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Dear Friends and Colleagues:

As we celebrate and usher in 2008, I will like to take this opportunity to reflect on the past year and share some of our plans for NTHU’s development in the year to come.

Last year was a rather busy and exciting year! With the collective effort of our faculty and students, we have made much strife in our effort toward becoming a world-class university. In terms of research and publication, our faculty and graduate students did an excellent job; they have published 20% more articles in SCI journals and periodicals as compared to that of 2006. More impressively, some of our colleagues’ researches were released at the very best outlets, such as *Nature*, *Science*, *Cell*, and other prestigious journals. These are all clear indications that we are improving quantitatively and qualitatively.

In terms of teaching and instruction, we have allocated a greater budget for the recruitment of more faculty members with stellar research records. We improved instructional programs with the addition of new laboratory facilities and cutting edge teaching and learning resources. While we worked diligently to improve our instructional programs, we are also very much aware of the fact that a sound educational experience could not be gained within the confines of classroom or laboratory. Our Office of Student Affairs had developed many programs that took our students to the real world outside our campus. Students were encouraged and provided with the opportunity to learn by serving as volunteers. Teams of our student volunteers served various sectors in communities in Taiwan as well as South and Southeast Asian countries. They served as tutors, social workers and clinic helpers and returned with an expanded horizon and a deeper understanding of many social issues. In last August, a Task Force for Undergraduate Education was constituted to examine and reform our undergraduate programs with the goal of offering a better education to our students.

If you had a chance to visit our campus last year, you might have noticed that there were many construction projects undergoing. Yes, we are making our beautiful campus more and more beautiful. A new footpath system has been completed and now you can leisurely walk around campus and take in the scenic. Infrastructures for the South Campus are in place and the area will soon feature green lawn, new sport and recreational facilities. We hope the inconvenience you might have experienced during your recent visits will soon be rewarded with a lovely new campus where you not only can exercise your mind and body, but also have your spirit up-lifted.

When I assumed the Presidency in 2006, I shared my vision to build up Tsing Hua not only as an excellent research university with a world-class academic standard but also a vibrant campus where talents are cherished and diligence nurtured. Well, I have yet to fulfill all these visions. But, I am sure with your assistance and support such vision will soon become reality. Come and join our efforts for an ever improving Tsing Hua.

Sincerely,

President, National Tsing Hua University
On November 15, 2007, National Tsing Hua University was proud to present the 1973 Nobel Physics Prize winner, Dr. Leo Esaki as a guest speaker. President Wen-Tsuen Chen was on hand to present the honorable guest with an Honorary Distinguished Chair Professorship.

Dr. Leo Esaki was awarded a Nobel Prize for his discovery of the "tunneling effect" at PN junctions of semiconductors. This discovery revised the traditional concepts that quantum mechanical tunneling effect of electrons could not pass through a potential barrier in semiconductors.

On the day of Dr. Esaki’s visit, Taiwan semiconductor guru Dr. Simon Sze made an appearance to pay tribute to Dr. Esaki, calling him “the father of the Japanese semiconductor industry.”

During his presentation at NTHU, Dr. Esaki emphasized the importance of “learning through failure”; his affable demeanor and earnest suggestions were well-received by the denizens of NTHU.

Dr. Esaki believes that to be a true scientist, one must obtain the logical capabilities of both philosophy and natural science, and assertively pursue knowledge in unknown scientific territory. Additionally, Dr. Esaki humorously passed on his legacy of “five inner basics,” including not being limited by our past experiences, steering away from becoming labeled as a “specialist” confined to one field of study, and forever possessing the curiosity of a young child.

By extending the invitation to Dr. Esaki to share his thoughts and experiences with NTHU, the University hopes its students and researchers will be encouraged to constantly improve themselves and pursue the next level of excellence.

Dr. Esaki is the second Nobel Laureate after Dr. Chen-Ning Yang to become an Honorary Distinguished Chair Professor at NTHU. In the coming three years, Dr. Esaki will periodically visit NTHU to share his knowledge and expertise by offering special seminars and public lectures.
Professor Andrew Chi-Chih Yao, an eminent computer scientist and computational theorist accepted an Honorary Chair Professorship presented to him by President Wen-Tsuen Chen on the 6th of last December. As an inaugural speech, Professor Yao presented a special lecture on the “Symmetry Effects in Computation” to large audiences who have long admired his innovative efforts and outstanding accomplishments in the fields of pseudorandom number generations, cryptography and quantum computing.

