

NTU



NEWSLETTER

April 2008 / No. 5

Published by National Taiwan University
Website: <http://homepage.ntu.edu.tw/~secretor/ntunewsletter>

No1. Winner of NSC Outstanding Research Awards

President Lee Visits Vietnam

NTU, UC-Berkeley Business Schools
Connected

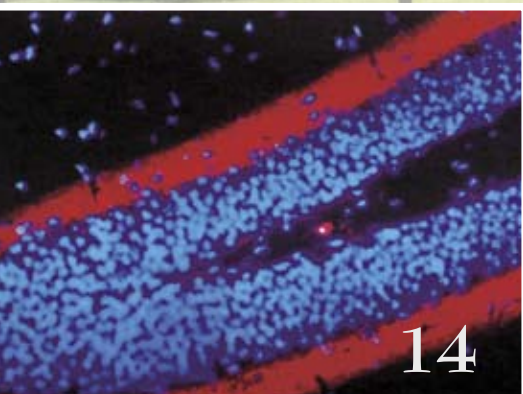
NTU to Emphasize Hakka Research

Special Report
Azalea Festival



NTU's First International Scholars Reception a Success

The Office of International Affairs (OIA) held the first International Scholars Lunch Reception on March 5th to honor the growing number of international scholars who ...



Small Animal PET/CT Scanner Open for Molecular Imaging Research

Aided by support from the Ministry of Education, NTU, and NTU's Neurobiology and Cognitive Science Center, a PET/CT scanner dedicated to small animal research was installed at the PET Center ...

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NTU AT A GLANCE

Blazing the Trail for Hakka Research—NTU's Hakka Research Center Inaugurated

2008 NTU Azalea Festival Colors Month of March

On the heels of chilly, wet winter weather, March marks the return of warm weather in northern Taiwan. This annual rise in temperature alerts the innumerable azalea bushes lining the highways and byways of the NTU campus that it is once again time to bloom. Inevitably, their response is a veritable explosion of papery pink, white, and red blossoms. Creating one of the most impressive and representative campus scenes at NTU, the azalea has been proclaimed as the official flower of NTU.

And, just as surely as NTU's azaleas choose to bloom in March, the university's students are certain to take part in the unofficial tradition of placing the fallen flowers in patterns, shapes, and words in Chinese and other languages on the campus lawns.

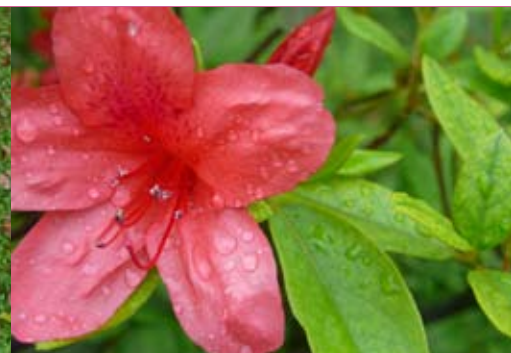
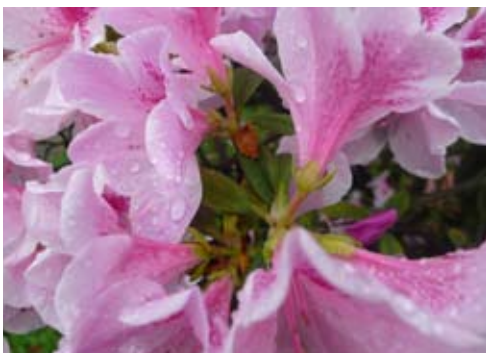
Occupying such a preeminent position on campus, NTU's azaleas have been honored by having the entire month of March dedicated to the annual NTU Azalea Festival. First established in 1997, the festival draws tens of thousands of visitors, including high school students and faculty, parents, and members of the general public, to the NTU campus every year. During the month-long festival, students and visitors take part in a wide variety of activities, including the Department Expo, Joint Student Club Exhibition, student performances, campus tours, and arts and entertainment.

NTU's azaleas choose to bloom in March.



Dancers show their moves during the opening ceremony for this year's Azalea Festival on March 8th.

This year's Azalea Festival coincided with NTU's 80th anniversary and served as an overture to this octogenarian university's anniversary celebrations. President Si-chen Lee officiated at the opening ceremony for this year's festival on March 8th and delivered the festival's opening speech. During the ceremony, awards were presented to the winners of the 80th Anniversary Mascot Design Contest and the roster of NTU Outstanding Youth was announced. A range of brilliant performances by NTU student clubs, such as the NTU Wind Orchestra and NTU Popular Dance Club, made the ceremony an exciting spectacle and attracted throngs of people to stop and watch.





Over 100 student clubs put on a variety of colorful performances and activities.

Of the numerous activities organized for the Azalea Festival, it was the Department Expo and Joint Student Club Exhibition, held on March 8th and 9th, that marked the high point of the festival. Altogether 54 representatives from NTU's academic departments participated in the Department Expo, held on the third floor of the NTU Sports Center. They presented demonstrations and gave exhaustive introductions of the courses, faculty, and future development directions of each department at NTU, providing direct information to visitors. The Joint Student Club Exhibition was staged outside of the Sports Center and along nearby roads. Over 100 student clubs put on a variety of colorful performances and activities, showcasing the lively and diverse aspects of extracurricular life at NTU.

NTU enjoys a long history and has a reputation as a gathering place for the most intellectual and creative

young people in Taiwanese society. The university plays a pioneering role, and is the torchbearer and innovator of development trends in Taiwan. Numerous artistic and literary activities were arranged for this year's Azalea Festival. Among the events organized by the Office for Art Promotion were Cathay at Luming Square and the Voice Thunder Music Festival. These demonstrated the rich atmosphere of culture and humanities on the NTU campus. The NTU Visitors Center and NTU Museum Group arranged the NTU Sightseeing Tour—The Azalea Festival Guided Campus Tour and A Campus Stroll with the Museum Group for high school students and the general public, allowing them to gain a better understanding of NTU through direct visits.

