorate to Prof. Fu Hu and commendations to nine outstanding NTU alumni. With pride, NTU President Si-chen Lee told the audience that NTU is currently in the period of its most rapid development ever, adding that the university is actively extending its list of international cooperation and exchange agreements and is determined to join the ranks of the world's top 50 universities.

Prof. Hu had numerous substantial achievements in law and political science in Taiwan, and spared no effort in applying his research to concrete political action. He made solid contributions to Taiwan's constitutional reform and democratization processes. In particular, he both advanced academic studies and worked for improvements in local society and culture. His boundless dedication and far-reaching influence are truly inspirational. Prof. Hu's academic achievements prove his status as an exemplar of the NTU Motto, "Integrity, Diligence, Patriotism and Philanthropy." NTU presented Hu with this honorary degree in recognition of his many outstanding accomplishments and contributions.

Recipients of the coveted NTU Outstanding Alumni

Award were chosen in Academics, Business and Overall categories. Winners of the Academic Award included Ralph T. Yang (Department of Chemical Engineering) and Teresa H. Meng (Department of Electrical Engineering). The Business Award went to Robert H. C. Tsao (Department of Electrical Engineering), Jane Hsiao (School of Pharmacy), Chih-yuan Lu (Department of Physics) and Hung-tu Tsai (College of Law). And, winners of the Overall Award included Yu Cheng (Department of Civil Engineering), Fredrick Y. Chien (Department of Political Science) and Yu-mei Chao (Yu) (Department of Nursing). At the ceremony, the award winners were invited to present talks on their significant professional and life experiences in the NTU general education forum series "Reflections on My Life and Thought."

One highlight of this year's anniversary activities was an inaugural series of activities titled, "Student Associations: Finding Our Roots." In seeking their roots, NTU student associations contacted and worked with NTU alumni in arranging an exhibition of historical artifacts, holding remembrance lectures and issuing a pamphlet called *Legacy*. Through this activity, the associations established contact with past members, which helped us to preserve university cultural assets by collecting student association artifacts and information, including oral histories.



1. President Lee presents honorary doctorate to Prof. Fu Hu.

1. Prof. Fu Hu accepts his honorary doctorate. 2. President Lee poses with NTU's Outstanding Youth. 3. Signatures of honored guests appear in the anniversary ceremony's autograph book.



Current President Ma Attends Groundbreaking Ceremony of NTU Cancer Hospital



President Ma helps break ground for the NTU Cancer Research Hospital.

The groundbreaking ceremony for NTU Cancer Research Hospital took place on November 15, the day of NTU's 82nd Anniversary Ceremony. The high-technology cancer center was funded by the Yonglin Foundation, which was established by Chairman Terry Kuo of Hon Hai Precision Industry Co. Taiwan President Ying-jeou Ma joined this momentous occasion.

The NTU Cancer Research Hospital is designed to be patient-centered and research-oriented. It will provide personalized care by creating individualized therapies for patients with distinct genetic make-ups. The cancer center will have cutting-edge instruments and facilities, including a new-generation proton therapy center, and develop tele-care services using cloud technology. Such efforts will

provide for increasingly accurate diagnosis and therapy for cancer patients. In addition, the center will be an open platform for cancer treatment and research by cooperating with other major hospitals and medical institutes. Moreover, the cancer center will allow the love of its principal donor to be spread far and wide by benefiting more and more patients and families. For both NTU and the Yonglin Foundation, this is the ultimate goal of the center— and will always be its guiding purpose.

The cancer center was designed jointly by the globally renowned architectural firm HKS Architects and Taiwan's leading architectural firm J. J. Pan and Partners. The team strove to create an integrated therapeutic environment that meets international green architecture environmental and energy conservation standards. The building will provide dependable physical support and mental solace to patients and their families

Over three years of intense preparation and planning took place from the signing of the center's donation agreement in September 2007 to the receiving of the construction license on November 11. Since then, NTU and the Yonglin Foundation have worked ceaselessly heeding input from local society to meet the expectations of the country. The center's guiding purpose includes: reducing cancer incidence rates, raising cancer survival rates and improving the quality of life of cancer patients. Lastly, the center aims to be the best of its kind in the Chinese region and ranked among the world's elite.

College of Engineering Attends 2010 AOTULE Deans Meeting in Indonesia



The 2010 Asia-Oceania Top University League on Engineering (AOTULE) Deans Meeting and Postgraduate Student Conference was hosted by Indonesia's Bandung Institute of Technology from November 1-3. Dean Huan-jang Keh and Associate Dean Chia-pei Chou, both of NTU's College of Engineering, attended the Deans Meeting on November 2-3, while two graduate students from the Department of Chemical Engineering and Department of Materials Science and Engineering attended the Postgraduate Student Conference on November 1-2.

NTU President Lee Flies to Beijing to Ink University Agreements

NTU President Si-chen Lee flew to Beijing on October 26 for a whirlwind, four-day visit to universities in the Chinese capital. Besides attending the Annual Meeting of the Association of East Asian Research Universities at Tsinghua University (Beijing), Lee visited Peking University and Beijing Language and Culture University to sign academic cooperation agreements.

Lee cordially accepted the invitation of Peking University President Qifeng Zhou to lead a delegation from NTU to Beijing in December to join that university's National Taiwan University Day. President Zhou, in turn, agreed to visit NTU's Azalea Festival in March 2011. During his visit to NTU, Zhou will be an honored guest of the Annual Meeting of the Asia-Pacific Association for International Education and will lead a delegation from PKU to attend NTU's Peking University Day.

Lee and Zhou signed agreements to form a strategic alliance and establish dual-degree programs between NTU and PKU. These agreements establish dual-degree and joint education programs as well as department chair seminars. The two institutions will also set up a distance learning platform, I-Podium, through which NTU and PKU students will interact in real time.

