Celebration of Tsing Hua’s Founding Anniversary
President Emeritus Frank Hsia-San Shu Won the Harvard Centennial Medal
Three Were Honored by Their Alma Mater for Outstanding Achievements
The Department of Materials Science and Engineering is Recognized as One of the World’s Top Institutes
President Chi-Huey Wong of Academic Sinica Accepted a Distinguished Chair Professorship at NTHU
Professor Albert Kong Caught a Supernova
TSMC Building: A Symbol of the Cooperative Effort Between Enterprise and Higher Education
Three Tsing Hua Professors Garnered the Academia Sinica Research Award for Junior Research Investigators
Commencement – Celebrating a Job Well-Done and Contemplating the Courses of Future
A series of activities were held to celebrate the 97th anniversary of the founding of Tsing Hua University and 52nd anniversary of the establishment of National Tsing Hua University in Taiwan. The centerpiece of these celebrating activities began on time at 10:30 am, on April 27 amidst a warm and happy atmosphere. Firstly, NTHU President Wen-Tsuen Chen thank everyone for participating and told how proud he has been as a graduate of NTHU. He reported on the status of NTHU and indicated that in five years, boosted by 5-year-50-billion special funding, NTHU will make great advance towards becoming a world-class university. He said that, in recent years, NTHU has achieved outstanding results in both teaching and research. The “Thousand Points of Light Project” has diversified enrollment and enriched teaching. Teaching objectives are being set and reforms were continually made by all disciplines. The establishment of “Tsing Hua College” will further upgrade undergraduate education. The opening of TSMC Hall and the large grassy area known as “the South Campus” have added new teaching and office space as well as another scenic area for our beautiful campus. This year the assembly was fortunate to have Dr. Ovid J. L. Tseng, President of University System of Taiwan, and Dr. Kenneth Wu, General Director of National Health Research Institutes as guest speakers. Dr. Tseng said that he was very pleased to see NTHU’s outstanding achievements, especially in the Top-Notch University evaluation, where NTHU was ranked “excellent” in all criteria. Dr. Wu gave high praise to the university’s emphasis on the humanities which has made NTHU one of leading universities in Taiwan for humanities and social sciences education and research, not just in science and engineering. In particular, he was very excited about the “Tsing Hua College” which will undoubtedly further improve the quality of undergraduate education. During the ceremony, students, clubs and teams that have worked hard and performed outstandingly over the previous year were recognized and commended, including winners of the “National Award for the Outstanding Students in Community Services”, winners of the Book and Scroll Prize for the first semester of 2007, clubs with excellent extra-curricula activities and the winning teams in this year’s Meichu Games.
THU faculty and students share a special sense of joy and honor when their former president, Dr. Frank Hsia-San Shu was honored as the recipient of this year's Harvard Centennial Medal. The Harvard Centennial Medal was established by the Harvard Graduate School of Arts and Sciences and first presented at the school’s centennial anniversary ceremony in 1989. Since then, two to four medals are given to outstanding alumni who have made significant contributions to the society annually. Past recipients include Nobel Prize Winners in Economics, Dr. James Tobin (1981) and Dr. Robert Solow (1987), in Physics, Dr. Philip Anderson (1977), in Chemistry, Dr. Walter Kohn (1988); and Wolf Prize Winner in Chemistry, Dr. Richard Zare (2005); Canadian writer Margaret Atwood; notable American philosopher and critic Susan Sontag; famous writer and historian Kevin Starr. Dr. Shu is recognized as one of the world’s leading astrophysics theorists. His spiral galaxy formation and planet formation theories are innovative and insightful. In addition, Dr. Shu is an Academician of Academia Sinica, and Member of the National Academy of Sciences, American Academy of Arts and Sciences and American Philosophical Association. He is also a Foreign Academician of the Royal Astronomical Society in England as well as the first president of Chinese descendant of the American Astronomical Society.

Aside from his international academic honors, Dr. Shu is also revered for his contribution to Taiwan’s higher education. In April 2008, he was awarded the Education-Culture Medal by the Ministry of Education for his special contribution to higher education in Taiwan.