The official website for the NTU Azalea Festival provides more information (in Chinese) at <http://www.ntu.edu.tw/actives/azalea2008/>.

NTU President Lee Visits Vietnam in January to Establish Academic Ties

Right: NTU's President Si-chen Lee (right) and Hanoi University of Civil Engineering President Nguyen Van Hung (left) sign an agreement establishing a joint degree program.

Below: President Lee (center right) poses with representatives of Vietnam National University in Hanoi.



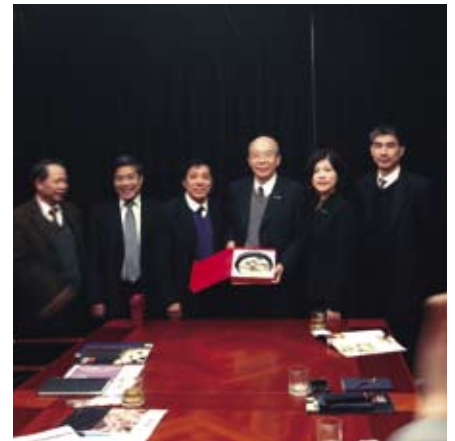
Responding to overtures from Vietnam's Ministry of Education and Training and several major Vietnamese universities in 2007 to establish academic ties and joint degree programs with NTU, NTU President Si-chen Lee traveled to the neighboring nation as head of an NTU delegation for a two-day formal visit in January. During his visit, Lee visited Vietnamese universities and signed a memorandum of agreement.

President Lee was accompanied on this visit by Dean Tung Shen from the Office of International Affairs, Dr. Shang-hsien Hsieh and Dr. Liang-jeng Leu of the Department of Civil Engineering, and Taiwanese-Vietnamese professor Dr. Tran Van Doan of the Department of Philosophy.

The main fruit of this visit was the signing of a memorandum of agreement to establish a joint degree program with Hanoi University of Civil Engineering (HUCE). Under this program, HUCE will select outstanding Vietnamese students who, upon completing the first year of the program at HUCE—

where NTU will assist in their instruction—will travel to Taiwan to undertake the second year at NTU. All courses will be taught in English, and NTU will award a master's degree to students who complete the program. Vietnam's Ministry of Education and Training expressed its utmost respect for this program. The commitment and earnest efforts of Chairman Kuo-Chun Chang and many other professors of NTU's Department of Civil Engineering led to the formulation of this agreement and its final ratification by NTU President Lee and HUCE President Nguyen Van Hung.

During this busy two-day visit, President Lee and the NTU delegation visited the Ministry of Education and Training and the Vietnamese Academy of Science and Technology (the equivalent of Academia Sinica in Taiwan), as well as five major universities: HUCE, Hanoi University of Technology, Vietnam National University in Hanoi, and its two affiliated universities, Hanoi University of Science and the University of Social Sciences and Humanities.



In addition to calling for closer cooperation in research, the Vietnamese educators expressed their hope that young Vietnamese teachers could be sent to NTU to enter doctoral programs. President Lee expressed genuine interest in this idea, and promised to provide a number of scholarships for these young teachers.

As a research-oriented university, NTU will focus on accepting more Vietnamese graduate students and postdoctoral researchers to help in educating them to be university professors, researchers, and civil servants. Moreover, NTU's College of Liberal Arts will also start teaching the Vietnamese language this year.

NTU's First International Scholars Reception a Success



NTU's international scholars come from all corners of the world.



The highlight of the reception was the panel of six international scholars who volunteered to share their experiences with the audience.



The Office of International Affairs (OIA) held the first International Scholars Reception on March 5th to honor the growing number of international scholars who teach and conduct research here at NTU. The reception provided a platform for international scholars to gather and share experiences together and with local colleagues. During the reception, the OIA also introduced the International Scholars Service Program, created this spring to serve international scholars who come to teach or work at NTU for at least one month. The reception attracted 120 participants, including 20 university administrators, 25 full-time and visiting international professors, 35 international post-docs, and 30 staff members from various departments hosting international scholars.

President Si-chen Lee delivered the reception's opening speech, expressing his heartfelt appreciation

to the 80 international professors (including 30 visiting professors) and 80 international post-docs who now call NTU home. President Lee said that together they generate the momentum needed to propel NTU further towards its goal of greater internationalization.

Dean Tung Shen of the OIA thanked the university administrators and the staff who collaborated on the International Scholar Service Program and helped to make the reception a success, and noted that they help create a friendly workplace and living environment for current and prospective international scholars.

The highlight of the reception was the panel of six international scholars who volunteered to share their experiences with the audience. They were Professors John Suppe (Geosciences), Ann-Marie Hadzima (Foreign Languages

and Literatures), Sean Allen (Foreign Languages and Literatures), Laurent Zimmerli (Plant Biology), Lynda Miriam Ewers (Public Health), and Ami Arbel (Industrial Engineering). Among these speakers, world-renowned structural geologist Dr. Suppe first worked at NTU 30 years ago and now, having retired from Princeton University, calls Taiwan his home. Professor Suppe said he finds Taiwan's people incredibly friendly and the NTU campus conducive to conducting advanced research due to its rich resources and close links to the high-tech and engineering sectors.

NTU's international scholars come from all over the world, including Austria, Azerbaijan, Canada, China, France, Hong Kong, India, Japan, Switzerland, Russia, Ukraine, and the United States, and the OIA strives to be helpful and provide useful services to these members of the NTU family.

