

# NTU

## NEWSLETTER

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## NTU Contribution to Better Quality of Life

Modern Dorm Life for Students

NTU Scientists Contribute to Technology Transfer

History Program Manifests Modern Taiwan's History

Exchange Students Highlight International NTU

NTU Dedication to Higher Education widely recognized



Special Report  
NTU's 80th Anniversary



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## NTU AT A GLANCE

NTU Library's Taiwan's Indigenous Peoples Resource Center Collected 10,065 Items Since 2005  
First Issue of Department of History Newsletter Published in October  
History Department Holds 80th Anniversary Lecture Series in November and December

# Distinguished University Representatives from 13 Countries Take Part in NTU's 80<sup>th</sup> Anniversary Ceremony



Ⓐ Kyoto University President Hiroshi Matsumoto and University of Bonn President Matthias Winiger deliver speeches at NTU's 80<sup>th</sup> Anniversary Ceremony.

NTU has been celebrating the 80<sup>th</sup> anniversary of its establishment this year, and the university has arranged an exciting range of events and promotions across the eight categories of academics, sports, international exchanges, alumni activities, arts, student activities, festivities, and publications and souvenirs. The celebration formally kicked off with the annual Azalea Festival in March and is continuing through to the end of 2008.

NTU President Si-chen Lee presided over the official Anniversary Ceremony at the NTU Sports Center on November 15 where he was joined by former NTU presidents and alumni and distinguished guests from Taiwan and abroad. A tea party reception was held following the ceremony.

NTU extended invitations to the Anniversary Ceremony to the presidents and vice presidents of its sister universities and was pleased to enjoy the participation of 80 representatives of 37 universities in 13 countries on this momentous occasion. Specially invited to deliver a speech, Kyoto University President Hiroshi Matsumoto declared that it is his genuine desire to see the two universities collaborate on research and development and strive together for the good of humanity and the 21<sup>st</sup> century global village. University of Bonn President Matthias Winiger was another distinguished guest invited to speak. As a representative of his university as well as NTU's numerous sister universities in Europe, President Matthias extended his best wishes to NTU for swift success in joining the ranks of the world's 100 leading universities and becoming an elite university in Asia.



Ⓐ Children from NTU Kindergarten sing "Happy Birthday" during NTU's 80<sup>th</sup> Anniversary Tea Party.

In addition to being formally received by university officials and taking part in NTU's festive anniversary activities, these honored visitors from overseas also called on the university's colleges and departments to engage in inter-university exchanges. Furthermore, on November 16, the Office of International Affairs held the NTU Student Exchange Fair in the NTU Sports Center in order to help local students gain a deeper understanding of NTU's overseas sister universities and encourage them to participate in exchange programs with these institutions.

During the Anniversary Ceremony, President Lee enjoyed the pleasure of bestowing honorary doctorates upon Li Yih-yuan and Han Bao-te and presenting commendations to nine outstanding NTU alumni.

Among the arts and culture activities organized around the ceremony were a celebratory walking tour of Royal Palm Boulevard on the day of the ceremony and an anniversary party on the following night.

Sporting events included NTU's 59<sup>th</sup> Annual Swim Meet and an annual friendship sports competition between students from NTU and National Chengchi University. NTU managed to win the campus marathon and its women's basketball and men's volleyball teams were defeated by just a few points. This year's campus marathon drew 4,506 competitors and was the largest sporting event of NTU's fall semester.

More information about NTU's 80<sup>th</sup> Anniversary activities is available at <http://www.ntu.edu.tw/actives/80th/>.

## NTU Hosts 7<sup>th</sup> CAP During 80<sup>th</sup> Anniversary Celebration

 University presidents pose for group photo during 7<sup>th</sup> Conference of Asian University Presidents.

As the nation's oldest and most prestigious university, NTU enjoyed the honor of hosting the 7<sup>th</sup> Conference of Asian University Presidents (CAP) during the celebration period for the 80<sup>th</sup> anniversary of its establishment in 1928. Kyushu University led the establishment of CAP as an international organization for universities across the Asian region. The presidents of the organization's members serve as the official CAP representatives of their universities.

NTU's official 80<sup>th</sup> Anniversary Ceremony, which took place on November 15, enjoyed the attendance of a total of 80 representatives of 37 universities in 13 countries. This included 19 vice chancellors and presidents, 14 vice provosts



and provosts and 23 deans and directors of international affairs offices. These university officials were accompanied by an additional 24 university representatives.

NTU was originally established by the Japanese colonial government in Taiwan as Taihoku (Taipei) Imperial University. The delegations from Japanese universities at the anniversary ceremony displayed a deep enthusiasm in extending their congratulations to NTU on achieving its long history. The University of Tokyo was celebrating its own anniversary on the same day, so it was represented at NTU's Anniversary Ceremony by its former president, Takeshi Sasaki.

While NTU's structural planning was initiated by Japanese educators,

its focus on a liberal education and the humanities stems from the work of scholars from Peking University. Though the president of Peking University was unfortunately unable to attend this year's auspicious anniversary ceremony, that university was represented at the ceremony by its executive vice president, Prof. Ke Yang.

Most of the distinguished guests at the ceremony represented universities in Asia. As for universities in Europe and the Americas, NTU was pleased to welcome the vice chancellor of the University of Oxford, the president of the University of Bonn and a college dean of the University of Illinois.

NTU organized a number of other activities for these university representatives. These included the 7th Conference of Asian University Presidents as well as guided tours of the NTU campus and Taipei City. The tours began at NTU's Gallery of History, giving the visitors an appreciation for the university's development. The guests also visited Taiwan's Presidential Office where they met and held talks with President Ma. Later, the guests enjoyed special guided tours of the world-class National Palace Museum that gave them a deeper understanding of the beauty of ancient Chinese culture.



 Participants in 7<sup>th</sup> Conference of Asian University Presidents meet with Taiwan's President Ma Ying-jeou.