Professor Yao graduated from National Taiwan University with a major in physics and received his PhD, also in physics from Harvard in 1972. Three years later, he earned another doctoral degree, this time in computer sciences from University of Illinois. He had taught at MIT, Stanford, and Princeton before joining the Center for Advanced Study, Tsing Hua University in Beijing and serves as the Director of the Institute for Theoretical Computer Science in 2004.

In the year of 2000, Professor Yao was awarded with the Turing Award, often recognized as the "Nobel Prize of Computer Science" for his fundamental contributions to the theory of computation, including the complexity-based theory of pseudorandom number generation, cryptography, and communication complexity.

* NTHU is very happy and proud to have such a giant in computer sciences to join us! Professor Yao will visit us periodically to conduct seminars and offer his expertise to enhance further development of our information science programs.

*From "Awardees, Wikipedia, the free encyclopedia, 2007*
The Nobel Laureate Lecture Series is organized and presented jointly by the University System of Taiwan and the Sayling Wen Cultural and Educational Foundation with the goal of introducing these great learners and their respective research experiences to the Taiwanese academic and industrial communities. As a member of the University System, NTHU hosted Sir Harold W. Kroto’s visit on September 27 and Sir James A. Mirrlees on December 12, 2007.

On the day that Sir Kroto presented his lecture, NTHU students and faculty alike filled the conference room of the Engineering Building I to capacity and were treated with a brilliant presentation on the “Architecture in NanoSpace,” and his research leading to the discovery of C60. Dr. Kroto encouraged his audiences to explore the frontiers of knowledge and reminded them not to fall into the trap of being trendy and narrow their vision only to the so-called “hot topics.” Citing himself as an example, he demonstrated that if he had pursued a more popular line of research, there would have been little possibility for him to discover C60 and won the Nobel Prize in 1996.

Sir James A. Mirrlees, who won the Nobel Prize in Economic Sciences for his fundamental contributions to the economic theory of incentives under asymmetric information in 1996, visited NTHU campus on the 12th of December. Sir Mirrlees lectured on the topic of “Entrepreneurship and Incentives.” Using his Principal-Agent Model, Sir Mirrlees discussed with vivid examples how incentives could be profitably used to encourage innovative and entrepreneurial activities.

NTHU is very happy and honored to host the visits of these intellectual giants and will continue to invite additional distinguished scientists to our campus for lectures, seminars and share their research results and experiences.
Prof. Lih-Juann Chen, Distinguished Chair Professor of Materials Science and Engineering received the official notification that he will be awarded with the 2008 William Hume-Rothery Award by The Minerals, Metals and Materials Society (TMS). Prof. Chen will be the first scholar from Taiwan to receive such a distinction and it comes only a year after he was elected as an Academician of the Academia Sinica. Such esteemed accolades reflect not only his outstanding achievements but also the academic standard of his colleagues and students here at NTHU. Congratulations to Prof. Chen and his team of researchers!

The William Hume-Rothery Award was established by TMS in 1972 to commemorate former Oxford University materials science professor, Dr. William Hume-Rothery and to recognize scientists with excellent performance in the research of alloy materials, much like the Award’s namesake. Considering the fact that the directory of the past awardees reads like a who’s who in materials science, Prof. Chen’s achievement is worthy of the highest praise, indeed.

Prof. Chen will be officially garnering his award at the TMS Annual Meeting in New Orleans, Louisiana in the coming March. Also at that meeting, he will be delivering a keynote speech highlighting the state of art in his discipline. Currently Prof. Chen is also serving as the Vice President of the University System of Taiwan. Prof Chen’s new milestone serves as a reminder to NTHU students that if they keep their humility and put forth their best effort, they will surely excel and be duly recognized.
MORE AND MORE FACULTY MEMBERS ARE WINNING INTERNATIONAL RECOGNITIONS

Professors Jyuo-Min Shyu, Dean of the College of Electrical Engineering and Computer Science and Minghwei Hong, TSMC Chair Professor of Materials Science have recently been honored as the IEEE Fellows as the IEEE Association announced its new Fellows in 2007. This brings the number of IEEE Fellows at NTHU to the grand total of thirteen.

Prof. Shyu was with the ITRI where he initiated many high-impact R&D programs and took the lead in exploring new technologies, contributed to the development and advancement of semiconductor and flat-panel display industries in Taiwan. Currently he is the K. T. Li Chair Professor and serves as the President of Nanotechnology and Microsystems Association of Taiwan. His fields of expertise include embedded systems design, design automation, and integrated circuits design.

TSMC Chair Professor Minghwei Hong is one of the pioneers in III-V compound semiconductor MOSFET. He discovered a novel oxide to unpin the III-V surface Fermi level. His current researches include: (1). Nano-electronics in III-V, Nan, and Ge MOS for science and technologies beyond SiCMOS; (2). Nano-epitaxy. And, (3) probing high k dielectrics and semiconductor interface in an atomic scale.