The OIA received overwhelmingly positive feedback from reception participants, and plans to host a similar reception each semester. For more information about the International Scholar Service Program, please visit <http://www.oia.ntu.edu.tw/english.asp#>.



NTU's College of Management Signs Memorandum of Agreement with UC Berkeley's Haas School of Business

NTU's College of Management signed a memorandum of agreement with the Haas School of Business of the University of California, Berkeley, on February 18th. Both institutions agreed to encourage student and faculty visits, organize joint conferences and academic programs, and organize joint research activities and publications. Moreover, they called for initiating interaction between high-level business leaders in Taiwan and the United States.

Dr. Mao-wei Hung, Dean of the College of Management, says that over the last two years the college has been actively expanding its international connections. More than 50 universities overseas have established cooperative relationships with the College of Management; 112 exchange students were enrolled in the college last year. According to Dr. Hung, the college will increase its quota for exchange students this year. Furthermore, he expects that 20% of the undergraduate students and graduate students within the college will study abroad for at least one semester before their graduation, and thus gain valuable cultural experience.

Vice Dean of the College of Management, Dr. Timothy Seng-cho Chou, says the college will explore ways to study the characteristics of Taiwanese industry and set up courses that are suitable for Berkeley students. Dr. Chou also says that in the near future the college will further discuss student exchange programs with UC Berkeley.

"Besides providing students with professional knowledge, the College of Management at National Taiwan University also encourages its students to seek any opportunity to broaden their views, to be in contact with the world, because being internationalized offers the highest return on investment for students, as the students will become more competitive in the future," stated Dr. Chou.



Ⓐ The plaza of NTU's College of Management

The Haas School of Business is an institution with a history of over 100 years that, "stresses cooperative teamwork, entrepreneurship, a global point of view, and an emphasis on new ideas and fresh perspectives," and has close ties to Silicon Valley.

The college has established academic partnerships with well-known business institutions worldwide, including schools in the Americas, Asia, Europe, and Australia. In addition to UC Berkeley, these partners include UCLA, Thunderbird School of Global Management, University of Illinois at Urbana-Champaign, York University, University of Manchester, Lancaster University, EM Lyon Grande Ecole, Waseda University, and Peking University.



Ⓐ The College of Management signed a memorandum of agreement with the Haas School of Business.

Trio of NTU Alumni Elected to US National Academy of Engineering in 2008

Recently, three NTU alumni were elected to membership in the United States National Academy of Engineering (NAE), adding to the growing list of NTU alumni who have won international recognition for their innovative work. The honored trio of NTU graduates are: Dr. Burn-jeng Lin, a senior executive at Taiwan Semiconductor Manufacturing Co. (TSMC), and Dr. Frank Mau-chung Chang and Dr. Lee-lueng Fu, both of whom reside in Southern California and are working in technology, engineering, and education.

Dr. Burn-jeng Lin graduated from NTU's Department of Electrical Engineering in 1963. He then attended graduate school at Ohio State University in the United States, where he earned his master's degree and Ph.D. in electrical engineering. Dr. Lin once served as research and development manager at IBM and is now Senior Director of Nanopatterning Technology at TSMC. He also teaches part time in the Department of Electrical Engineering at NTU.

Dr. Lin specializes in developing advanced technology for the semiconductor manufacturing process. In 2002, he invented immersion lithography, a great innovation for the global semiconductor manufacturing business. He discovered that, by adding water as medium to a 193-nanometer machine, shorter wavelengths could be drawn. This finding allowed TSMC to operate the world's first 193-nanometer immersion lithography machine in November 2004. This was a significant contribution to the global semiconductor industry and TSMC in the

Major Honors

Dr. Burn-jeng Lin:
 Membership in the US
 National Academy of
 Engineering
 IEEE Fellow
 SPIE Fellow



Dr. Mau-chung Chang:
 Membership in the US
 National Academy of
 Engineering
 IEEE David Sarnoff
 Award
 IEEE Fellow

Website:
<http://www.ee.ucla.edu/faculty-chang.htm>

Dr. Lee Lueng Fu:
 Membership in the US
 National Academy of
 Engineering
 American Geophysical
 Union Fellow

Website:
http://eosps0.gsfc.nasa.gov/directory/eosps0_members/l_fu



advanced production process for semiconductors under 65 nanometers.

Dr. Lin has won numerous distinguished honors around the world as a result of his outstanding research achievements. In addition to his recent membership in the NAE, which was awarded "for technical innovations and leadership in the development of lithography for semiconductor manufacturing," he is also an IEEE (Institute of Electrical and Electronics Engineers) fellow and SPIE (International Society for Optical Engineering) fellow. Dr. Lin has been named one of the ten most outstanding engineers in Taiwan and recipient of the Innovation Award at TSMC.

Dr. Frank Mau-chung Chang graduated from NTU's Department of Physics in 1972. He is now a full professor in the Electrical Engineering Department, and also the Director of the High Speed Electronics Laboratory, at UCLA. He developed super high-speed HBT (heterojunction bipolar transistor) integrated circuits, and received recognition from the electrical engineering community for his design of the world's fastest oscillator. His research has been focused on the development of high-speed semiconductors and the application of sensor systems. Dr. Chang was elected to membership in the NAE "for development and commercialization of GaAs power amplifiers and integrated circuits." He has won other international honors and awards as well, including an IEEE fellowship in 1996 for "ultra-high speed HBT integrated circuit development" and the David Sarnoff Award from the IEEE also in 2006. Dr. Chang's website is located at: <http://www.ee.ucla.edu/faculty-chang.htm>.