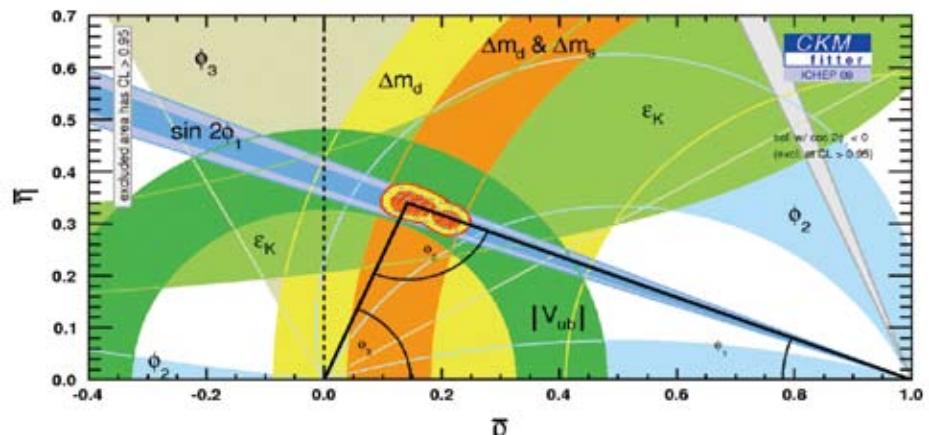
# NTU High Energy Physics Group Shifting Focus to CERN's Large Hadron Collider After Successes at Japan's Belle

**H**aving made world-class contributions in the Belle experiment at the KEK Laboratory in Japan, NTU's High Energy Physics group is shifting most of its manpower to CERN's Large Hadron Collider in Switzerland. This decision bears an interesting connection to the winners of the 2008 Nobel Prize in Physics.

Half of the prize was awarded to the two Japanese theoretical physicists Makoto Kobayashi and Toshihide Maskawa, while the other half went to Japanese-American Yoichiro Nambu.

Kobayashi and Maskawa received their prize for the discovery of the origin of the broken symmetry, called CP violation, which has long been the main agenda of NTUHEP. From a humble start in 1994, by 2001 the NTUHEP group began to emerge as a Belle powerhouse. It has produced 20% of all Belle physics papers since 2000.

In 2004, the NTUHEP group



achieved the first observation (concurrent to Stanford's BaBar experiment) of "direct" CP violation in neutral B meson decays to a pair of charged kaon and pion.

The NTUHEP group then went on to uncover an intriguing difference in the direct CP violation between the charged and neutral B meson decays to a kaon plus a pion, which was published in the journal *Nature* in March this year. This is the only *Nature* article from Belle that deals with B physics.

Reflecting NTUHEP's world-class research, Dr. Kai-feng Chen received, in May this year, the first IUPAP Young Scientist Award in Particle Physics Experiment for his

"several outstanding contributions in the analysis of Belle data." What is remarkable is that Dr. Chen is fully NTU educated. In his reception speech, Dr. Chen introduced a possible new particle uncovered by Belle, the result of innovative work conducted together with NTU's Prof. Wei-shu Hou.

Nambu received his Nobel Prize "for the discovery of the mechanism of spontaneous broken symmetry in subatomic physics." The main pursuit at the LHC concerns his insight into the "mass generation" of all fundamental masses by the spontaneous breaking of "electroweak" symmetry. The LHC's ATLAS and CMS experiments are pursuing the Higgs boson, the only missing ingredient of the Standard Model of particle physics and the agent of electroweak symmetry breaking. NTUHEP is a member of the 3,000 person CMS Experiment and will focus on CMS analysis.

With insight gained from Belle, NTUHEP has forged an innovative analysis strategy. It will have ten researchers in Geneva by February 2009 and will boost this number to over a dozen by the time CMS data arrives.



# Professor Janice Monk Visits College of Science and the Geography Department

Prof. Janice Monk of the University of Arizona visited the College of Science and the Department of Geography, bringing a social science component to the College of Science, from November 18 to 28.

Prof. Monk is a professor of geography and regional development and research social scientist emeritus in women's studies at the University of Arizona. Her research in feminist and gender studies is widely known both within and outside the discipline of geography. Together with several feminist geographers, including Associate Dean of the College of Science Nora Chiang, she founded the Commission on Gender and Geography within the International Geographical Union (IGU) in 1988, and has been the editor of the union's newsletter since then.

Prof. Monk's research examining the ways gender has shaped the development of geographic institutions and women's experiences within them has been influential in the design and implementation of new support programs and enhancement of diversity initiatives within the Association of American Geographers (AAG). Long before her term as AAG president began (2001-2002), she helped to bring renewed attention to issues of diversity within the association.

During her visit in Taiwan, she gave four lectures at three universities. She advised graduate students on their theses, and helped them with their bibliographies.

 Prof. Janice Monk with professors and students in the course "History of Geographical Thought," Department of Geography.



On the final day of her visit, she advised undergraduate students on their applications for graduate schools abroad. Furthermore, she is co-editing with Associate Dean Chiang a special issue on gendered mobility for the *Journal of Geographical Science* at the Department of Geography. During her ten-day visit, she took fieldtrips with Chiang to Hualien and Taitung where they visited the Taiwan Hospitality and Tourism College, Lintianshan Forestry Cultural Area and craft workshops in the Paiwan and Rukai indigenous communities.

In the last two years, the College of Science has made great strides in supporting students that attend conferences abroad. Hosting lectures by native English speakers at the university is an essential step in providing students with opportunities to engage in intellectual discussions in their areas of study. Prof. Monk has set a good example of a visiting professor who shares her expertise with the largest possible number of students during a short period of time.

This is her third visit to Taiwan. She attended the Symposium of the IGU Commission on Gender and Geography -- Transnational Lives: Feminist Perspectives on Citizenship, Home and Belonging from November 21 to 27, 2007, and gave two other lectures during Feminist Geography Week. She first visited the Population Studies Center in 1988, three years after the Women's Research Program was founded.

 Prof. Janice Monk visiting the Population and Gender Studies Center twenty years after her first visit in period 1988



# NTU and International Exchange Students Make NTU Student Exchange Fair a Huge Success

This year's NTU Student Exchange Fair offered more space and time than previous fairs and provided a wealth of practical information to students interested in exchange programs overseas.



八十個攤位在NTU學生交換生博覽會上設立，慶祝大學80周年。

The Office of International Affairs held the 2009/2010 NTU Student Exchange Fair on November 16. The fair offered 80 booths that were manned by NTU students who have studied as exchange students at NTU's partner universities abroad as well as international exchange students from partner universities currently enrolled at NTU. While informative pamphlets and brochures were provided at the representative booths, it was the chance to interact on a personal level with these exchange students that ultimately made the fair the great success that it proved to be.



In all, the fair enjoyed the participation of representatives from 66 universities in 20 countries. There were 94 international exchange students representing their universities back in their home countries as well as 50 NTU students who have spent time abroad as exchange students. In addition, the Office of International Affairs invited language testing organizations and education representatives from a number of foreign embassies and consulates in Taiwan. The OIA also invited NTU's Language Training and Testing Center and the Eumeia Language Center of Taipei, and took the opportunity provided by the fair to work on developing exchanges and cooperation plans between these language centers.