Vice President Shih-Lin Chang is a scientist with many scholarly honors. He is awarded with a Lifetime National Chair Professorship in Mathematics and Natural Sciences by the Ministry of Education in 2002 and a Distinguished Chair Professorship by NTHU in 2006 for his outstanding contributions in developing X-ray multiple diffraction methods for solving the X-ray phase problem in crystallography and Fabry-Perot resonators for hard X-ray. Most recently, Vice President Chang is also honored as a Fellow of the American Physical Society.
The Founding Dean of the College of Humanities and Social Sciences and Academician of Academia Sinica, Professor Yih-yuan Li, out of his love and support of National Tsing Hua University, has donated a large number of rare books and the entire collection of his handwritten manuscripts to the university’s library for the benefit of Tsing Hua students. The Humanities and Social Sciences Library presented a special exhibition of the donated books and manuscripts to celebrate the 20th Anniversary of the Institutes of Anthropology and Sociology.

Professor Yih-yuan Li is a domestically and internationally renowned anthropologist. He has been an Academician and Director of the Institute of Ethnology at Academia Sinica and a National Taiwan University Professor of Anthropology. He has won numerous of awards for his research and writings over the years and has received honorary doctorial degrees from universities in Hong Kong, Australia and France. In 1984, Professor Li came to Tsing Hua University and single-handedly founded the College of Humanities and Social Sciences and served as the Dean for six years. For National Tsing Hua University, Professor Li has not only made great contributions in research and teaching in the College of Humanities and Social Sciences, he has also been responsible for the foundation and promotion of long-term development of academic excellence. In appreciation of these contributions, National Tsing Hua University made Professor Li an Honorary Chair Professor in 2001 and in 2004 awarded him with an Honorary Doctorate Degree. We thank Professor Li greatly for this most recent contributions to National Tsing Hua University.
NTHU is very proud of our students. They are not only excellent students in the classrooms and laboratories, but more importantly, caring persons who volunteer their time and energy to serve others.

Mr. Jialun Hu from the Department of Materials Science and Engineering won the "Underprivileged Areas Educational Camp Outstanding Performance Award" from Ministry of Education for his volunteer work with primary and secondary school students. In speaking of his work, Hu says he believes in service and the importance of education in primary and secondary schools. During his volunteer service, Hu discovered that children have their own ideals and career goals. Their biggest disadvantage is the lack of educational resources. Hu hopes that one day these children can break through this bottleneck and soar to a sky of their own. "We only hope that they can regain confidence and maintain a positive outlook toward their future."

Ms. Yu-hsuan Du of the Computer Science Department, a Ju-Service Director, won the "Promotion of the Development of Top Primary and Secondary School Students Award." In reflecting on her work, Du remarks that there is a song called Mary's Angels, which describes special children as those angels who came to the earth too hasty and hurt their wings. Here on earth, they are no longer able to fly but they bring with them tremendous love for humanity. "I love the meaning of this song. Through the service process, we are constantly learning and growing. But it is from interacting with these children that we are most inspired and rewarded."

Ms. Ying-tung Lin of the Biomedical Engineering and Environmental Science Department and Mountain Area Service Director won the "Facilitation of Social Clubs within Elementary and Middle Schools Award." By the time she entered National Tsing Hua University, Ms. Lin had already served nearly three years in winter and holiday camps for Jian Shi rural Atayal children. She has been involved in various activities with aboriginal communities and believes that "these little drops [of experience] along with my university training will allow me to grow up and learn how to understand our community from different angles. I do this not so much as service but as a training for my own growth."
How does memory function in the mind? Scientists have been eager to find the answer since the inception of civilization. Recently, researchers at the NTHU’s Brain Research Center (BRC) discovered a clue in the brain of the fruit fly (Drosophila). In collaboration with the Cold Spring Harbor Laboratory (CSHL) team, they published a groundbreaking report on the formation of long-term memory in the fly brain in the November issue of the prestigious science journal, *Nature Neuroscience*. The leading author of this milestone article is a NTHU doctoral student, Mr. Chia-Lin Wu from Prof. Ann-Shyn Chiang’s laboratory.

NTHU’s research project on the brain of fruit fly started 3 years ago when Prof. Chiang of the BRC and Dr. Tully of the CSHL collaborated to find the missing neural linkage between genetic mutations and the lost of learning/memory capability in Drosophila. Currently the expression of memory can only be demonstrated through the behavioral observation on the whole creature, while the genetic mutation may be manipulated within a very tiny region inside the cells. A huge gap for the researchers to bridge, therefore, is the discovery of how the improvement and development of vaccines, and tissue engineering.