Dr. Lee-lueng Fu graduated from NTU's Department of Physics in 1972. He is now



Three graduates of NTU were recently elected members of the U.S. National Academy of Engineering.

a senior special project scientist at NASA's Jet Propulsion Laboratory in California. Dr. Fu was elected to the NAE "for contributions to the development of satellite altimetry and applications in oceanography, geodesy, and climatology." His primary research is focused on the dynamics of ocean waves and tidal currents. The scope of his research ranges from the study of the internal gravity of ocean waves to the study of the circulation of tidal currents. Dr. Fu's website is located at: http://eosps0.gsfc.nasa.gov/directory/eospso_members/l_fu.php.

The NAE, along with the National Academy of Sciences, Institute of Medicine, and National Research Council, form the United States National Academies. Each year, through an internal review system, these academies select candidates who have made outstanding achievements and extraordinary contributions in education, research, and technological developments and applications to become new members. Membership in these academies represents one of the highest professional honors accorded to scientists, engineers, and doctors. At present, the NAE is comprised of 2,218 members and 191 foreign associates. The NAE's website can be found at: <http://www.nae.edu/nae/naehome.nsf?OpenDatabase>.

Department of Mechanical Engineering's Dr. Chien-ching Ma Named 2007 ASME Fellow



Dr. Chien-Ching Ma is currently the Chung So Chang Chair Professor of Engineering and a Distinguished Professor of National Taiwan University.



Dr. Chien-ching Ma was named an American Society of Mechanical Engineers Fellow (ASME) in 2007. Dr. Ma was awarded this prestigious fellowship for his outstanding research on topics in dynamic fracture mechanics and the dynamic characteristics of piezoelectric materials. In its annual fellowship selection, the ASME singles out no more than 100 (0.1%) of its member in an extremely rigorous process. ASME has more than 100,000 members worldwide.

Dr. Ma completed his doctorate at Brown University in the US in 1984. He then returned to Taiwan to join NTU's Department of Mechanical Engineering in 1985 and was promoted to the position of full professor in 1989. Taiwan's National Science Council presented Dr. Ma with its Outstanding Research Award thrice between 1990 and 1996 and its Distinguished Research Fellow twice between 1996 and 2002. Having played an active role in the promotion of solid mechanics research in Taiwan, Dr. Ma is currently the Chung So Chang Chair Professor of the NTU College of Engineering and an NTU Distinguished Professor. He is also a representative of the International Union of Theoretical and Applied Mechanics. He has published more than 140 refereed journal papers and serves on the editorial boards of four academic journals, including the *JP Journal of Solids and Structures*, *Far-East Journal of Mathematics*, and *Journal of the*

Chinese Society of Mechanical Engineers. Dr. Ma is also a member of the board of the Taiwanese Society of Nondestructive Testing and the Chinese Society of Mechanics.

Dr. Ma works in solid mechanics and is internationally recognized for his research contributions to dynamic fracture mechanics, wave propagation in solids, dynamic characteristics of piezoelectric materials, and electric speckle pattern interferometry full-field measuring technique. His research is now focused on designing surface electrodes for piezoelectric plates to increase the efficiency of the energy conversion and excitation of piezoelectric materials. This research shows great promise for practical applications. Dr. Ma also leads a team that is developing fiber Bragg grating sensors capable of dynamic displacement and strain measurements for structures subjected to impact loadings.

Research fields:

- ◆ Fracture mechanics, wave propagation in solids, elasticity mechanics of anisotropic material, piezoelectric materials, nondestructive testing, and dynamic vibration measurement by optical method

Dr. Chung-chih Wu Wins Iran's 21st Khwarizmi International Award for OLED Technology



Dr. Chung-chih Wu is the first Taiwanese to earn this prestigious honor from IROST.

Dr. Chung-chih Wu of the Department of Electrical Engineering has been named a winner of the 21st Khwarizmi International Award for Science and Technology by the Iranian Research Organization for Science and Technology (IROST). Dr. Wu received this award due to his breakthrough research in the field of organic light emitting diodes (OLED). He is the first Taiwanese to earn this prestigious honor, and he has become a pioneer in developing technology exchanges with Iran.

This was the first time the KIA selection committee has extended an invitation to Taiwanese scientists. Dr. Wu was one of three Taiwanese scientists whose research achievements were submitted by Taiwan's National Science Council to IROST for consideration. The NSC chose to participate because it sees Iran as a technological force in the Middle East and in order to raise Taiwan's international visibility. As an indication of the international notoriety attached to the KIA, UNESCO, the World Intellectual Property Organization, and the Academy of Sciences for the Developing World serve as sponsors for the awards.

In all, 192 scholars from 54 countries applied to be considered for the award. Other winners of the 21st KIA include four from Europe, two from India, and one each from Canada, Egypt, South Korea, and China.

Dr. Wu, in collaboration with Taiwan's Industrial Technology Research Institute, succeeded in developing Taiwan's first high-contrast, top-emitting, active-matrix OLED technology. This technology can reduce manufacturing costs and improve display resolution even in bright light. Taiwan's Chi Mei Optoelectronics Corp. is currently in negotiations regarding the possibility of a technology transfer agreement for Dr. Wu's technology.

Furthermore, Dr. Wu is also the first scientist to develop a technology that combines the functions of a solar cell and OLED display. This technology not only works as a high-contrast, top-emitting OLED display, but also generates its own power through solar energy. It can be applied to such consumer electronics as hand-held and portable devices, television monitors, and automobile electronics.

Dr. Wu announced this breakthrough two years ago and published it in an international academic journal in 2007. Since then, the technology has attracted a great deal of attention around the world, and has even led major international companies, including Nokia, to attempt to develop concept products based on this technology.

Ten Professors Make NTU Top Recipient of NSC's Outstanding Research Awards in 2007

The National Science Council presented ten NTU professors with its 2007 Outstanding Research Award in March, making NTU the top recipient among Taiwanese universities of this prestigious award. That this award was bestowed upon professors in fields ranging from science and engineering to the humanities and social sciences demonstrates NTU's strong research capabilities in a broad range of fields.