The project managers for each of the OIA's study abroad programs conducted information sessions about their respective programs at the stage area of the fair throughout the day. These included explanations of this year's selection

process for exchange students, introductions to the current situations at partner universities, explanations of scholarships, as well as information regarding this year's Visiting Student Program.

Overall, this year's NTU Student Exchange Fair produced abundant and tangible results by providing the university's students with information pertaining to international exchange student programs and offering the fair's attendees deeper and more diverse views of the experiences and practical considerations of exchange students. The OIA was pleased to receive important feedback concerning the views of students considering participating in student exchange programs. The pragmatic touch brought by the OIA to this year's fair proved helpful in achieving its objective of encouraging NTU's students to take full advantage of the university's study abroad programs with partner universities.

## Indian Diwali Celebration Transforms NTU Dorm into Festival of Lights

The NTU Indians Group along with the NTU Foreign Students Association celebrated the Indian festival Diwali on October 25 in the B-1 theater of the Guo Ching Dormitory. Three honorable guests at the event were Mr. Rakesh Sharma, assistant director of the India-Taipei Association, Prof. Ji-wang Chern, dean of the Office of Research and Development, and Prof. Jer-ming Hu, deputy dean of the Office of International Affairs.

The celebration was inaugurated in Indian cultural style with the lighting of lamps and chanting of Indian Sanskrit mantras, including "Saraswati Vandana" and "Laxmipoojan." Prof. Hu gave opening remarks while Prof. Chern shared his views about the Chinese and Indian cultures. Prof. Chern congratulated NTU's Indians for being a part of NTU's research community. Mr. Sharma advised Indians to hold more events to promote

There was a great display of Indian culture by both Taiwanese and Indian participants at NTU's Festival of Lights.



The NTU Indians Group celebrated the Indian festival Diwali on October 25 in the B-1 theater of the Guo Ching Dormitory.

cultural exchanges between Indian and Taiwanese students. A brief introduction about Diwali was given by Mr. Ravindra Deore. This event was co-sponsored by the Office of International Affairs.

There was a great display of Indian culture by both Taiwanese and Indian participants. Taiwanese performance groups such as Aradhana and Nefes presented Indian classical dances, including Bharat Natyam, Odissi dance, belly dancing and some Bollywood dances. Indian performers also showed their skills by performing traditional Indian vocal music, solo dancing and solo Bollywood dancing. Indian Bhangara dance and yoga were also performed. Senthil Kumar presented activity shows and Dr. Rakesh Keshtwal and Dr. Dipali Keshtwal presided over the event. All participants enjoyed the delicious Indian buffet dinner. Overall it was a great cultural exhibition by Taiwanese and Indian performers.

Diwali is the biggest Indian festival, and is celebrated by Hindus, Jains, Buddhists and Sikhs across the globe as the Festival of Lights. The NTU Indian Diwali Celebration 2008 was the first event of its own kind in Taipei.



This festival commemorates the return of Lord Rama to Ayodhya after 14 years of exile in the forest and a war in which he conquered the demon king Ravana. Spiritually, the lights or lamps signify victory of good over the evil within every human being. Diwali is celebrated over five days and each day holds a special significance in Hindu culture. On the day of Diwali, many wear new clothes and share sweets and snacks. Some Indian business communities start their financial year on Diwali and new account books are opened on this day.

# Deputy Dean of R&D Liang-gee Chen Awarded 2008 NSC Outstanding Contributions to Technology Transfers Award



Prof. Liang-gee Chen of the Department of Electrical Engineering currently serves as NTU's deputy dean of research and development.

The National Science Council has presented Deputy Dean of the Office of Research and Development Liang-gee Chen, who is a professor in the Department of Electrical Engineering, with an Outstanding Contributions to Technology Transfers Award for 2008 for his development and transfer of an MPEG-4 video encoder chip. Deputy Dean Liang developed the technology for this efficient and versatile chip at the DSP/IC Design Lab together with Dr. Chung-jr Lian, graduate students Yu-han Chen and Dr. Yi-hau Chen.

MPEG-4 is the mainstream technology for multimedia communication. However, due to the



Prof. Liang-gee Chen's research team at NTU's Graduate Institute of Electronics Engineering: (from left to right) Prof. Chen, Dr. Yi-hau Chen, graduate student Yu-han Chen and Dr. Chung-jr Lian.

requirement for high processing rates, it is difficult for purely software-based MPEG-4 solutions to match the speed of approaches that use hardware to boost processing rates. Deputy Dean Liang's MPEG-4 video encoder chip uses a platform-based architecture with an embedded processor. This innovation gives it the high processing efficiency of hardware as well as the versatility of software, making it suitable for a broad range of applications. Low power usage is often an essential consideration for multimedia devices, and the chip's advanced design concept meets this need by greatly reducing power consumption.

Devices that commonly use MPEG-4 chips include Internet surveillance video cameras, multimedia mobile phones, video servers, camcorders, MP4 players and portable media players, and digital cameras. IC design firms in Taiwan and around the world all currently face a need for the development and design of MPEG video ICs. Many in the digital surveillance industry have already shifted from Motion JPEG to MPEG-4 for compression technology. Due to

security considerations stemming from such developments as counterterrorism efforts, the scale of the market for video surveillance equipment will increase rapidly over the coming years.

The new generation of MPEG-4 chips will lead to exciting advances in the markets for video mobile phones and DVD players. The Industrial Technology Research Center's Industrial Economics and Knowledge Center (IEK) reports that MPEG-4 possesses a massive potential for applications in mobile entertainment products such as video mobile phones, a sector where the technology accounts for an 80% or more of production value. The trend for enhancing DVD recorder/players with MPEG-4 is also growing. As of 2007, 50% of DVD players used MPEG-4, which currently makes up around 20% of the production value in this sector.

IEK also states that the production value of the entire MPEG IC sector reached US\$3.1 billion in 2007 and that the output of MPEG-4 codec chips increased 49.7% from 2.17 million chips in 2002 to 10.9 million chips in 2006.

# Academy of Sciences for the Developing World Elects Two NTU Professors as Fellows in 2008

The Old Building of the NTU Hospital

**T**he Academy of Sciences for the Developing World (TWAS), which is lauded for actively assisting third world countries in their development of scientific work, released its list of new fellows for 2008 on November 10. Prof. Pan-chyr Yang, dean of the NTU College of Medicine and professor in the Department of Internal Medicine, and Prof. Der-tsai Lee of NTU's Department of Computer Science and Information Engineering were among those honored by election to membership in TWAS as new fellows, bringing the total number of Taiwanese fellows of TWAS to 26.