Congratulation, President Emeritus Shu!
THREE WERE HONORED BY THEIR ALMA MATER FOR OUTSTANDING ACHIEVEMENTS

Annually, NTHU honors one of her alumni with the prestigious Outstanding Alumni Award at the founding anniversary celebration. This year’s anniversary was, however, somewhat special! Three, instead of two, alumni were selected by a panel to receive this special recognition. These are: Dr. Chang Tse-Wen who received his B.S. and M.S. in Chemistry in 1970 and 1972; Mr. Ho Tai-Shung received his master degree in E. E. in 1983, and Dr. Chen Lai-Juh who earned his doctoral in Chemical Engineering in 1992. Although these honorees studied different subjects and graduated in different years, they do share some characteristics that contributed to their success. They are all entrepreneurs who dare to explore the frontier of their disciplines and opened new paths in their respective careers.

When Chang Tse-Wen graduated from the Institute of Chemistry, he wrote a master thesis, based on his own research on snake venom protein crystallization which was subsequently published in *Nature*, making him one of the legendary figures in the university history. In 1973, he was admitted to Harvard Medical School where he received his Ph.D. in 1977. He did post-doctoral research on monoclonal antibodies at the MIT. In 1985, he joined Baylor Hospital in Boston as a faculty member and also established Tanox to do bio-pharmaceutical R&D with Ms. Nanshan Tang. Anti-Ig, a drug invented by Dr. Chang, was the first bio-pharmaceutical product to effectively treat asthma. It became well-known internationally and at one point its sales reached US$1 billion per year. Dr. Chang’s another invention is Xolair, the first monoclonal antibiotic drug for treating allergies and asthma with little side effect. It is expected that the sale of Xolair will increase every year and it will become one of the star drugs. In 1996, Dr. Chang returned to NTHU and served as the Dean of the College of Life Sciences. While at NTHU, he made a number of donations to allow his alma mater to expand research facilities. Dr. Chang has been the CEO of the Development Center for Biotechnology, and served as the Science and Technology Adviser to the Executive Yuan, and currently is a Distinguished Researcher in the Genomics Research Center, Academia Sinica.

Dr. Chang Tse-Wen  
Mr. Ho Tai-Shung  
Dr. Chen Lai-Juh
Mr. Ho Tai-Shung graduated from the Institute of Electrical Engineering in 1983. He established Novatek, a chip R&D and design company in 1997. Of its 857 employees, R&D personnel account for 71%. Novatek was listed in the over-the-counter market in April, 2001, and subsequently listed on the stock market in August, 2002. At present, the company has a capitalization of NT$5.41 billions and a market worth around NT$60 billions. Such shining records speak loud and clear of Mr. Ho’s talent and inventiveness.

Novatek is currently the leading display driver IC supplier in Taiwan and the third worldwide. It had a 21% share of the world large display driver chip market in 2007. In June, 2007, Novatek was ranked by Asia Business Week as the 37th top-performing companies, and chosen by AsiaMoney as the top semiconductor company in Asia.

Mr. Ho likes to keep a low profile and doesn’t appear in public very often. But, he has always been willing to participate in all kinds of activities that help the development of his alma mater.

A Ph.D. graduate of the Department of Chemical Engineering, Dr. Chen Lai-Juh is one of those rare specialists in Taiwan whose expertise span across all fields of the TFT-LCD industry. He participated and excelled not only in R&D of this industry, but also successfully established a factory and an information system to facilitate the manufacturing and marketing of TFT-LCD products globally.