NTU's ten Outstanding Research Award recipients include:

Dr. Chun-chieh Wu of the Department of Atmospheric Sciences studies the dynamics of typhoon-terrain interaction and typhoon intensity change and analyzes errors in typhoon forecasting. Dr. Wu leads the DOTSTAR (Dropsonde Observations for Typhoon Surveillance near the Taiwan Region) project, which jettisons airborne sensors from airplanes at an altitude of over 42,000 feet above typhoons in order to gather weather information for analysis and forecasting work. This major international research project is conducted in cooperation Taiwan's Central Weather Bureau and units of the National Oceanic and Atmospheric Administration in the United States. More information about Dr. Wu can be located at <http://typhoon.as.ntu.edu.tw/professor.htm>.

Dr. Chih-jen Lin of the Department of Computer Science and Information Engineering is an outstanding young scholar who conducts research in the support vector machine area of machine learning in order to develop pattern recognition applications for data mining and bioinformatics. Dr. Lin has received the NSC's Ta-You Wu Memorial Award, NTU's Fu Ssu-nien Award, and the K. T. Li Distinguished Young Scholar Award. Dr. Lin's website is located at <http://www.csie.ntu.edu.tw/~cjlin/>.

Dr. C. Robert Kao of the Department of Materials Science and Engineering runs NTU's Advanced Chip Packaging Laboratory and is internationally renown for his work in the areas of microelectronic and nanoelectronic packaging, optoelectronic packaging, microelectromechanical systems (MEMS) packaging,

Photos: 1. Dr. Chun-chieh Wu 2. Dr. Chih-jen Lin 3. Dr. C. Robert Kao 4. Dr. Yao-wen Chang 5. Dr. Huan-tsung Chang 6. Dr. Ping-hei Chen 7. Dr. Larry Y. Tzeng 8. Dr. Kuo-liang Yeh 9. Dr. Chih-Wen Liu 10. Dr. Pei-chia Lan



flip chip reliability, and solid state thermodynamics and reaction. In addition to receiving many international awards in the area of electronic materials, Dr. Kao has also served in editorial positions at academic journals. He has been principle editor of the *Journal of Materials Research* since 2003. More information concerning Dr. Kao may be found at the ACPL's website <http://www.mse.ntu.edu.tw/~mml/>.

Dr. Huan-tsung Chang is a faculty member in the Department of Chemistry and his research specializes in capillary electrophoresis and microchip electrophoresis, synthesis and bioanalytical applications of nanoparticles, laser applications, and proteomics. Among Dr. Chang's other honors is NTU's Fu Ssu-nien Award. He also sits on the editorial committees of *Current Proteomics* and *The Open Nanoscience Journal*. Dr. Chang's website <http://www.ch.ntu.edu.tw/~htchang/Biography.htm>

Dr. Yao-wen Chang of the Department of Electrical Engineering performs research in the areas of VLSI (very large scale integration) physical design, electronic design automation, and design for manufacturability. Dr. Chang has earned countless awards, including the IEEE/ACM International Conference on Computer-Aided Design's Prof. Margarida Jacome Memorial Travel Award and the NSC's Ta-You Wu Memorial Award. Dr. Chang's website is located at <http://cc.ee.ntu.edu.tw/~ywchang/>.

Dr. Ping-hei Chen of the Department of Mechanical Engineering specializes in research in such areas as heat transfer, fluid mechanics, cryogenics, numerical computations, microelectromechanical systems (MEMS), biochips, diamond film wafer, nanotechnology, thermal and fluid control in MEMS, and packaging for optical devices and integrated circuits. Dr. Chen has published more than 90 academic papers and accumulated ten patents in Taiwan and overseas. More details about Dr. Chen are posted at <http://www.me.ntu.edu.tw/people/phchen.htm>.

Dr. Larry Y. Tzeng of the Department of Finance stands as a leading scholar in the fields of risk theory, insurance and finance, and insurance economics. Dr.

Tzeng has published numerous academic papers in such major academic journals as the *Journal of Risk and Insurance* (where he has served as associate editor since 2005) and *Applied Economics*. He is a member of the Risk Theory Association, the world's most elite academic organization in the field of risk management and insurance. Dr. Tzeng's website is located at <http://www.fin.ntu.edu.tw/~tzeng/index.htm>.

Dr. Kuo-liang Yeh of the Department of Chinese Literature specializes in classic studies, bronze and stone inscriptions, and modern Chinese writing styles. Dr. Yeh is an NTU distinguished professor and has earned numerous academic awards, such as the NTU Outstanding Teaching Award. He has served as a visiting professor at the Chinese University of Hong Kong, Charles University in the Czech Republic, and Chulalongkorn University in Thailand. Dr. Yeh's information is available in Mandarin at http://liberal.ntu.edu.tw/01/01_03_03.htm.

Dr. Chih-Wen Liu of the Department of Electrical Engineering leads a research team that focuses on synchronized phasor measuring techniques and their applications to computer relaying. Dr. Liu's team also conducts research on AC motor control, the design and analysis of voltage regulator modules for CPUs, digital control of power converters, and magnetic-field guided capsule endoscopes. Research conducted by Dr. Liu and his team is used to maintain the stability and safety of Taiwan's power supply grid. Dr. Liu website is located at <http://www.ee.ntu.edu.tw/profile?id=53>.

Dr. Pei-chia Lan is an associate professor in the Department of Sociology. Dr. Lan's fields of expertise are sociology of gender, sociology of work, migration and globalization, and qualitative research methods. She previously conducted eight years of field research with migrant domestic workers in Taiwan and has published numerous academic papers and a book (*Global Cinderellas: Migrant Domesticity and Newly Rich Employers in Taiwan*, Duke University Press) based on this research. More details about Dr. Lan are available at <http://pplan.social.ntu.edu.tw/html/intro-set.htm>.