In addition to heading the NTU College of Medicine, Prof. Yang is president of the Taiwan Society of Pulmonary and Critical Care Medicine. He was elected as a TWAS fellow in the category of medical and health sciences. Prof. Yang's principal research is on pulmonary and critical care medicine, lung cancer genomics, molecular biology and microarray gene expression technology. His research team identified several novel lung cancer metastasis-associated genes and biomarkers that might possess clinical potential for developing personalized lung cancer therapies.

Prof. Lee, who is also a distinguished research fellow at Academia Sinica's Institute of Information Science, was elected as a fellow of TWAS in the category of engineering sciences. Prof. Lee's researches the design and analysis of algorithms, computational geometry, VLSI layout and systems, bioinformatics, digital libraries, software security, web-based computing and algorithm visualization. He is known for his contributions to computational



geometry, and has published over 150 papers in international scientific journals and served on the editorial boards of several journals. Prof. Lee also holds a number of patents in the United States and Taiwan.

TWAS was founded in 1983 to help developing countries engage in scientific research and develop science-based applications. The academy held its 19th General Meeting along with its 25th Anniversary Celebration in Mexico City on November 10. TWAS annually selects outstanding scholars from all over the world to become fellows in 12 academic categories. It currently has 909 members from 90 countries. The 41 new members named this year will be inducted into the academy at its 20<sup>th</sup> General Meeting in South Africa in 2009.

Election as a TWAS fellow or winning a prize from this international organization not only highlights one's scholastic accomplishments, of the individual but indicates the support and assistance given to developing countries by the home nation of the honoree. Consequently, membership in TWAS honors one's deep humanitarian concerns.

# Joint NTU-Cambridge Research Findings on Effects of Typhoons on Carbon Erosion to Oceans Published in *Nature Geoscience*

The research findings of a team of geoscientists from NTU and the University of Cambridge on the role of typhoon induced erosion on the transfer of organic carbons from the terrestrial biosphere into oceans were published in the October issue of *Nature Geoscience*. As a carbon sequestration system, this carbon-reductive process is a significant component of the global carbon cycle, and has become one of the hot topics in geoscientific research around the world.

Cambridge geologist Dr. Robert G. Hilton, the team's leader, suggests that typhoons play an important role in washing atmospheric carbons into oceans as sediments. Dr. Hilton along with his Cambridge colleagues and research partners from Taiwan analyzed the contents of the sediments of the Liwu River in eastern Taiwan during the Mindulle and Aere typhoons in 2004 and measured the proportion of organic carbons (carbon dioxides in the atmosphere) in the river's water. Their research shows that the deposits of organic carbons in the Liwu River basin averaged between 16 and 202 tons per square kilometer every year, one of the highest volumes in the world.

The research team also conducted a comparative analysis of the erosion rates of Taiwan over the past several decades and inferred that about 80% to 90% of Taiwan's organic carbons were transported by the large amount of water discharged from the mountains to the ocean during typhoons.

Their discovery shows that the frequency and intensity of typhoons affect the rate at which land-based organic carbons are transported into the oceans. As a member of the research team, Prof. Hongey Chen of NTU's Department of Geosciences maintains that, during the typhoon season, large amounts of rainfall will directly inject highly concentrated sediments into the deep sea, thereby forming a long-term carbon



Researchers at work in the laboratory.

burial system in the ocean surrounding Taiwan.

In addition, this research serves to interpret the reverse feedback relationship between tropical cyclones and the erosion of terrestrial biopheres. NTU and Cambridge University's research results have been reported in many international media. For detailed information, please consult the following:

<http://www.nature.com/ngeo/journal/vaop/ncurrent/abs/ngeo333.html>

**New Scientist:** [http://environment.newscientist.com/channel/earth/dn14982-typhoons-bury-vast-amounts-of-carbon-dioxide-at-sea.html?feedId=online-news\\_rss20](http://environment.newscientist.com/channel/earth/dn14982-typhoons-bury-vast-amounts-of-carbon-dioxide-at-sea.html?feedId=online-news_rss20)

**The Discovery Channel:** <http://dsc.discovery.com/news/2008/10/21/typhoon-carbon-sequester.html>

**Environmental Research:** <http://environmentalresearchweb.org/cws/article/research/36268>

**Cosmos Magazine:** <http://www.cosmosmagazine.com/news/2261/cyclones-lock-away-carbon-study-says>

**The Daily Telegraph:** <http://www.telegraph.co.uk/news/worldnews/3226801/Hurricanes-can-reduce-CO2-levels.html>

**Reuters:** <http://www.reuters.com/article/environmentNews/idUSTRE49I23W20081019?FeedType=RSS&feedName=environmentNews>

**The New York Times:** <http://www.nytimes.com/2008/10/21/science/21obtyph.html?ref=world>

**The Straits Times (Singapore):** [http://www.straitstimes.com/Breaking%2BNews/Tech%2Band%2BScience/Story/STIStory\\_292627.html](http://www.straitstimes.com/Breaking%2BNews/Tech%2Band%2BScience/Story/STIStory_292627.html)

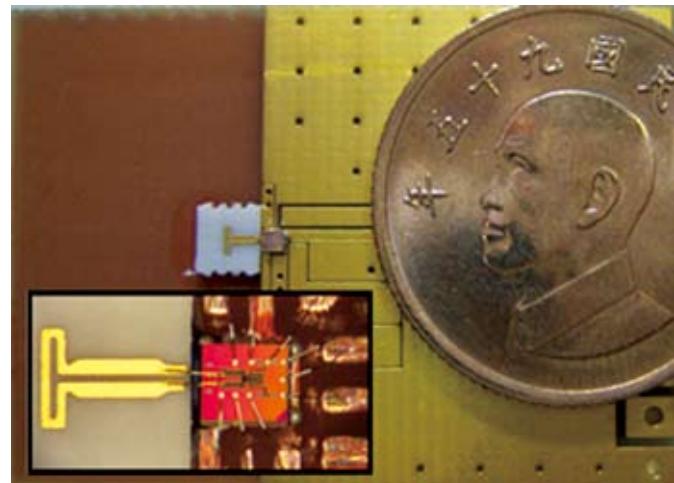
**The China Post:** <http://www.chinapost.com.tw/life/detail.asp?id=179556&sY=environment/2008&sM=10&sD=21&sN=Cyclones-can&GRP=Q&sPeriod=30>

## Young NTU Professor Develops World's Fastest Wireless Communication SOC

**P**rof. Jri Lee of NTU's Graduate Institute of Electronic Engineering unveiled the world's fastest ultra-high-speed wireless communication system-on-a-chip (SOC) on November 3. This "blink-of-the-eye" technology integrates radio-frequency front-end circuits, frequency modulation circuits and antenna groups into a single chip. By utilizing a 60 GHz bandwidth, it achieves the world's fastest transmission rate of five gigabytes per second, more than sufficient for the 1.5 Gb/s standard required for High Definition Multimedia Interface (HDMI). In the future, this technology will be the foundation for ultra-high-speed wireless networks connecting a home or office's digital audio-visual equipment.