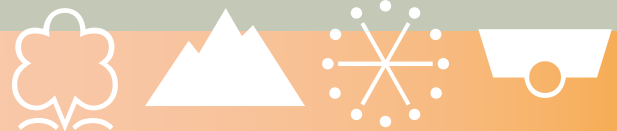
Taiwan and China are establishing increasingly close contacts. The new agreements between NTU and PKU are the first step in academic exchanges between the two universities since they signed a memorandum on academic exchanges back in 1995. The two signatories



President Lee presents Peking University President Qifeng Zhou with a memorial painting depicting NTU's front gate.

expect these agreements to broaden the international outlooks of their students and lay the groundwork for ever more exchanges and cooperation.

NTU Dean of International Affairs Tung Shen accompanied President Lee to the AEARU annual meeting. During the meeting, AEARU Chairman Tony Chan, president of the Hong Kong University of Science and Technology, reported on the association's activities over the last year and suggested paths for the future development of the association. Kyoto University delegates, calling Chinese characters a shared heritage of East Asian civilization, suggested setting up a forum on research on Chinese characters. Situated in a country that still uses the traditional, complex Chinese characters, NTU would be a leading and proactive participant in the forum.



The College of Engineering hosted the 2009 AOTULE meeting, where Dean Keh was elected AOTULE executive chair for 2010. Among Keh's accomplishments was the securing the University of Melbourne's membership in AOTULE. AOTULE now comprises 11 universities: the University of Melbourne, Tsinghua University, NTU, Hong Kong University of Science and Technology, Bandung Institute of Technology, Tokyo Institute of Technology, Korean Advanced Institute of Science and Technology, University of Malaya, University of Auckland, Nanyang Technological University and Chulalongkorn University.

The theme of this year's Deans Meeting was "Student

Mobility and Internationalization Strategies: AOTULE Credit Transfer System." Each member university explained the current status of its student mobility and internationalization efforts and discussed the possibility of creating a consistent credit transfer system among member universities. Dean Keh also handed over his position as AOTULE executive chair to Prof. Dwiwahju Sasongko, Dean of the Faculty of Industrial Technology at the Bandung Institute of Technology. In addition, the AOTULE deans named Tsinghua University as the host university for the 2011 AOTULE Meeting and the University of Malaya as the host for the 2012 AOTULE Meeting.

European Union Center in Taiwan Advances EU Studies in Taiwan

The European Union Center in Taiwan (EUTW) was inaugurated in May 2009 to promote cooperation and exchanges for the study of the EU and EU policy in Taiwan. The center works with a consortium of seven local universities, which is led by NTU. The other consortium members are National Chengchi University, Tamkang University, Catholic Fu-Jen University, National Dong Hua University, National Chung Hsing University and National Sun Yat Sen University. Since its establishment, EUTW has



held over 50 forums, symposiums and speeches that have brought together European and local scholars and experts to share ideas about Europe and Taiwan with thousands of participants.



In 2010, EUTW carried out a restructuring that established a full-time executive director and two deputy directors general. This restructuring resulted from

contacts between EUTW and other EU Centers during the EU Centers World Meeting in Madrid in 2010. Also during the World Meeting, EUTW proposed advancing collaboration on EU Studies among EU Centers in the Asia-Pacific region. This proposal was greatly supported by other EU Centers in the region as well as by the EU Commission. As a result, the EUTW will host the Transnational Workshop on EU Studies under the topic "European Integration and EU-Asian Relations One Year After the Promulgation of the Lisbon Treaty" at NTU on February 22-23, 2011. This will be the first time for EUTW to host an important international workshop on EU Studies in the region.

to prominent European scholars and experts to boost EU Studies in all academic fields and strengthen people-to-people academic exchanges between the EU and Taiwan. In 2010, the center collaborated with Jean Monnet Action's European Module, National Chengchi University and Ministry of Foreign Affairs' Foreign Service Institute to arrange a year-long series of EUTW Forums that were held on the last Friday each month.

Cultural events are an important focus of EUTW as well. In 2010, these included the "Taiwan Open Competition Call for Innovative Films on EU Ideas and EU-Taiwan Relations," "2010 Student Workshop on EU Countries" and "EU Night" welcoming party for EU students.



As education is the center's primary goal, it organizes summer programs on EU Studies at consortium universities. This summer, TKU and NDHU opened summer programs for high school teachers.

INDIAN PM SINGH PRESENTS LIANG-GEE CHEN WITH TWAS ENGINEERING SCIENCES AWARD

Prof. Liang-gee Chen, Deputy Dean of the College of Electrical Engineering and Computer Science and a Distinguished Professor in the Department of Electrical Engineering, attended the Academy of Sciences of the Developing World (TWAS) Annual Congress in Hyderabad, India on October 19, to claim the Academy's Engineering Sciences Award for 2009 and serve as the keynote speaker. India's Prime Minister Dr. Manmohan Singh personally presented Prof. Chen with the award and praised Chen for his outstanding academic accomplishments as well as his substantial contributions to the developing world in engineering science.

TWAS was founded in 1983 by a distinguished group of scientists under the leadership of the late Nobel laureate Abdus Salam of Pakistan. The academy is part of the United Nations Educational, Scientific and Cultural Organization (UNESCO). It has about one thousand members from over ninety countries, and its main mission is to assist developing countries pursue scientific research and develop applications. Each year, it presents an award to one scholar in the fields of agriculture, biology, chemistry, geoscience, engineering science, mathematics, medicine and physics, respectively, who has conducted exceptional research and made contributions to the developing world.

This year's TWAS annual conference took place from October 19-22. The host city has 6 million people, and is India's second largest center for information technology, second to Bangalore. Hyderabad is home to numerous IT parks, and such international giants as Google and Microsoft have established research and development centers there.

In a letter to Prof. Chen, TWAS President Jacob Palis praised Chen's achievements in creating useful applications in the field of integrated circuit design. Dr. Palis noted that Chen's transformation of



Indian PM Singh presents Prof. Liang-gee Chen with the TWAS Engineering Sciences Award for 2009.

complex digital image algorithms into multimedia chips of high application value and transfer of these technologies to industry have delivered such functions as digital photography and video, mobile video telecommunications, and high-quality images and sound to handheld devices while making significant contributions to engineering science itself.