Under his leadership, AUO is now the largest TFT-LCD manufacturer in Taiwan and ranked as one of the top three worldwide. Chen’s most significant contribution to the flat panel device industry in Taiwan, however, is his systematization of experiences, processes and systems. While involved in the sales department, he brought in the concept of product marketing and at the same time developed various high standard products that generated a great deal of business opportunities. In addition, Chen’s efficient integration of factories and production lines allowed AUO to achieve the best results in the shortest amount of time. It is truly because of Chen’s effort that Taiwan’s LCD industry has achieved its international status and influence today.
THE DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING IS RECOGNIZED AS ONE OF THE WORLD’S TOP INSTITUTES

On June 5, President Wen-Tsuen Chen, Vice President Chang Shih-Lin, and other senior administrators held a joint press conference to announce that, based on the Thomson Reuters Essential Science Indicators, Taiwan has five research institutes ranked in the top 100. Among them, National Tsing Hua University’s Department of Materials Science and Engineering ranked 37th, making it the top ranked department in Taiwan. NTHU’s quality of research in Chemistry (based on the number of citations per paper) was also ranked number one in Taiwan. Professor Jwo-Huei Jou, Chair of the Department of Materials Science and Engineering indicated that such outstanding performance was due to the long-term efforts of all students and faculty members involved in materials science research. Chair Jou also noted that such ranking is based on the quality and quantity of research papers published by institutes. Statistics shows that if a department publish a large volume of papers, but they are of low quality, they will not receive international recognition. If the papers are of high quality but in insufficient quantity, their impact will also be limited. The Thomson Reuters rankings are based on the value given to published papers, the citation impact. The research results of the Department of Materials Science and Engineering were ranked 37th among 570 organizations from 78 countries, the highest ranking for all such departments in Taiwan.

Ranking of Materials Science Departments in Taiwan *

<table>
<thead>
<tr>
<th>Ranking in Taiwan</th>
<th>Ranking Worldwide</th>
<th>Universities</th>
<th>Total Number Cited</th>
<th>Total Number of Articles Published</th>
<th>Number Cited Per Article</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>37</td>
<td>National Tsing Hua University</td>
<td>3347</td>
<td>883</td>
<td>3.79</td>
</tr>
<tr>
<td>2</td>
<td>52</td>
<td>National Taiwan University</td>
<td>2740</td>
<td>819</td>
<td>3.35</td>
</tr>
<tr>
<td>3</td>
<td>53</td>
<td>National Cheng Kung University</td>
<td>2726</td>
<td>1154</td>
<td>2.36</td>
</tr>
<tr>
<td>4</td>
<td>98</td>
<td>National Chiao Tung University</td>
<td>1835</td>
<td>496</td>
<td>3.7</td>
</tr>
</tbody>
</table>

* Important science indices were compiled from the Web of Science. The Web of Science is an authoritative worldwide citation database, used by 3,500 research institutions in more than 40 countries.
An internationally renowned scholar and the President of Academic Sinica, Dr. Chi-Huey Wong accepted the appointment as NTHU’s Distinguished Chair Professor in a ceremony held on campus on the 19th of last May. During his tenure as the Distinguished Chair Professor, Dr. Wong will visit and lecture at NTHU and collaborate with graduate students as well as faculty members who share his research interests and expertise. It is, indeed, an honor that President Wong accepted this appointment and we hope his closer affiliation with Tsing Hua will facilitate more exchanges and collaboration between the Academic Sinica and National Tsing Hua University.

In his congratulatory remarks, President Wen-Tsuen Chen applauded President Wong for his stellar academic accomplishments and indicated that Dr. Wong is anticipated by his colleagues here in Taiwan as well as those abroad, to be a strong candidate for the Nobel Prize in chemistry and biological science. Dr. Wong’s expertise include glycochemistry, organic biology, drug design and synthesis, enzymatic organic synthesis and glycobiology. He is the first scientist worldwide to successfully use enzymatic technology to synthesize complex polysaccharide in large quantity. The technology he has invented is currently applied to the development of new drugs to treat heart diseases, strokes and various inflammatory diseases.

In the inaugural speech, titled “The Development of Saccharine Science Research,” Dr. Wong pointed out to a pack audience that researchers often make important discoveries and innovations via experiments and basic researches. It is often through such a process that they discover useful new technologies that leads to new products benefitting humankind as a whole. He encouraged his audience to never overlook the importance of basic research and never let go a “small problem” because such “small problem” might eventually leads to major discoveries.
Observing with NASA’s Swift satellite, Prof. Albert Kong of the Institute of Astronomy is one of the first astronomers to catch a star in the process of exploding. Astronomers have previously observed thousands of stellar explosions, known as supernova, but they have always seen them after the fireworks were well underway.