This innovative short-range, low-power SOC uses a state-of-the-art 90 nanometer manufacturing process. Its biggest breakthrough lies in its use of improved methods of modulation, which greatly reduce the power consumption and the complexity of the circuitry, while reducing the service area to about 1/10th of older chips. Moreover, its cutting-edge single-chip and antenna integration technology cuts the cost of the circuits to a minimum. It is estimated that this integrated transceiver will cost only US\$1 per unit to mass produce, giving it a distinct market advantage.

Low power consumption product is of vital importance because many portable devices, such as cell phones and digital cameras, require low power consumption. At present, the total power consumption of this chip has been kept under 300 mW, roughly 1/40th of that of existing chips of the same type. Prof. Lee points out that 60 GHz is the prevailing international commercial band wave that does not require a license. Since low-frequency band waves are too narrow in bandwidth and too crowded, millimeter band waves are the only choice for next-generation broadband communications.



▲ Prof. Jri Lee's tiny ultra-high-speed wireless communication system-on-a-chip appears next to a one NT dollar piece.

Prof. Lee also points out that, since 60 GHz tends to be absorbed by the oxygen in the atmosphere, it will not interfere with long-distance communications in its transmission process, and thus is particularly suitable for short-range, high-speed applications.

The 60 GHz band wave is more than 30 times the frequency used by modern day cell phones (GSM, 1.8 GHz), and the difference in speed between the two is like the difference between a high-speed railway and a bicycle. Prof. Lee's SOC achieves transmission speeds 100 times faster than WiFi and 350 times faster than 3.5G cell phones. The chip can download four gigabytes of digital information in about ten seconds. To complete a download of the same volume of data would require up to two hours using WiFi, 1.5 hours using ADSL and 4.5 hours using Bluetooth.

Prof. Lee says that, in the future, more efficient antenna arrays will allow the chip to reach a transmission distance of more than one meter at the same low level of power consumption.

Prof. Lee received his Bachelor of Science degree in electrical engineering from NTU in 1995 and then earned both his Master of Science degree and Ph.D. from the University of California, Los Angeles, in 2003. Before returning to NTU in 2004 as an assistant professor of electrical engineering, he spent time working at Academia Sinica in Taiwan and Cognet Microsystems and Intel Corp. in the United States.

## Regulation of RhoA-dependent ROCKII Activation by Shp2

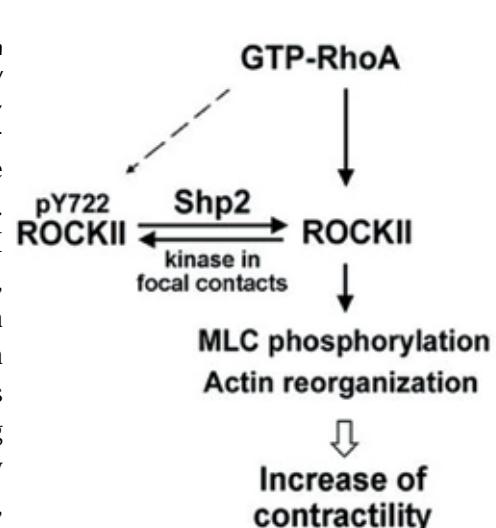
### Model of regulation of ROCKII by reversible tyrosine phosphorylation

Y722 phosphorylation by a kinase in focal contacts decreases ROCKII binding affinity to RhoA. Dephosphorylation of ROCKII by Shp2 stimulates its RhoA binding activity, thereby increasing actomyosin contractility.

**T**he following is the abstract of an article by Prof. Hsiao-hui Lee and Prof. Zee-fen Chang of the College of Medicine's Graduate Institute of Biochemistry and Molecular Biology published in *The Journal of Cell Biology* (2008); 181:999-1012.

Contractile forces mediated by RhoA and Rho kinase (ROCK) are required for a variety of cellular processes, including cell adhesion. In this study, we show that RhoA-dependent ROCKII activation is negatively regulated by phosphorylation at a conserved

tyrosine residue (Y722) in the coiled-coil domain of ROCKII. Tyrosine phosphorylation of ROCKII is increased with cell adhesion, and loss of Y722 phosphorylation delays adhesion and spreading on fibronectin, suggesting that this modification is critical for restricting ROCKII-mediated contractility during these processes. Further, we provide evidence that Shp2 mediates dephosphorylation of ROCKII and, therefore, regulates RhoA-induced cell rounding, indicating that Shp2 couples with RhoA signaling to control ROCKII



activation during deadhesion. Thus, reversible tyrosine phosphorylation confers an additional layer of control to fine-tune RhoA-dependent activation of ROCKII.

## Synthetic Lethality by Lentiviral Short Hairpin RNA Silencing of Thymidylate Kinase and Doxorubicin in Colon Cancer Cells Regardless of the p53 Status



The above diagram depicts a novel strategy in killing colon cancer cells by the combination of low-dose genotoxic insult and deprivation of dTTP synthesis.

**T**he following is the abstract of an article by Prof. Chun-mei Hu and Prof. Zee-fen Chang of the College of Medicine's Graduate Institute of Biochemistry and Molecular Biology published in *Cancer Research* (2008); 68:2831-40.