Prof. Chen and his research teams set many world records. He led a team of NTU students in developing the world's first H.264 high-resolution video encoder chip for which the team received an IEEE Best Paper Award. Professor Chen joined NTU's Department of Electrical Engineering after earning his doctorate from National Cheng Kung University. In addition to being granted a Ministry of Education National Chair Professorship, "the crown of the academic world" in Taiwan, in September 2009, Chen won the National Sciences Council's Outstanding Technology Transfer Award four times. An IEEE fellow, Chen has also received the MOE Industry-Academia Cooperation Award and NSC's Outstanding Research Award.

Young Spintronics Physicist Ming-hao Liu Wins Two-year Fellowship in Germany

Dr. Ming-hao Liu of the Center for Quantum Sciences and Engineering was recently awarded a two-year fellowship for postdoctoral research in Germany by the Alexander von Humboldt Foundation. Dr. Liu is a pioneering researcher of spin transport in low-dimensional nanoscale systems.

Liu's latest publication, which appeared in *Physical Review B* as a rapid communication, reveals a general behavior of an upstanding spin eigenstate in honeycomb lattices that is subject to the Rashba spin-orbit coupling. Although Liu's calculation runs counter to the results of E. I., in a recent *ab initio* paper Rashba himself reported that the theoretical group in Halle, Germany had obtained the same behavior in graphene as Liu. Recently, Dr. Liu has revisited (110) quantum wells and proposed new spin Hall mechanisms: spin Hall induction in Sz and spin Hall deviation in Sy.

Liu is now taking an intensive German course in München. In February 2011, he will start his postdoctoral research project under Prof. Klaus Richter at the University of Regensburg's Institute for Theoretical Physics.

The theoretical group led by Prof. Ching-ray Chang (center in white Bayern München shirt) and Dr. Ming-hao Liu.



Young Professors Awarded 5th Golden Jade Fellowship

The Kenda Foundation recently awarded its 5th Golden Jade Fellowship to two new faculty members, Prof. Wu-yen Chuang of the Department of Mathematics and Prof. Ching-wen Chiu of the Department of Chemistry. The fellowship provides annual payments of NT\$250,000 over four years to outstanding scholars under the age of 40 who hold positions in mathematics, physics or chemistry. They are aimed to address the challenge of recruiting talented young Taiwan scholars by encouraging their pursuit of fundamental scientific research.

Prof. Wu-yen Chuang
of the Department of
Mathematics



Prof. Chuang graduated from National Tsing-Hua University with a bachelor's in 1998 and received his PhD in string theory from Stanford University in 2007. He worked as a postdoctoral research associate at Rutgers University's New High Energy Theoretical Center from 2007 to 2010. In August 2010, Chuang was appointed as an assistant professor in NTU's Department of Mathematics. His research interests include string theory, mathematical physics and algebraic geometry. Presently, he is working on various kinds of moduli problems inspired by or related to string theory and wall-crossing of the moduli.

Prof. Chiu graduated from National Chiao-Tung University in 2001 with a master's degree in Applied Chemistry and earned her PhD from the Department of Chemistry at Texas A&M University in 2008. Shortly after completing her doctoral research, she was awarded a postdoctoral fellowship from the Alexander von Humboldt Foundation and moved to the University of Wuerzburg in Germany for two years of postdoctoral research. Prof. Chiu's research is focused on the synthesis, electrochemistry and anion sensing applications of extreme electron-deficient boron-containing molecules. In August 2010, she was appointed as an assistant professor in the NTU Department of Chemistry. Currently, Prof. Chiu is integrating synthetic inorganic chemistry and materials science to design functional porous materials. Her ultimate research goal is to tackle pressing environmental issues, including global warming, sustainable energy and heavy metal detoxification.

Prof. Ching-wen Chiu
of the Department of
Chemistry



NTU Student Team's Flower Identification

A team of NTU graduate students from the Graduate Institute of Computer Science and Information Engineering and the Graduate Institute of Networking and Multimedia placed first in one category of the Chunghwa Telecom 2010 Telecom Oscars. The Telecom Oscars drew 638 teams comprising 2,910 students and offered NT\$5 million in prize money to those who made it to the top during eight months of competitions. NTU's Indeterminate Inflorescence Team received the top prize of NT\$360,000 in the Flora Expo Applications category, which was established just this year in conjunction with the 2010 Taipei International Flora Exposition.

The team's entry, "Flora," utilized the cutting-edge technologies of smart phones, cloud computing and image identification for the Flora Expo. Their application uses cloud image identification technologies to allow smart phone users to photograph a flower and then search for its species name and related information based on the image. The users then can share the image and information with friends via social networking services.



BIKE STORAGE YARD'S MR. PAN HAS WORKED AT NTU FOR NEARLY 40 YEARS

As the NTU campus is a cycling campus, the administration has provided bicycle parking spaces outside all campus buildings for the convenience of students, faculty and staff. Yet, sometimes there are still not enough spaces and some people have no choice but to park their bikes in undesignated places, which can inconvenience pedestrians and other vehicles. To protect the rights of all who ply campus roads and sidewalks, the university runs a bicycle tow service. Sometimes you can see a small blue truck roaming around the campus to collect bikes parked in violation of campus rules. After it has picked up its haul, it heads to the bicycle storage yard on the Shui Yuan Campus.

An elderly man named Mr. Pan works at the storage yard. Anyone who has gone to pick up a bike knows why Mr. Pan is famous for his good memory, as he is always able to know where a bike is stored. How is he able to identify the correct location of all those bicycles? It turns out they are stored according to the month when they were picked up, and Mr. Pan simply needs to check the month on the tow notification and the bicycle's number to determine its location.

However, if a bicycle has not been claimed within two months, the university will auction it off. Mr. Pan says with a laugh, "The second hand bikes you ride, in fact, all come from here." If a bike is too old or cannot be ridden anymore, Mr. Pan removes the usable parts and stockpiles them, so he can give them to students who need replacement parts. He says, "The parts are not cheap to replace if you go to a shop. It's nice to help students save a little money."

When the tow truck returns to the storage yard filled with bikes, Mr. Pan helps remove the bikes. Once he has placed them in their proper storage spots, he uses a very long chain to lock them all together and attaches a storage number to each of the bicycle's handlebars. Then, after making sure that everything is in order, he returns to the shelter of his awning to take a break.