NTU Law Team Named Runner-up as NTU Hosts ELSA 2008 WTO Moot Court Asian Regional Competition



The team from NTU's College of Law was named Runner-up and received awards for Best Complainant Written Submission and Best Overall Written Submissions this year.

Every spring, the European Law Students' Association (ELSA) organizes a global WTO Moot Court Competition on WTO Law, seeking teams from reputable universities worldwide to participate. For students from outside of Europe, ELSA holds four regional competitions around the world to determine which teams will take part in the global competition. This year, not only did NTU again play host to the competition, but its team placed as runner-up as well.

Since 2005, on the strength of the recommendation of ELSA's Asia Pacific Academic Supervisor Letizia Raschella-Sergi, NTU's Asian Center for WTO and International Health Law and Policy has collaborated with ELSA in hosting ELSA's Asia Pacific Regional Competition. Dr. Chang-fa Law of the NTU College of Law is the regional round administrator for this competition. This year's competition was held at NTU's GIS International Convention Center from March 5th to March 8th. The case author for this year's competition, Dr. Shin-yi Peng, presented a well-received lecture titled "Judicial Activism and Restraint at the WTO" on March 7th.

NTU's team performed exceptionally well in this year's competition, being named runner-up and winning awards for both Best Complainant Written Submission and Best Overall Written Submissions. The NTU team will join the team from Hong Kong University in representing Asia at ELSA's global moot court competition, to be held in Geneva from April 29th to May 5th.

This competition has become an important international activity for law students, instrumental in improving their language skills, expressive techniques, international etiquette, as well as their knowledge of international law, economics, and trade. It permits participating law students to establish a network of international contacts and broaden their global outlook. As the competition is widely covered by the international media, it serves to promote the image and reputation of the universities whose teams make it to the finals. While hosting such an important competition helps promote the international prestige of NTU, the university's students also gain precious experience and improve their skills at hosting international activities.

Major Donation Launches New Center for Cosmology

📍 A ceremony honoring Mr. Chee-chun Leung's philanthropy and celebrating the opening of the Leung Research Center for Cosmology and Particle Astrophysics was held at NTU on November 3rd, 2007.



Mr. Chee-chun Leung, Vice and Acting President of Taiwan's Quanta Computers, has donated NT\$205 million to NTU to found the Leung Research Center for Cosmology and Particle Astrophysics (LeCosPA), with the mission of facilitating cosmology research in Taiwan. Mr. Leung received his BS in Physics at NTU. Quanta now ranks among world's top 500 companies according to Forbes Magazine. Mr. Leung's philanthropy was inspired by his college classmate, physicist Dr. Pisin Chen of the Kavli Institute for Particle Astrophysics and Cosmology (KIPAC) at Stanford University. Dr. Chen recently joined the faculty of NTU to serve as the first director of LeCosPA and, concurrently as the NTU C. C. Leung Chair Professor of Cosmology.

A ceremony honoring Mr. Leung's philanthropy and celebrating the opening of the center was held at NTU on November 3rd, 2007. Numerous eminent cosmologists and particle astrophysicists from overseas were in attendance. In addition to NTU President Si-chen Lee and Mr. Leung, such distinguished scientists as Stanford University KIPAC Director Roger Blandford, Oxford University Savilian Professor of Astronomy Joseph Silk, and Dr. Chen addressed the ceremony. Ceremony host, NTU Physics Professor Pauchy Hwang, also made remarks.

Mr. Leung noted that, although his career was devoted to the electronics industry, he has held a deep

interest in high-energy physics and astrophysics ever since his student days at NTU. He said, "I am delighted to pledge this donation, which will provide Pisin with additional resources for pursuing his dream. Hopefully, this will open the way to fulfill the dream of our youth."

Dr. Chen related fond memories of his student days at NTU when he and some friends, including Chee-chun Leung, built Taiwan's first 8-inch telescope by grinding a pane of porthole glass salvaged from a retired ocean liner. He added, "I pledge to do my best to build LeCosPA into a dynamic center of cosmology and particle astrophysics, so as to facilitate making contributions to knowledge of the origin, the composition, and the destiny of the universe, or—better—the multiverse. I am also excited that, through the auspices of LeCosPA, Chee-chun and I will again pursue the dream of our youth together."

Prof. Roger Blandford warmly congratulated his colleague on becoming the inaugural director of LeCosPA and proposed that KIPAC and LeCosPA develop special ties for collaboration.

President Lee noted that, among recent donations to NTU, Mr. Leung's is unique in that it is the first one devoted to pure science, which is most appropriate for a great university.

Small Animal PET/CT Scanner Open for Molecular Imaging Research



Fig.1: Director Kai-Yuan Tzen of Department of Nuclear Medicine explaining the small animal PET/CT scanner to President Si-Chen Lee.

Aided by support from the Ministry of Education, NTU, and NTU's Neurobiology and Cognitive Science Center, a PET/CT scanner dedicated to small animal research was installed at the PET Center of the Department of Nuclear Medicine at NTU Hospital in 2007. This system commenced operations on November 23rd, 2007 (Fig. 1).

The small animal PET/CT scanner is a combination of a small animal PET scanner and a small animal CT scanner. The PET (positron emission tomography) scanner is used to image the distribution of in vivo biomolecular events, such as glucose metabolism and cellular proliferation in rodents (Figs. 2 and 3). The CT (computerized tomography) scanner provides additional anatomical structure for improved localization of the three dimensional distribution of PET activity in the studied animals. This instrument is available to researchers in all the fields of molecular imaging at NTU.