Intracellular supply of dTTP is a highly regulated process and has been a key target for chemotherapeutic drug development. Thymidylate kinase (TMPK) is the key enzyme for dTTP formation in both de novo and

salvage pathways. In this study, we used lentiviral-based shRNA to silence TMPK expression in p53(+/+) and p53(-/-) HCT-116 colon cancer cells. This approach was sufficient to decrease the dTTP pool gradually without affecting p53 expression and generating cytotoxicity. TMPK knockdown significantly increased doxorubicin sensitivity dramatically in p53-proficient, -null HCT-116 and Lovo colon cancer cells. The decrease of dTTP pool by this approach augmented the DNA damage response and enhanced

apoptotic induction after exposure to low-dose doxorubicin, leading to cell death. In contrast, silencing of thymidylate synthase (TS) that blocks the de novo pathway was incapable of sensitizing p53-null HCT-116 cells to doxorubicin-induced apoptosis because of the compensation by the salvage pathway. Our results suggest the lentiviral delivery of shRNA targeting TMPK in combination with low-dose of doxorubicin as a new approach to kill colon cancer cells regardless of the p53 status.

# NTU-Japan Research Findings on Thermal Pressurization During Chi-Chi Earthquake Published in *Nature Geoscience*

**T**he findings of a joint research project conducted by Prof. Sheng-rong Song of NTU's Department of Geosciences and a team from the Japan Agency for Marine-Earth Science and Technology headed by Prof. Tsuyoshi Ishikawa were published in the October issue of *Nature Geoscience*.

This project used geochemical methods to analyze concentrations

of major elements, trace elements and isotopic ratios of core samples obtained by deep drilling along Taiwan's Chelungpu fault.

The team found that rocks at the fault's core displayed an abnormal distribution and that this abnormal phenomenon was caused mainly by the presence of hydrothermal fluid generated by fault friction during the Chi-Chi Earthquake.

The hydrothermal fluid had heated to over 350 degrees Celsius and interacted with the surrounding rocks of the fault to cause fusion.

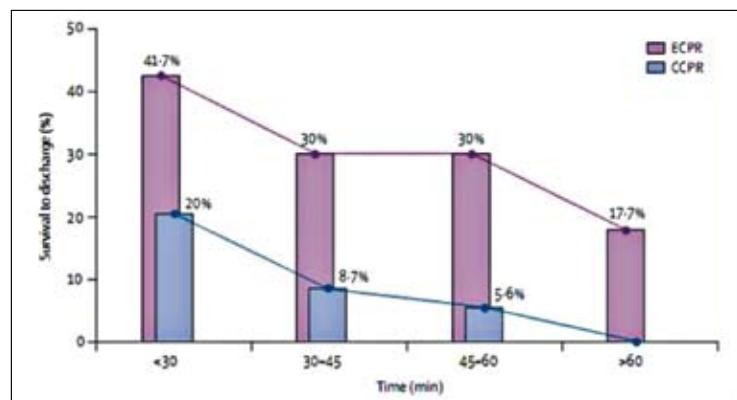
This finding indicates that the large fault displacement of the Chi-Chi Earthquake was caused by thermal pressurization. That is to say, high temperature fluids played an important role in faulting and rupture propagation.

## Extracorporeal Circulation May Provide Better Survival in Adult Prolonged In-hospital Cardiopulmonary

**T**he following is the abstract for an article published by a team of doctors at the College of Medicine led by Dr. Yih-sharng Chen in *The Lancet* (2008;372:554-561).

Sudden cardiac arrest has a low survival rate despite the introduction of cardiopulmonary resuscitation (CPR). Extracorporeal life support (ECLS) as a resuscitative device was proposed in this field for years. However, sufficient evidence is lacking regarding the benefit of ECLS in adults undergoing CPR, especially in prolonged CPR. We decided to conduct the present observational study to figure out the problem.

A 3-year prospective observational study was performed on the use of ECLS for patients with witnessed



● Bcr-Abl transformation cell lines: Cells without drug treatment (left) and apoptosis after treatment with Gleevec (right).

adult in-hospital cardiac arrest (IHCA) of cardiac origin undergoing prolonged CPR (ECPR, n = 59) and on a group of patients receiving conventional CPR (CCPR, n = 113). A propensity-score based matching process was performed to equalize potential prognostic factors in both groups, and to formulate a well-balanced 1:1 matched cohort study.

Unmatched patients who underwent ECPR experienced a higher survival rate to discharge (log rank p < 0.001) and a better one-year survival than those who received CCPR (log rank p = 0.007). The well-balanced CCPR (n = 46) and ECPR

groups (n = 46) were composed of patients with equally distributed baseline characteristics. There was still a significant difference in survival to discharge (hazard ratio: 0.51, 95% CI: 0.35~0.74, p < 0.001), 30-day survival (HR: 0.47, 95% CI: 0.28~0.77, p = 0.003) and one-year survival (HR: 0.53, 95% CI: 0.33~0.83, p = 0.006) favoring ECPR over CCPR.

The observational study and propensity analysis has demonstrated a short-term and long-term survival benefit with the supplement of ECPR over CCPR in the IHCA patients of cardiac origin.

# Swedish Sinologist Göran Malmqvist Teaches First Kenneth Pai Literary Symposium



Dr. Göran Malmqvist has twice been elected as the president of the European Association for Chinese Studies.

Dr. Malmqvist first traveled to China in 1948 where, while studying the local dialects of Sichuan Province, he became a disciple of a high-ranking Buddhist monk on Erh-mei Mountain and studied the Four Books and Five Classics. In addition to his teaching and research,

**W**orld-renowned Swedish sinologist Dr. Göran Malmqvist is the first scholar to be invited to take the position of visiting chair professor for NTU's newly-established Kenneth Pai Literary Symposium. Dr. Malmqvist is a fellow of the Swedish Academy and a senior judge for the Nobel Prize in literature. He

Dr. Malmqvist has made invaluable contributions to the translation of Chinese literature into Swedish. Since 1965, he has translated more than 65 volumes of Chinese literature into Swedish, including classical literature and modern poetry and prose. In recent years, he has guided his students in their translation of the *The Dream of the Red Pavilion*.

For the first Kenneth Pai Literary Symposium, which ran from October 16 to November 20, Dr. Malmqvist taught an intensive six-week seminar on Chinese classical literature open only to masters and doctoral students.

The Kenneth Pai Literary Symposium was established with a US\$1 million donation from Trend Micro Incorporated. Running through 2013, it will invite acclaimed writers and scholars to lecture at NTU, and is intended to both honor the famous writer Kenneth Pai as well as enhance the teaching of literature at NTU.

## Three Professors Lead NTU's Chien Ching-hui Humanities Lectures in 2008

**M**rs. Ching-hui Chien, NTU alumnus and chairperson of the Hong Foundation for Education and Culture, donated NT\$100 million to the College of Liberal Arts to establish the Chien Ching-hui Humanities Lectures in 2007. Aimed at instilling a global perspective in NTU students, the Lectures will invite acclaimed scholars to speak on their areas of specialization. They will be presented annually through 2016. In 2008, three scholars were invited to present three lectures each.