Born in Pingtung County in 1946, Mr. Pan came to Taipei to make electric motors when he was young. But, when he saw that NTU was testing for workers, he gave it a shot. That was nearly forty years ago, and Mr. Pan has been here ever since. He worked on the main campus for 35 years, and was reassigned to the storage yard three years ago.



NTU Participates in APRU Teleconference on Campus IT Strategies



The University of Indonesia hosted a teleconference for the Association of Pacific Rim Universities to share and discuss their current information technology strategies and planning on September 30. The digital conference brought together 13 prestigious universities from three continents around the Pacific Ocean.

Four universities briefed the conference participants on their current IT plans. Tohoku University's five-year Inoue Plan calls for building a secure campus-wide Internet infrastructure, establishing an integrated campus-wide authorization system and finally erecting customized systems to serve diverse groups. The plan is aimed to improve both student satisfaction and administrative efficiency.

The University of California, Los Angeles implemented a plan called IT/2020. The ten-year plan is to examine the university's currently decentralized IT resources and then to identify which functions and applications would be better done under centralized institutional management so as to avoid duplicating resources.

The University of Malaya will build a carefully-designed IT infrastructure. The university is working to meet the IT needs of its different user groups by boosting wireless Internet coverage rate, integrating campus service systems and creating a paper-free work environment.

The University of Auckland is focused on execution and seeks to identify optimal routes rather than aim for a particular goal.

APRU was established in 1997 with the goal of promoting scholarship, research and industry cooperation in order to improve economic conditions, science and culture in the region. Its membership is made up of 42 elite universities. NTU, the only local university in APRU, has been an active member in recent years.

OIA Attracts 1,500 to 2010 Overseas Education Fair

Aiming to augment NTU's internationalization and promote the university's overseas education programs, the NTU Office of International Affairs held the 2010 NTU Overseas Education Fair in the Second Student Activity Center on November 15. Besides organizing the Exchange Student and Overseas Summer Program Meeting, the OIA arranged booths representing partner universities to offer useful, first-hand information to NTU students interested in studying abroad. The fair succeeded in attracting over 1,500 students and visitors.

The OIA invited current international exchange students at NTU and NTU students who studied overseas last year to design booths representing their respective institutions. In the end, the fair had 42 booths promoting 45 universities in 16 countries. In addition to providing informative pamphlets, students manning the booths answered questions and shared their personal experiences with fair attendees.

Addressing the Exchange Student and Overseas Summer Program Meeting, OIA Deputy Dean Shang-hsian Hsieh urged students to challenge themselves by going abroad and affirmed the benefits of the education fair to students. OIA staff also briefed the students on visiting student programs, overseas summer programs, scholarships for exchange students, etc. During introductions to universities in different regions, NTU students who have returned from overseas studies mounted the stage to share their experiences abroad.

The OIA also delivered fun and competition to the fair by awarding prizes to the three booths voted the best and holding a drawing for two overseas air tickets.



OIA HOLDS 6TH INTERNATIONAL SCHOLARS TEA



The Office of International Affairs hosted the 6th International Scholars Tea on October 8. This year, the tea brought together 16 full- and part-time international instructors and postdoctoral researchers to spend an afternoon learning about their new environment and discussing their experiences.

Dean of International Affairs Tong Shen opened the afternoon tea with a fascinating talk. As most of the scholars were new-comers to the tea, Dean Shen made a point of introducing NTU to familiarize them with the campus. Ann-Marie Hadzima of the Department of Foreign Languages and Literatures served as the MC for the afternoon, and her smooth manner made the gathering all the more pleasant.

Since the 2010 Taipei International Flora Exposition was to open a month after the tea, the attendees were shown a promotional video prepared by the Taipei City Government. The video's 3D effects made the viewers feel as if they were already surrounded by the expo's fragrant bouquets. Next, Department of Psychology student Chia-chi Chang introduced good places to eat and hang out in the area and talked about how he, as a local student, viewed the Flora Expo. Student Chih-chien Hsu of the NTU Magic Club entertained the scholars with a marvelous display of illusion.

More speakers followed. Prof. David Wu of the Department of Chemical Engineering said he was filled with curiosity about everything in Taiwan and he considered Taiwanese people to be friendly and helpful to others. Prof. Karen Chung of the Department of Foreign Languages and Literatures, who has developed a deep identification with and feeling for Taiwan over the many years she has been here, also shared her experiences.

The two-hour tea ended with a lively Q & A session that saw the international scholars enthusiastically discussing their experiences and offering suggestions.

Orientation Helps New International Degree Students Settle In

On September 8, NTU's new international degree students assembled for the annual Orientation for International Degree Students. The orientation always helps the new international students adapt quickly to local culture and get acquainted with administrative procedures and campus life at NTU. It also provides an opportunity for the new students to meet some veteran international students who know the ropes at NTU.

As in the past, the OIA, Office of Academic Affairs and Student Housing Service Division gave presentations to explain important matters. Also, this year, the organizers used a Q & A format to address frequently asked questions of new international students.

As the new students came from 42 countries, NTU's international student clubs were invited to set up information booths and conduct campus tours in a variety of languages. These included the NTU Foreign Student Association, NTU Indonesian Student Association, NTU International Student Information Service, NTU International Youth Club, NTU Vietnamese Student Association, Taiwan Japan Student Conference and a group of Mongolian students.



NSC Grant Supports NTU Physicist's Project at Large Hadron Collider

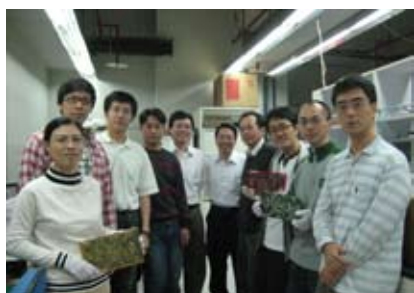
Prof. George Wei-shu Hou of the Department of Physics recently received a prestigious five-year Academic Summit grant from the National Science Council. Titled "Beyond Kobayashi-Maskawa—Towards Discovery of 4th Generation Quarks at the LHC," Prof. Hou's project received the maximum level of funding under the grant program. The project aims to discover 4th generation quarks using the Compact Muon Solenoid (CMS) detector at the Large Hadron Collider (LHC) at the CERN laboratory near Geneva, Switzerland.