With the support of the National Science Council, Prof. Kong is leading a team to conduct research on high-energy astrophysics. In the morning of January 10, 2008, while analyzing the collected data from NASA’s Swift satellite on January 9, Professor Kong discovered in the spiral galaxy NGC 2770, located 90 million light-years from Earth in the constellation Lynx, an extremely bright 5-minute X-ray outburst that happened at 9:33pm Taiwan time. At the same time, Dr. Alicia Soderberg and her team from Princeton University discovered the same X-ray outburst independently. Prof. Kong and Dr. Soderberg immediately informed other astronomers to observe this rare astronomical event.

Due to the significance of the X-ray outburst, Dr. Soderberg immediately organizing an international observing task force to study this event and invited Prof. Kong to join her team. Observations were made with major telescopes such as the Hubble Space Telescope, the Chandra X-ray Observatory, the Gemini North telescope in Hawaii, the telescopes at the Palomar Observatory in California, and the 3.5-meter telescope at the Apache Point Observatory in New Mexico. Their joint discovery was published in Nature on May 22nd, 2008.

In this article, Dr. Soderberg, Prof. Kong, and their colleagues show that the energy and pattern of the X-ray outburst is consistent with a shock wave bursting through the surface of the progenitor star. This marks the birth of the supernova now known as SN 2008D. The significance of this discovery is the capability to observe star blow up in real time which provides the scientists with an unprecedented insight into the explosion process.
TSMC BUILDING: A SYMBOL OF THE COOPERATIVE EFFORT BETWEEN ENTERPRISE AND HIGHER EDUCATION

NTHU is proud to open the new TSMC building, where the College of Technology Management is housed, on April 18, 2008. Taiwan Semiconductor Manufacturing Company (TSMC) donated over 180 millions to the construction of this building, and the Ministry of Education assisted with the remainder. The Vice Chairman of TSMC, Dr. F. C. Tseng, contributed 15 millions of his personal funds to furnish the Sun Yun-Suan Hall. In appreciation of TSMC’s magnanimous contribution, NTHU decided to name the building after the generous donor.

TSMC Chairman, Dr. Morris Chang indicated that his company has always emphasis on collaborating with institutes of higher education, and shares NTHU’s educational vision. TSMC, therefore, decided to take action to facilitate industrial and technological progress through supporting education and research institutes and selected NTHU as one of its beneficiaries.

President Wen-Tsuen Chen remarked, during the inauguration ceremony, that TSMC has an outstanding track record in Taiwan’s high-tech industry. He applauded TSMC’s effort to support science and technology education and its contribution to society in general. The successful completion of the TSMC building is a monument to the spirit of the TSMC’s enthusiasm to give back to society. In addition, this building will also symbolize the many years of cooperation between TSMC and NTHU which include: lecture series, scholarships, joint research projects, and internship opportunities for many NTHU students. President Chen believes that by combining the best of industrial and academic sectors, we will surely success in our common goal to nurture greater number of first-class industrialists in the high-tech area.

During the inaugural ceremony President Chen reiterated his gratitude to Dr. Morris Chang and Dr. F. C. Tseng. Immediately following the inauguration activities, a series of two Sun Yun-Suan Lectures were presented, the first by Chairman Chang on “The Education of Leaders,” the other session was led by Dr. Lawrence Lau, President of the Chinese University of Hong Kong, focusing on the “Prospects on the Cross-strait Trade.”

From left to right: Dean of the College of Technology Management Dr. Chintay Shih, TSMC Vice Chairman Dr. F. C. Tseng, Delta Electronics CEO Yancey Hai, President Wen-Tsuen Chen, Former President Chung-Laung Liu, and Yuan Ze University President Tsong P. Peng

TSMC Chairman Dr. Morris Chang
Academia Sinica held the Research Award for Junior Research Investigators ceremony in the morning of June 9th, 2008. Three young NTHU faculty members were awarded for their academic achievements. They are Wang Daw-Wei, Department of Physics, Tsai Yi-Chou, Department of Chemistry (both for the Mathematics and Physical Sciences category) and Huang Hui-chuan, Institute of Linguistics (for the Humanities and Social Sciences category).