The first human PET scanner was invented in 1974 and was used mainly for research in neurology, and then cardiology, in its early years. The FDG-PET scan utilizes ¹⁸F labeled fluoro-deoxy-glucose (¹⁸F-FDG), a glucose analogue first synthesized in 1978. During

the past ten years, this scanner has become a non-invasive diagnostic imaging tool for cancer patients. PET scans now play an important role in the study of and clinical applications for various human diseases in the fields of oncology, neurology, and cardiology.

Improvements in PET scanner resolution made possible by modern imaging instrumentation and technologies have allowed the application of this molecular imaging technique in small animal research. In recent years, small animal PET scanners have begun to satisfy molecular imaging needs in modern molecular medicine and such areas of molecular biology as genomics and proteomics. Spatial resolution has improved gradually and is now approaching 1 mm (1 L in volume). This allows PET images of small animals to match closely those of classical autoradiography (Fig. 4). PET imaging is, therefore, sometimes called "in vivo autoradiography."

The small animal PET scanner in use at the PET Center was originally developed by the National Institutes of Health in the United States in 2000 and called "ATLAS" (Advanced Technology Laboratory Animal Scanner). It was later produced for commercial use by GE Healthcare under the name eXplore Vista

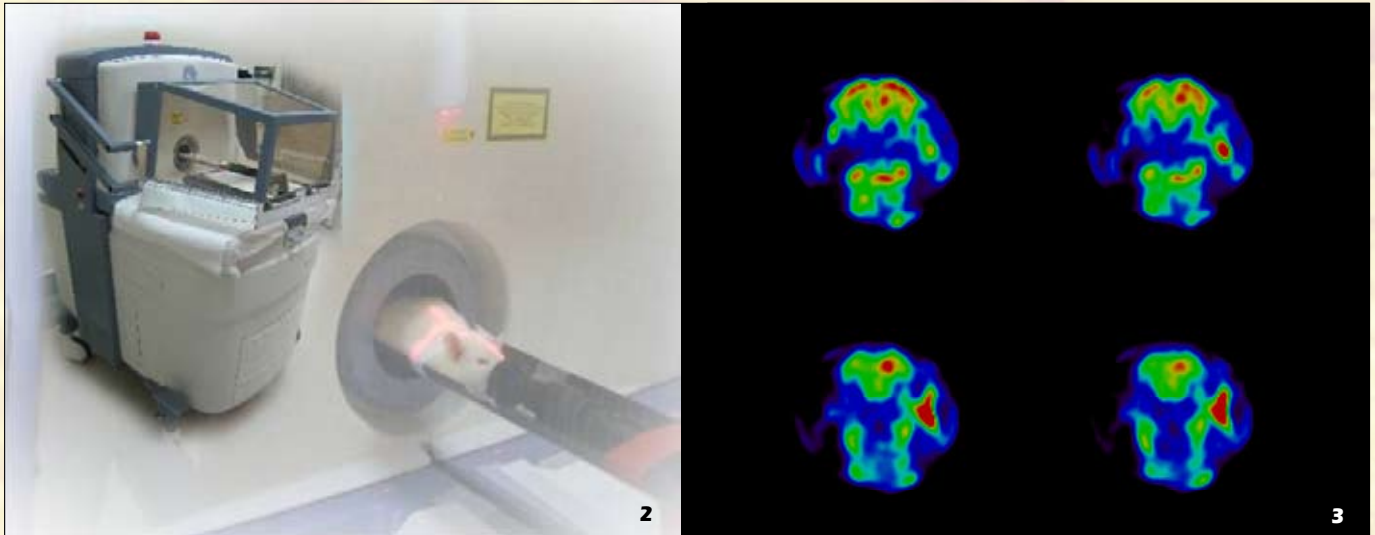


Fig. 2: The GE eXplore Vista DR PET/CT scanner and the rat during scanning. **Fig. 3:** In an one-side deafened rat, the sound stimulation can be seen transmitted to the inferior colliculus (yellow arrow) and auditory cortex (red arrow) on the opposite side. (courtesy of Dr. Te-Huei Yeh and Dr. Wei-Chung Hsu of Department of Otolaryngology)

DR. Using this PET scanner in experiments, the center can conduct longitudinal studies without sacrificing as many animals as it did in the past. The distribution of very sensitive targeting bio-markers in the animals can be measured at the level of the picomolar order.

The PET Center set up cyclotron and radio-pharmaceutical facilities in 2005 and began producing short half-lived PET agents, with the half-lives ranging from 2-108 minutes, for clinical and basic research. With the help of a consultant, Dr. Chyng-yann Shiue, a retired professor from the University of Pennsylvania, the center is now able to produce several positron-labeled radiopharmaceuticals for measuring metabolic and molecular functions in human research and clinical applications. For example, ^{18}F -FDG is used for measuring glycolysis or glucose metabolism in cancer cells. ^{18}F -FDOPA is used for measuring the function of the enzyme called AADC (aromatic amino-acid decarboxylase) in the basal ganglia of the human brain and some neuroendocrine tumors. ^{18}F -FLT (fluorothymidine) is used for measuring the proliferation of cancer cells. ^{18}F -choline is used for measuring the choline metabolism of cell membranes. Now, with the small animal PET/CT scanner, NTU researchers

can use of various kinds of PET probes to conduct a greater number of molecular imaging studies using various animal models to evaluate or characterize human diseases.

All NTU researchers are encouraged to utilize this new imaging system for research in proteomics and genomics. For further information about starting a research project using this small animal PET, please contact Dr. Kai-yuan Tzen, Director of Department of Nuclear Medicine, NTU Hospital at tzenky@ntuh.gov.tw.