The Kobayashi-Maskawa (KM) theory, proposed in 1973, predicted the existence of three generations of quarks. This allowed CP violation to appear with just the known dynamics of particle physics, and



KM theory itself became part of the Standard Model. However, CP violation with three generations falls short by at least a factor of a billion from accounting for the disappearance of antimatter from the early universe. In 2009, Prof. Hou pointed out that the Standard Model with four quark generations would boost the strength of CP violation by well over a billion, and may account for the matter-antimatter asymmetry of the universe.

of the CMS Preshower subdetector, and is now collaborating on the prestigious Phase I of the CMS Pixel Upgrade, which will secure NTU's long-term position at the CMS.



Taiwan's CERN team consists of scientists from NTU and National Central University, and its main goal is the detection of 4th generation quarks. In addition to analyzing data, Taiwan's CERN team is contributing to the development of hardware. It played a major role in development



Biomedicine Ethics and Law Center Plays Active International Role



Established in 2007, the Center for Ethics, Law and Society in Biomedicine and Technology (CELS) has continued to work actively in 2010 to achieve its goals of promoting education, research and policy deliberation in the fields of bioethics, law and society, and establishing interdisciplinary research collaboration at university and international levels.

CELS has represented Taiwan as a unit of the International Network of the UNESCO Chair in Bioethics

Scientists Use Nanotechnology to Detect Bacteria and Test Drug Susceptibility

An eight-year interdisciplinary research project led by Dr. Juen-kai Wang of NTU's Center for Condensed Matter Sciences, Dr. Yuh-lin Wang of the Institute of Atomic and Molecular Sciences at Academia Sinica and Prof. Chi-hung Lin of the Institute of Microbiology and Immunology at National Yang-Ming University has applied nanotechnology to develop a new diagnostic method to detect bacteria and test their drug susceptibility. Their technology has many potential applications, not only in microbiology, but in the early diagnosis of diseases, environmental monitoring, food safety and biocide control in agriculture.

The team grows metal nanoparticles in tailor-made, self-organized channels of tens of nanometers in diameter that are formed during anodization of aluminum, just like transplanting rice seedlings in an orderly paddy

field. These closely packed metallic nanoparticles, separated by as little as five nanometers, create an extraordinarily high electric field among themselves, and thus greatly enhance Raman scattering of molecular species residing within their "hot spots." This two-dimensional nanoparticle array enables reliable and uniform detection of surface-enhanced Raman scattering, overcoming the largest hurdle of this field, which has troubled scientists for the last thirty-six years. Most importantly, this difficult problem is solved by virtue of a highly precise, yet low-priced, self-assembling chemical synthesis, without resorting to expensive and sophisticated microfabrication.

The scientists have combined their respective strengths in laser spectroscopy, nanofabrication and biomedicine to achieve the detection of the Raman spectrum of single bacteria in a few seconds.



Taiwan's Premier Wu Den-yih (second from left) presents an award to (from left to right) Dr. Juen-kai Wang, Dr. Yuh-lin Wang and Dr. Chih-hung Lin.

Their technology permits the deciphering of the distinct spectra of different bacteria and their stress responses under drug treatment, becoming a modern high-speed diagnostic technique for clinical use in bacterial screening and drug susceptibility.

The team has patented this technology and published it in top-notch journals. It has also received government awards for outstanding achievements in science and technology in Taiwan.



since 2007. In May, CELS attended the network's 2010 International Conference on Bioethics Education in Zefat, Israel, and was recognized as one of the most productive and enthusiastic units. CELS designed and maintains the network's website (<http://www.unesco-chair-bioethics.org>).

In October, the Philippines Department of Health was considering lifting a ban on foreigners receiving "incentivized" (paid) organ donations from living non-related donors in the Philippines. As the policy would likely lead to organ tourism and trafficking and is prohibited by international guidelines on organ transplants, CELS sent a letter to the president of the Philippines expressing serious concerns. The letter and the efforts of local human rights groups raised the media's attention and caused authorities to reconsider removing the ban.

CELS also organized a number of international conferences and workshops in 2010. In July, it held a conference on Policy and Law for Medical Malpractice Disputes as well as a workshop on medical and public health ethics. The center hosted the International Conference on Risk and Regulatory Science in August, an international conference on Ethical Issues in Public Health and Resource Allocation in October, and a conference on Neuroscience, Mind and the Law in November.

NTU Social Work Review Added to Taiwan Social Science Citation Index



The NTU Social Work Review gained listing in the Taiwan Social Science Citation Index in October. This recognition is great news for the Department of Social Work and NTU, and will help the journal continue to grow by drawing more high-quality submissions and stimulating a wider breadth of academic involvement.

Inaugurated in 1999, the biannual journal was the first academic journal in Taiwan to focus on social work. It provides a platform for social work and social welfare scholars to share research and ideas pertaining to social work practice, social policy and social administration.

Prof. Lih-rong Wang took charge as chief editor four years ago and proceeded to spearhead the journal's drive to gain recognition by the Taiwan Social Science Citation Index. Though the journal is run solely by the department with a minimum of university support, it has finally achieved this goal due to the persistent hard work of its staff and submitting scholars.