Prof. Wen-yue Lin's lectures were, "Playing in Translation: My Experiences," "Professor Takeo Hiraoka's Bai Juyi" and "Recasting Ancients: the Combination of Academic Research and Creative Writing." Prof. Lin has translated numerous Japanese classics into Chinese and published her own prose as well. Prof. Yen-ho Wu presented the lectures, "New Directions in the Anthropology of Food and Drink," "Theatrical Representation of Chinese Nationalities" and "The Politics of Native Hawaiians and Diaspora Chinese." Prof. Wu explores such issues as modernity,



Prof. Wen-yue Lin speaks during her first lecture in the Chien Ching-hui Humanities Lectures.

consumerism and individualism. Prof. Ania Loomba's lectures were titled, "Postcolonial Questions, Early Modern Racial Histories," "Of Gifts, Ambassadors and Copy-cats: Diplomacy, Trade and Colonialism in Early Modern India" and "Shakespeare Masala Mix: Multiculturalism and the Politics of Performance." Prof. Loomba's academic work focuses on multiculturalism, colonialism and relationships between the concepts of local and global.

## Education Ministry Rates NTU's General Education Program Best in Taiwan

The Ministry of Education conducted its second evaluation of general education programs at seven institutions of higher learning in the first half of 2008. The first evaluation was carried out in 2003 and 2004. In this year's evaluation report, the ministry stated, "Over the last four years, NTU is the institution demonstrating the greatest progress. Its general education program has undergone a complete regeneration and has opened up its lead over the other universities." The MOE rated the institutions in seven evaluation categories. NTU earned a rating of outstanding for objectives and vision, organization and system, curriculum planning, educational quality, instructor qualifications, and self-evaluation mechanisms, and was rated exceptional for its teaching and administrative resources.



▲ The MOE's general education evaluation team visits NTU to carry out an on-campus evaluation.

NTU carried out a series of reforms of its general education program between the academic years 2004 and 2006, and in coordination with the school's administrative and teaching units, instituted its new system in 2007. Guided by the goal of providing a well-rounded liberal arts education, the major focuses of these reforms were the raising of required general education academic credits from 12 credits

to 18 and the expansion of the original four general education categories of humanities, social sciences, physical sciences and life sciences to the eight categories of arts and humanities, history, world civilizations, philosophy and ethics, civil consciousness and social analysis, quantitative analysis and mathematics, physical sciences, and life sciences.

NTU has received support and affirmation from on and off campus for the direction and effectiveness of implementation of its general education reforms. The university will continue to improve the quality of its general education program in order to help its students become leaders of society possessed of compassion and a global vision.

## Center for Teacher Education Expands Whiteboard Presentation and Penmanship Seminars

In 2005, the Center for Teacher Education introduced a whiteboard presentation and penmanship seminar aimed at improving the basic teaching skills of education majors and intern teachers. During the 2008 academic year, the center expanded the subjects focused on in this seminar to include Chinese, geography, mathematics, English and biology, and invited teachers of these subjects who are effective presenters of information on classroom whiteboards to explore the basic principles of whiteboard presentation as well as penmanship techniques. By observing professional teachers in real classroom situations, students

in the seminar gain insights and tricks of the trade to help them face the challenges of teaching their own classes in the future.

Furthermore, besides the seminar's content-rich whiteboard presentation manual, the center also compiled a teacher examination



▲ Students and teachers interacted enthusiastically during the whiteboard presentation seminar.

and teaching strategy manual aimed at helping education students develop the skills necessary for taking teacher examinations and developing their teaching skills and competitiveness for testing into the world of education.

## NTU Global MBA Enters Third Year with September Orientation

**E**ntering its third official year this last fall, NTU's Global MBA program kicked off with Global MBA Orientation for the Class of 2010 on September 12. Dr. Sengcho Timothy Chou, the program's director, was the first to address the new GMBA students and extend a warm welcome. The Class of 2009 officially hosted the event, in what is becoming a tradition in the GMBA department. Each year, the new class of GMBA students receives their orientation from the graduating class.

There are 80 students in the GMBA program. This number is divided almost equally between international and local students. GMBA students have an average of



Orientation gives new students an immediate taste of the teamwork skills necessary to compete in business as well as in the GMBA program itself.

six years working experience and their average age is 30.

The NTU GMBA program is taught purely in English. It is a requirement that all of our students must have at least two years working experience. In order to graduate, students are required to have a total of 45 credits, which includes a six-credit master's thesis.

It is possible to graduate in three semesters, but the GMBA program is ideally suited for four semesters.

The program offers opportunities for internships and leadership and consulting programs. One such program is conducted in cooperation with the prestigious Wharton Global Consulting Practicum. The College of Management has over fifty international university partners.

The GMBA program does not require learning Chinese, but it is encouraged. NTU offers Chinese classes to students on both a full-time and part-time basis. During the first year of GMBA program, there is a special discount for Mandarin training classes for all international students.

## Global MBA Program Accepting Applications from International Student January 1 to March 13

**N**TU's Global MBA Program will accept applications for the 2009/2010 academic year from international students from January 1 to March 13, 2009 and from Taiwanese students (including those with dual nationality) on February 20-21, 2009.

The Global MBA Program is an English-taught program with rigorous and practical MBA courses instructed by NTU's outstanding faculty members. The program strives to cultivate the future leaders of the global marketplace guided by the theme: entrepreneurship, innovation and real-world practice. Its global outlook is underscored by its partnership with the Wharton

Business School in the Global Consulting Practicum. The program also offers students international exchange opportunities at partner schools worldwide.

Fifty percent of NTU's Global MBA students are international students from over 26 countries. Students in the program are, on average, 30 years old. They come from such eminent institutions as Columbia, Cornell and Berkeley, and bring a wide range of professional backgrounds to the classroom.

A 2008 survey conducted by Global Views Magazine and 104 Job Bank found NTU's graduate students to be the top recruitment choices for

enterprises in Taiwan.

The program accepts applications from bachelor degree holders, with over two years of working experience. Like other world-class MBA programs, the Global MBA Program has no entrance examination. The program's six core courses are offered on Tuesday afternoons so as to accommodate the schedules of working professionals.

An application package will be available online at <http://gra103.ntu.edu.tw/grab2007/services.htm> or can be purchased at NTU's main entrance starting December 15, 2008. For details, visit the web site: [www.mba.ntu.edu.tw](http://www.mba.ntu.edu.tw).