In recent years the main focus of Dr. Hu’s research has been on the development of baculovirus as a gene vector. This is a pioneering research in the field of biological engineering and Dr. Hu has taken the lead with a series of papers published in prestigious academic journals on baculovirus gene therapy. His team has become world leaders in these areas and we anticipate more and more exciting discoveries will be made by Dr. Hu and his associates.

On October 12, the Representative of the China Chapter of the International Junior Chamber of Commerce presented a Golden Hand Award to Dr. Yu-Cheng Hu, Department of Chemical Engineering, for his outstanding research on the baculovirus gene therapy. This is not the first national honor that Dr. Hu has won since joining Tsing Hua. In fact, Dr. Hu won the New Faculty Research award in 2004, the Outstanding Teaching Award in 2005 and the Wu Da-You Memorial Award from the National Science Council last year.

Dr. Hu’s areas of research include the study of biological processes, the improvement and development of vaccines, and tissue engineering.
mutated genes manifest themselves in behaviors when cells are modified in the nervous system. The BRC researchers have utilized the patented tissue transparentization reagent, in conjunction with the traditional tissue preparation protocol and successfully made Drosophila brain transparent. By so doing, they can observe the gene expression within single neurons in neural networks of the whole Drosophila brain without the interference of tissue opaqueness due to its thickness. This advancement in neuroanatomy is complementary to the test machine for the olfactory memory of Drosophila, invented by Dr. Tully.

Such joint research project between the BRC and the CSHL has allowed many researchers and graduate students to visit each other over the years and Mr. Wu was one of the students went to the CSHL in 2005. During his days at CSHL, he studied the effect of a particular glutamate receptor (NMDA type) in a specific brain region on the memory formation of Drosophila. Mr. Wu familiarized himself not only with the operation of the automated fly behavior training machine but also regularly took part in the seminars and discussions among CSHL researchers. Originally Mr. Wu planned to stay for 6 months but was asked to extend his stay for another session because of his excellent performances. He later became the key person to transfer and install the automated training machine at the BRC that made possible the mass screening of the performance of olfactory memory. Eventually, he integrated the neuroanatomical images and the behavioral examinations in CSHL and constructed a new paradigm for the memory processing in the fly brain.

In this collaborative research, Mr. Wu used the RNA interference technique to knock down NMDA receptors in a specific region (the ellipsoid body, see figure) in fly brain and showed the resultant loss of long-term memory formation. This discovery is a surprise to everybody!

In the human brain, scientists now are convinced that some short term memory are initiated in the region of hippocampus and the information is gradually transferred to the neocortex for long-term storage. But ‘what is stored and in where’ is still a big question. Has the fruit fly developed a diversified storage system in its brain already? The research results accumulated at the BRC seemed to be suggesting that there is such a possibility!

Professor Chiang and his associates at the BRC have created a first rate research environment where a young generation of scientists and scientists-to-be can immerse themselves in a state of art research facility, work under the guidance of world-class researchers and devote themselves to solving issues surrounding how the brain functions. As these researchers explore the frontier of memory research, we are confident that more and more important breakthroughs in this area will soon be accomplished by Prof. Chiang and his research associates at the BRC, NTHU.
A NEW CAMPUS IN I-LAN TO SERVE THE NORTHEASTERN COASTAL AREA

NTHU’s I-lan Campus, long anticipated by residents of I-lan County, unveiled its cover for the first time on December 24, 2007. Hosted by President Wen-Tsuen Chen and Mayor Kuo-Hua Lu of I-lan County, a groundbreaking ceremony was held on December 24th and attended by many national and local dignitaries. The groundbreaking ceremony symbolized NTHU’s determination to expand her educational, community outreach and research programs to I-lan and the northeastern coastal areas. In conjunction with the establishment of this new NTHU campus, a new branch of the Hsin Chu Science-Based Industrial Park (HSIP) will also be installed in the neighborhood to serve as the locomotives for the future development of this region. The construction of this new campus is expected to take place in the near future. The first phase of construction will feature a multi-purpose building for administration, teaching as well as research activities. We expect to complete the first phase construction in 2010 to allow the establishment of the I-lan Branch of the Tzu-Chiang Foundation of Science and Technology Research Center and the offering of other instructional programs. This NTHU I-lan campus together with the branches of HSIP as well as the Tzu-Chiang Foundation will fuel up the cultural as well as economic developments of I-lan and the surrounding areas.