NTU Accounting and Economics Journal Merits Listing in SSCI

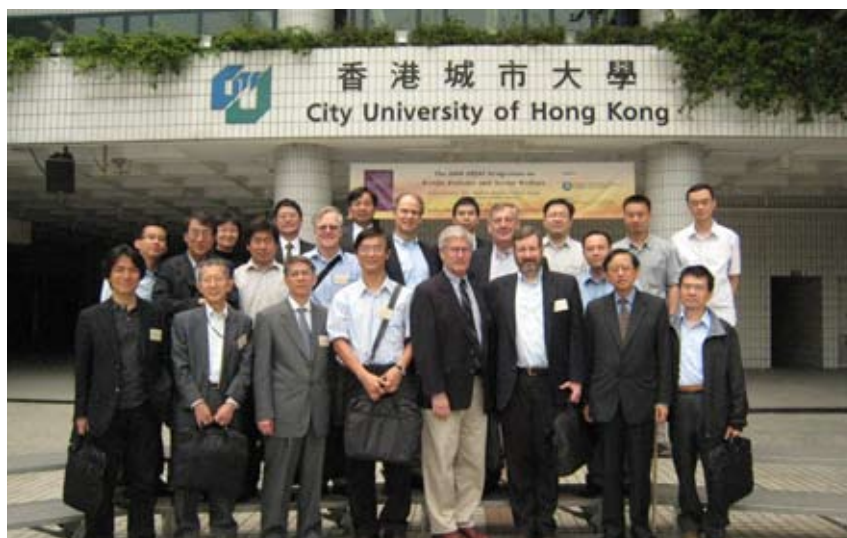
The Asia-Pacific Journal of Accounting and Economics, published by the NTU Departments of Economics and Accounting together with City University of Hong Kong, succeeded in being listed in the prestigious Social Science Citation Index in 2010. The combined efforts of many paved the way for this journal to be just the third in Taiwan to be listed in SSCI, thereby putting NTU one step ahead on its march towards internationalization.

APJAE is an international academic periodical that covers issues in the fields of economics and accounting, such as international trade and finance, business organization, transportation economics, strategic behavior, market structure, financial contracts, corporate governance, capital markets and financial institutions. The journal has published 17 issues since it commenced in 2007.

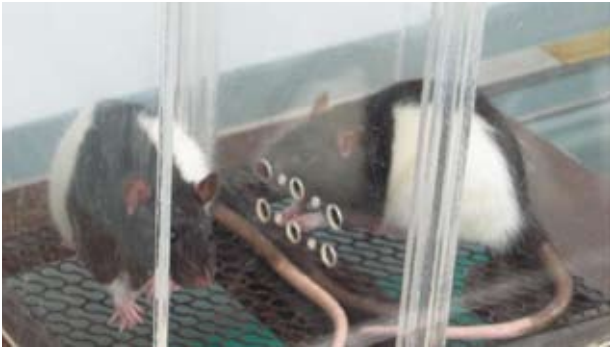
Since its creation, APJAE has organized periodic symposia to which it invites prominent scholars in related fields to present papers. These speakers in turn introduce other outstanding scholars and

students. Many of the academic papers presented at the symposia are published in the journal, so the symposia are a stable source of quality manuscripts. A review process that adheres to standards maintained by elite international journals was instituted to ensure the quality of the journal's articles. Reviewers are anonymous and required to present deep and constructive criticisms. The editorial team then determines whether the revisions need to be made and finally clears articles for publication after they meet the journal's standards.

APJAE's listing in SSCI is a contribution to international scholarship as well as to NTU's internationalization drive. The journal's chief editor, Prof. Hong Hwang of the Department of Economics, says that APJAE has been recognized as an elite journal with its listing in the SSCI. Hwang adds that this will lead to submissions from numerous internationally renowned academics and that NTU's influence in the academic world will grow as increasingly more scholars worldwide learn about the university through the journal.



Researchers Probe Empathy Mirror Neurons in Rats



Rats are housed side by side in a divided chamber in an experiment into empathy mirror neurons.

Prof. Chen-tung Yen of the Institute of Zoology and Prof. Keng-chen Liang and Prof. Wen-sung Lai of the Department of Psychology launched a three-year project last year that is probing empathy mirror neurons in rats. They were inspired by classic research from the 1990s showing the activation of mirror motor neurons in monkeys that observed the acts of other monkeys.

The team uses a divided chamber to house two rats side by side. One rat with a recording head piece is the “observer” being recorded and the other rat is the “demonstrator”. A timed and intensity-controlled laser heat beam is applied to the tail or paw pad of the “demonstrator” while the scientists record the behavior and

neuronal activities of the observing rat.

The neurons recorded are from the brain areas that have been shown to be greatly involved in human empathy. The preliminary data show the rat has specific empathy-related behavior including sniffing and putting its nostril up to the divider to check on the “demonstrator”. More interestingly, the project has found many empathy-related neurons in a part of the midline cortical region called the anterior cingulate cortex. The neuron activity here increased both when the “observer” rat was watching the “demonstrator” in pain as well as when itself was hurt.

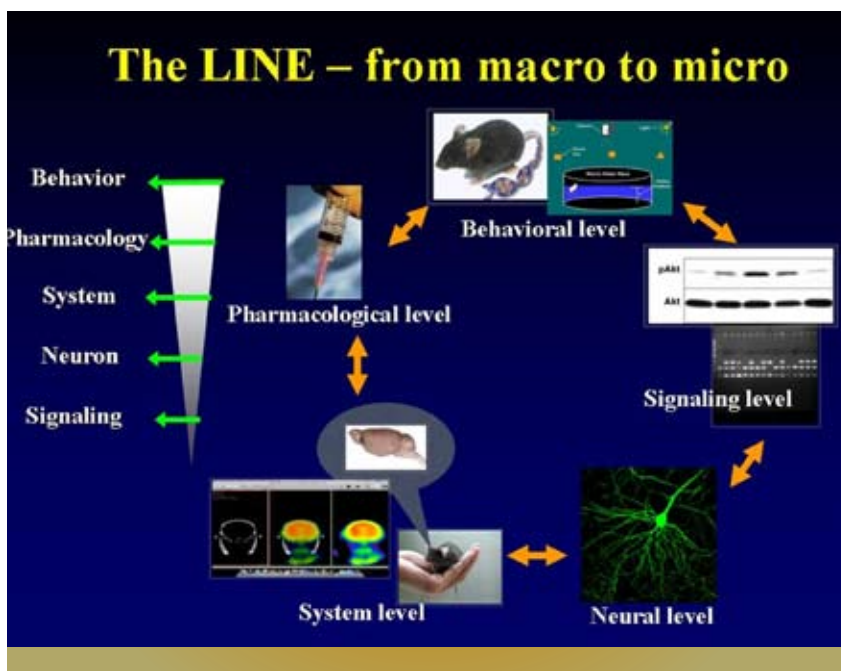
The Laboratory of Integrated Neuroscience and Ethology’s research orientation; visit its website at <http://www.psy.ntu.edu.tw/LINE/>.