## Teaching and Learning Center Promotes Active Learning at College of Electrical Engineering and Computer Science

The Center for Teaching and Learning Development's College and Department Curriculum Enhancement Program is designed to assist the university's colleges and departments carry out comprehensive curriculum planning to achieve the dual objectives of encouraging students to engage in active learning and helping faculty members provide effective teaching. The center previously offered this program to the College of Life Science and then collaborated on it with the College of Electrical Engineering and Computer Science.

The college's Department of Electrical Engineering and Department of Computer Science and Information Engineering were the



 The Center for Teaching and Learning Development presents its curriculum enhancement recommendations to the College of Electrical Engineering and Computer Science.

recipients of this latest foray. The Center's Division of Planning and Research collected information and statistics about these departments to ensure the program's effectiveness. This included figures and information on students' classroom experiences and professors' teaching experiences as well as information

from a course questionnaire presented to graduating students. In addition, the Division also held "focus discussions" with the students and faculty members of each department.

The division performed quantitative and qualitative analyses of the information in order to present a clear picture of the views of students and faculty regarding the curriculum of their departments. Then, on August 25, the division met with the Dean of Academic Affairs and the chairmen and professors of the two departments to present its conclusions and hold in thorough discussions about the departments' curriculum.

## BOT Dormitory Project Creating Modern Accommodations for 4,000 Students and Faculty

**N**TU has adopted a BOT (build-operate-transfer) project for the construction and operation of much-needed dorm space for the university's expanding student body and faculty. The university's 26 existing dorms only provide space for approximately 9,000 students and faculty members. Moreover, ten dorms are between 30 and 50 years old and no longer meet the university's needs as it marches towards its goal of joining the ranks of the world's 100 most elite universities.

This BOT project is creating modern accommodations for around 4,000 students and faculty at the Chang Xing Street site and Shui Yuan Campus. Two 11-story dormitories and a two-story commercial building have already been constructed on Chang Xing Street. They were opened



to students on August 30 and are now fully occupied. The Shui Yuan Campus dorms will begin accepting applications for residency in February 2009. The campus is providing one 13-story student dorm, two 14-story student dorms and one 14-story faculty and staff dormitory and

commercial building.

Together these new dorms will provide beds for 3,507 students and 558 faculty members and staff, including research assistants and visiting scholars, as well as parking spaces for automobiles and motorcycles. About 2,700 ping (1 ping is about 36 square feet) will be devoted to shops and restaurants.

The contract with the private operator requires that rental rates be set according to rates in the surrounding neighborhood (NT\$700-1,200 per ping) and that any rate adjustments be tied to the consumer price index. Students and faculty are anxious to move in because the current rental rates are considered inexpensive and the dorms offer modern management and facilities.

## NTU Library's Taiwan's Indigenous Peoples Resource Center Collects 10,065 Items Since 2005

The Council of Indigenous Peoples of the Executive Yuan commissioned the NTU Library in August of 2005 to establish Taiwan's Indigenous Peoples Resources Center to provide the appropriate facilities and expertise for the collection of written and audio-visual materials related to the aboriginal people of Taiwan as well as provide a central location at which scholars and the public can access these valuable resources. The resource center has also set up the on-line Taiwan's Indigenous Peoples Portal in order to seek and collect Internet resources related to Taiwan's indigenous peoples and compile these resources at a single website.

Taiwan's Indigenous Peoples Resources Center's mission is to collect books, periodicals, multimedia audio-visual materials and digital information in Chinese and foreign languages pertaining to various aspects of the aboriginal people of Taiwan, such as ecology, culture, art, education, industry, healthcare and information literacy. The resource center had already collected around 10,065 items as of October of 2008.

More information is available in Chinese at: <http://tiprc.apc.gov.tw>

## FIRST ISSUE OF DEPARTMENT OF HISTORY NEWSLETTER PUBLISHED IN OCTOBER

## HISTORY DEPARTMENT HOLDS 80TH ANNIVERSARY LECTURE SERIES IN NOVEMBER AND DECEMBER

Founded on the establishment of NTU's predecessor, Taihoku (Taipei) Imperial University, 80 years ago, the Department of History is of the same age as the university and they share the same common history. From its beginnings during Taiwan's Japanese colonial period, through the introduction of new approaches to history by top-rate scholars coming from China following the Second World War, to the wide range of new historical methods of the 21st century, the department has undergone a myriad of changes and is itself a part of modern Taiwanese history. To commemorate NTU's 80th anniversary as well as reflect upon the department's varied past and look to its future, the department has organized a series of six lectures in November and December highlighting the development of its fields of study and its accomplishments in the area of international exchanges.



Bong 賀

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台灣大學管理學院

榮登金融時報

全球EMBA排行

第43名

台大EMBA基金會賀

頂上臺灣大學 管理學院  
College of Management  
National Taiwan University

FINANCIAL TIMES  
RANKED  
**TOP 43**  
WORLDWIDE

The British magazine *Financial Times* has ranked the NTU College of Management's Executive Master of Business Administration program 43<sup>rd</sup> in its latest ranking of nearly 100 of the leading EMBA programs in the world which was published on October 28. This high ranking provides confirmation of the College of Management's recent improvement efforts, and, as it marks an advance from the 50<sup>th</sup> spot in last year's ranking, it demonstrates that the EMBA program is getting even better.

The *Financial Times* conducts its evaluation based on such factors as faculty qualifications and the quality of a school's curriculum.

Established in 1997, NTU's EMBA program became the first of its kind to provide continuing education opportunities for senior executives in Taiwan. Around three years ago, the program introduced a case-study discussion format modeled on the one at Harvard Business School.

Another improvements in recent years include the establishment of partnerships with 58 prestigious colleges of business management. The program encourages student exchanges, and expects 100 of its students to study at partner institutions during the fall semester of 2008 and spring semester of 2009. It has accepted 75 international exchange students for study during this period as well. The program aims eventually to reach a point where 20% of its students participate in exchange programs.

In the twelve years since its establishment, the EMBA program has cultivated 1,800 leaders of society, creating a high-value resource network in the process. In related news, Taiwan's Cheers magazine has ranked NTU's EMBA program first for level of notoriety and level of satisfaction for the last two years.

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College of Management  
National Taiwan University



England's  
*Financial Times*  
Ranks NTU's  
EMBA Program  
43<sup>rd</sup> in the  
World in 2008

FINANCIAL TIMES  
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