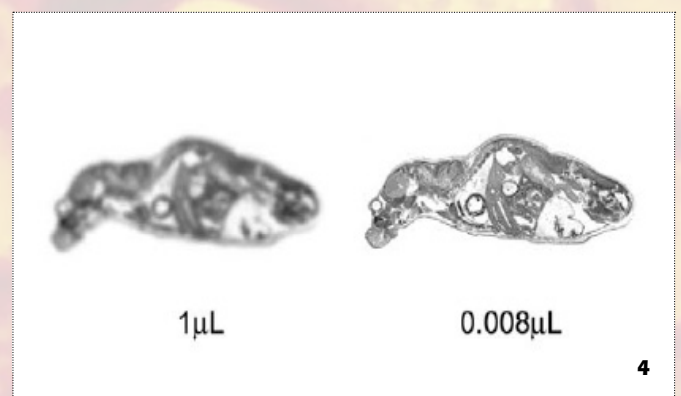


Fig. 4: The small animal PET scan (left) and the autoradiography (right), from: Chatziioannou AF. *Mol Imaging Biol.* 2002;4:47-63. PET scanners dedicated to molecular imaging of small animal models.

Learning Commons: An Open Space for Learning and Discussion



NTU's Learning Commons: **1.** Learning Commons **2.** Small group discussion in the sofa area **3.** A tutoring session **4.** Tutor orientation

On the ground floor of NTU's quiet Main Library is a thoughtfully designed "noisy corner" that is open to students for various learning activities. This multi-functional space was set up by the NTU Center for Teaching and Learning Development (CTLD) in cooperation with the library in October 2006 to promote individual and group learning and discussion. Students voted to call this area "Learning Commons," a name commonly used by American universities for similar learning centers.

Occupying 256 square meters of floor space, Learning Commons is divided into four areas. The first is a conference room for group meetings, discussions, and consultations. The second is a projection area where students and faculty can showcase their original visual art creations. The third and largest area is the lounge. This flexible workspace contains two parts—a comfortable sofa area and a round table area—designed for holding small group discussions, book club meetings, language exchanges, as well as individual reading or Internet use. The fourth area has six small consultation rooms used exclusively for the university's one-on-one peer tutoring service.

Learning Commons received about 4,000 visits on average each month during the fall semester of 2007. A major draw of this space is the peer tutoring service. The Learning Support Division of the CTLD provides this service gratis during regular semesters. Every semester, this division recruits and trains students who have received high grades in certain

basic courses to serve as tutors. At first, the service provided under ten tutors and covered only three subjects. Now, just three semesters later, 35 tutors provide instruction in ten fields: economics, statistics, calculus, chemistry, physics, biochemistry, biology, accounting, organic chemistry, and mathematics for engineers. These courses tend to be highly challenging and have the highest failure rate. The service was used more than 2,000 times in 2007.

In order to bolster tutoring quality, tutors and students are asked to fill out a one-page questionnaire after each session. The average rating of tutors is high across fields, over 4.2 on a 5-point scale for each semester, indicating that users of the service tend to have a high satisfaction rate. Furthermore, the center holds a tutor orientation meeting every semester in which outstanding faculty share their experiences in teaching and learning.



NTU at a Glance

Blazing the Trail for Hakka Studies—NTU Hakka Research Center Inaugurated



The NTU Hakka Research Center held its inauguration ceremony in the auditorium of the College of Social Sciences on March 8th, the same day as the opening of the Azalea Festival. Nearly two hundred faculty, students, and guests attended the ceremony.

Through the efforts of the Director of the Institute of National Development, Professor Rong-jeo Chiu, the center was established in the College of Social Sciences in September 2006. During a year of preparation work and preliminary operation, the center achieved substantial results.

Since July 1st, 1987, NTU faculty, students, and alumni have promoted the Hakka movement in Taiwan. They set up courses in Hakka studies and then established the Hakka Affairs Magazine in 1987. They spearheaded the Return Me My Mother's Tongue Movement in 1988 and later established the NTU Hakka Society and NTU International Hakka Academic Society. In September 2006, NTU approved the founding of the Hakka Research Center and added a doctoral program in Hakka development, which became the first doctoral program in Hakka research anywhere in the world. NTU plans to establish a Hakka research base at its branch school in Zhubei—home to a significant Hakka population—to offer advanced training in Hakka studies.



NTU Highland Experimental Farm Opens Education Exhibition Center to Celebrate its 70th Anniversary

The NTU Highland Experimental Farm in Nantou County held a special double celebration on March 14th to mark both NTU's 80th anniversary and the 70th anniversary of its own establishment by the Japanese in 1937. Then, as confirmation that it remains a vital part of the NTU system, "The Farm," as its faculty and students affectionately call it, followed up its birthday party by holding the opening ceremony for its new Education Exhibition Center on March 16th.

Planning for the center commenced in 2005. In addition to constructing a modern international conference hall, multi-functional conference room and exhibition hall, the project also offered more spacious and better-equipped living quarters for students, faculty, and personnel stationed at or visiting The Farm. These improvements mark a milestone for the Farm and will strengthen its teaching, research, and environmental education functions.

Operated by the College of Bioresources and Agriculture, the Farm is 1,092 hectares in area at elevations ranging between 900 and 2,700 meters above sea level in Taiwan's Central Mountain Range.



Publisher: Si-chen Lee
Editorial Consultant: Lin-lin Ku
Editor: Li-chen Fu
Executive Committee: NTU Secretariat
Publish Place: National Taiwan University
Tel: 886-2-3366-2024
Address: No.1, Sec.4, Roosevelt Road, Taipei, 10617 Taiwan
Website: <http://homepage.ntu.edu.tw/~secretor/ntunewsletter>
臺灣郵政臺北雜字第1146號執照登記為雜誌交寄



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