The LINE Studies Schizophrenia Using Transgenic Mice

Schizophrenia affects around 1% of the world’s population, yet scientists remain uncertain as to its causal mechanisms and genetic origins. However, researchers have found that schizophrenia is highly likely to be caused by multiple genes, and has identified candidate genes.

Schizophrenia is essentially a disease defined by human clinical symptoms; therefore, mice should not be capable of expressing human schizophrenia. Nevertheless, in recent years, the Department of Psychology’s Laboratory of Integrated Neuroscience and Ethology, The LINE, with the support and guidance of the university, College of Science, Department of Psychology, and the Neurobiology and Cognitive Science Center, has formed the Taida Schizophrenia Research Team.

One of the team’s subprojects is to target the schizophrenia candidate gene Akt1 (protein kinase B, alpha). Using transgenic mice lacking the Akt1 gene, the project is investigating behavioral symptoms related to mouse schizophrenia as well as the influence of related neuroactivity in the brain. Initial research has discovered that there are special differences in the expression of schizophrenia-related behavior in these mice. The researchers plan to proceed by studying genes, gene-to-gene interactions and gene-to-environment interactions in their effort to clarify the causative influences of these factors on schizophrenia.



START Conducts Development Research and Makes Documentary in Swaziland

From August 16 to September 8, the NTU Swaziland-Taiwan Area Research Team (START) visited the Kingdom of Swaziland with which Taiwan has had diplomatic relations for nearly fifty years to research rural development issues and make a documentary film



The START team visits the University of Swaziland.

of the Umhlanga, or Reed Dance ceremony. The team included Prof. Shih-shen Chien of the Department of Geography, Prof. Po-hsiung Lin of the Department of Atmospheric Sciences, and students Yi-chen Wu and Dong-li Hong of the Department of Geography, Chia-chen Shih and Yu Tseng of the Department of Political Science, Tsung-hsien Lee of the Department of International Business and Jui-che Lin of the Department of Entomology.



START's documentary team interviews participants in the Umhlanga.

START's study of rural development included in-depth surveys of three forms of agriculture development in Swaziland. The first form is the conventional agriculture conducted by agriculture missions of Taiwan's International Cooperation and Development Fund. The second is the conservation agriculture conducted by the United Nations Food and Agriculture Organization. And, the third is the transformation of traditional animal husbandry into a dairy industry.

The Umhlanga is the most important and largest festival in Swaziland, and draws hundreds of thousands of young female dancers from throughout Swaziland as well

as neighboring countries where Zulu people reside, including South Africa, Mozambique, Zimbabwe and Botswana. START filmed the eight-day dance in order to make a half-hour documentary, which will be the first film record of the festival in Taiwan.

START shared its experiences



The START team observes a conventional agriculture field.

back at NTU with a poster display in the NTU Main Library from December 6-13. The week also included a discussion forum and a photo show.

The Department of Geography has organized overseas summer fieldtrips focused on international development and world geography since 2008. The SPIRIT project went to Kiribati and Tuvalu in 2008 and the MERIT project traveled to the Marshall Islands in 2009.

Freshmen International Chinese Literature Students Enjoy Orientation Luncheon

The Department of Chinese Literature held a freshmen luncheon for the 16 incoming students in the department's specially-designed bachelor's program for international students on September 8. The luncheon served as an orientation to inform the new students about the course arrangement and selection and scholarships, introduce the program's instructors, and allow the freshmen to get to know each other through self-introductions. A class representative was also elected to facilitate communication between the students and the department.

The program offers a full range of classes and encourages enlightening cultural experiences. Professors guide students in appreciating the depth and beauty of Chinese literature and culture. Classes cover classical literature and literary theories as well as Chinese history and geography. Students also have the opportunity to learn modern Chinese writing styles. Courses on linguistics, paleography and comparative culture introduce students to the differences among the diversity of Chinese cultures and languages.

NTU, USC and PKU Students to Take Classes Simultaneously Online This Spring

NTU, the University of Southern California and Peking University will offer a novel distance learning course using the recently created i-Podium system in the spring of 2011. In this era of ever-improving telecommunications technologies, the development of the Internet has connected people from all corners of the world, and allows us all to access information simultaneously. Though NTU and USC are separated by a distance of some 16,000 kilometers, this new course will make such distances a problem of the past.

Dean Lin-shan Lee of the NTU College of Electrical Engineering and Computer Science and Dean Yannis C. Yortsos of the USC Viterbi School of Engineering signed the NTU-USC i-Podium Memorandum of Understanding on October 26. The agreement calls for the joint establishment of a distance learning course that will permit students at NTU, USC and PKU to use the Internet to synchronically take part in classes and engage in the exchange and stimulation of ideas in real time.

The i-Podium system was designed at USC. Prof. Stephen Lu of the Viterbi School of Engineering, a designer of the system, says that elite universities find themselves in a new situation in the 21st century. He says that in the 20th century these universities were physical entities based on campuses that brought the world's finest students to their classrooms to learn. The 21st century, maintains Lu, will be an era with a

borderless learning environment in which students are not required to leave their countries in order to learn together with outstanding students from other regions. USC and PKU have already conducted initial testing of the i-Podium system.

The i-Podium course to be offered this spring will accept 20 students from each of the three universities. It is a three-credit course that will meet for 130 minutes each week for 23 weeks. Interested students should contact the Department of Electrical Engineering, Office of Academic Affairs' Curriculum Division or the NTU Creativity and Entrepreneurship Program.

Dean Lin-shan Lee of the NTU College of Electrical Engineering and Computer Science and Dean Yannis C. Yortsos of the USC Viterbi School of Engineering pose with honored guests after signing the NTU-USC i-Podium Memorandum of Understanding.



Outside of class, professors guide students on trips to historic spots including the National Palace Museum and Taipei Confucius Temple, and students take part in campus athletic events and other extracurricular activities, such as a Chinese New Year homestay program.

The program enjoys a teacher-student ratio of 1:5 and uses a mentoring system as a bridge between the international students and their professors. Moreover, a graduate student teaching assistant is assigned to each required course.

The international program has continued to grow and improve since its initiation in 2008. There has been a general increase in enrollment and students are coming from a larger number of countries. Starting with an enrollment of eight students in 2008, the program has had 17 students in 2009 and 16 students in 2010.

Microbial Ecosystems Control Methane Emissions in Mud Volcanoes

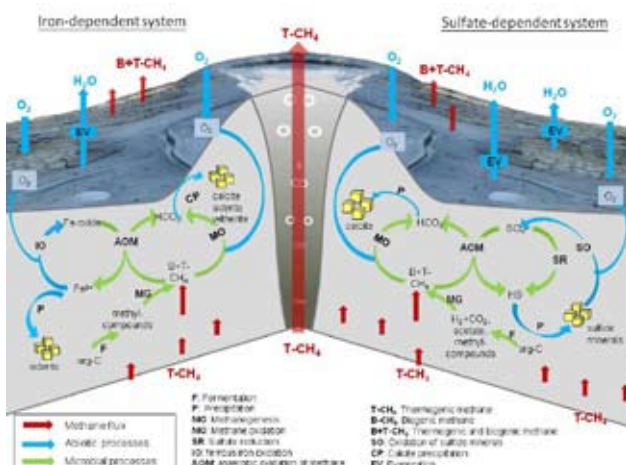
Estimates of the Earth's methane reserve and flow rate indicate that microbes play a crucial role by controlling more than 80% of the production and consumption of methane in the natural environment.

Mud volcanoes are an important channel for the emission of methane. They release subsurface fluid containing large volumes of fine sediment and hydrocarbons (primarily methane). Methane produced by deep sea mud volcanoes is nearly completely consumed through the symbiotic relationships between anaerobic methane-oxidizing bacteria and sulfate reducing bacteria. Inland mud volcanoes, however, differ from marine mud volcanoes in that they lack the sufficient volumes of sulfate provided by the overlying seawater.

Hoping to gain a deeper understanding of the mechanisms of ecosystems that control methane concentrations and emissions in on-land mud volcanoes, geologists at NTU collected samples from Taiwan's Yanchao and Guanshan mud volcanoes. Their analysis included testing of the mud volcanoes' hydrochemistry, gaseous chemistry, sediment chemistry and microbial incubation as well as numerical modeling of biomolecular populations.

The geologists discovered that water from the opening of the Yanchao mud volcano contained higher concentrations of sulfate, while that from the opening of the Guanshan mud volcano contained higher concentrations of ferrous ions. Water from the core samples drilled at the openings of the two volcanoes

Research conducted by NTU geologists shows mud volcanoes contain a complicated collection of microbes displaying special metabolic processes.



The classification and preservation of field samples

showed that sulfate concentrations decreased and ferrous ion concentrations increased as depth increased, while methane concentrations decreased as depth decreased.

This data has two major implications. First, Inland mud volcanoes possess an anaerobic methane-oxidizing bacteria ecosystem similar to that of marine mud volcanoes. The Yanchao mud volcano is an example. Yet, sulfate concentrations are usually far lower on land than at sea. Clearly, there must be an additional source or mechanism providing adequate volumes of sulfate. Second, inland mud volcanoes possess an anaerobic methane-oxidizing bacteria ecosystem related to iron regeneration. The Guanshan mud volcano is likely the first known example.

This research shows that mud volcanoes contain a complicated collection of microbes which display special metabolic processes. The interaction of regenerative fluids rising from deeper levels with the oxidizing environment on the surface controls the increase and decrease of microbes at different depths as well as their metabolic characteristics. Whether supplying sulfur or iron, anaerobic methane-oxidizing bacteria are able to find coordinating microbes, and thereby reduce the volume of methane released into the atmosphere.

NTU at a Glance



Museum of Anthropology Celebrates Reopening with Month of Events

The Department of Anthropology's Museum of Anthropology finished moving into the west wing of the newly renovated old NTU Library building, and has formally reopened with a series of special events beginning on November 12. The museum completed the first stage of setting up the archeology and ethnology archival rooms on the first floor and finished setting up displays in the ethnology exhibition hall on the second floor.

The department chose NTU's 82nd anniversary celebrations as the time to reopen in order to better advertise and promote the museum. A highlight of the reopening events was a film festival of three documentaries of Taiwan's indigenous peoples from the 1930s; the three films were shown on each Saturday in November. The three films provided viewers with a rare opportunity to witness the Pas-tai Saisyat Ceremony in 1936, the Fifth-Festival of Paiwan Neiven communities and the Kebaran and Ketangalan Plains aborigines. A book display featuring Taiwan's indigenous peoples was also held at bookstores around Taipei.

The department held the "International Conference on Asian-Pacific Societies in Changing Times: Anthropological and Archaeological Perspectives" on December 3-4. And, on December 4,

the department invited scholars from different fields to engage in interdisciplinary discussions at the roundtable forum, "The Formation and Movements of an Island World: Between Austronesia and East Asia."



Adopt a Tree to Preserve NTU's Green History

The NTU campus boasts tens of thousands of trees covering over 40 hectares of green space. Having provided shelter and shade for the university's students for more than 80 years, these stately trees long are NTU's most precious green asset. NTU has always cared for its trees through routine maintenance work and in recent years it has worked with campus experts to conduct health tests, provide necessary nutrients and improve growing environments. Unfortunately, funds are lacking and only a small number of trees receive the best care.

Aiming to return the favor to our arboreal friends for their shade and scenery, the Office of General Affairs has set up a tree adoption program to allow concerned organizations and individuals to make donations to sponsor the campus trees' good health.

Tree adopters receive a donation certificate and letter of appreciation and are listed on NTU's tree adoption website. For those who donate NT\$100,000 or more, a donation plaque will be placed near the adopted trees.

More information is available in Chinese at <http://homepage.ntu.edu.tw/~fss/gogreen/index.html>.



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