While still a doctoral student, Professor Wang Daw-Wei had already developed his first complete theory to explain Raman scattering in semiconductor quantum wire or quantum plane. He also successfully solved the scattering intensity problem that no other theories in the past two decades could explain. In 2001-2002, he developed a comprehensive structure to integrate the impact of parallel magnetic field in the single layer and double layer Hall effect. Since 2002, Professor Wang has delved into the emerging field of ultracold atom systems and was the first to propose a qualitative and quantitative theory for the phenomenon of momentary cold atom separation on micro-wires. After returning to Taiwan, he further developed his past research project and became the first and only researcher to propose a strong coupling theory of superfluidity applicable to experimental parameters. In the award ceremony, Professor Wang expressed his gratitude for the support he has received from Department of Physics. He believes that the award is an encouragement for him personally and a tribute to the sound research environment that NTHU has created.

Professor Tsai Yi-Chou’s research endeavor, as an inorganic chemist, is to synthesize highly active but stable metal complexes to selectively activate thermodynamically highly stable small molecules, such as dinitrogen, carbon monoxide and carbon dioxide. The goal of his projects is to transform these gases into substances of economic value. The method that his team uses is to synthesize low-valent and low-coordinate transition metal complexes. Using this method, his team has synthesized many low-coordinate bimetallic complexes whose reactivity themselves demand further studies. When Professor Tsai spoke of his research contribution, he explained that since metal-metal quadruple bond was discovered in 1964, it has been extensively researched by scientists of chemical...
synthesis as well as theorists. Currently more than one thousand quadruply-bonded dinuclear complexes were reported and included in all inorganic chemistry textbooks. Tsai’s team recently reported an unusual quadruply-bonded Mo-Mo complex, whose structure and metal-metal quadruple bond are both different from those reported in the past. Their finding opens a new door for chemists to study metal-metal quadruple bonds. Professor Huang Hui-chuan is a phonology and phonetics specialist in Austronesian languages. Speaking of her research contribution, Huang said there are many discussions on changes in individual segmental sounds in Austronesian linguistic phonology, but very few are made on the syllables formed after linking segmental sounds, as well as rhythm distinctions between stresses and non-stresses. Her three-thesis series that received the award is a contribution to the understanding of the rhythmic structure in Bunun language, including the relationship between prosodic words and their root, internal structure of syllables, mora, syllable forms and segmental sound patterns. Her studies provided an in-depth explanation and analysis of the Bunun language and how such a case study can contribute to the development of theoretical phonology. Professor Huang expressed her appreciation for her family’s support in allowing her to realize her dream to study linguistics and thanked Tsing Hua for providing her an excellent academic research environment.

The Academia Sinica Research Award for Junior Researcher was established to encourage young Taiwanese scholars to devote themselves to innovation, vision and excellence. The award has three categories, the Mathematics and Physical Sciences, Life Sciences, and Humanities and Social Sciences. It serves to encourage and inspire Taiwan’s young scholars and is seen as a prestigious award in the academic field. With three professors taking home the awards, NTHU has shown its solid academic strength and potential.

- Professor Wang Daw-Wei, Department of Physics
- Professor Tsai Yi-Chou, Department of Chemistry
- Professor Huang Hui-chuan, Institute of Linguistics
This year’s commencement was held on Saturday, June 14, with President Chi-Huey Wong of Academia Sinica as the keynote speaker. President Wen-Tsuen Chen first offered his congratulation to the graduating class for completing rich and challenging academic and intellectual pursuits at Tsing Hua. With the foundation developed here, President Chen believes, the graduates should have the confidence and courage to face the challenges at the next stage of their life. More importantly, this is an occasion to map the course of future. Based on his own experiences, President Chen encouraged students to find their own interests and establish life goals early so that they can make the best of every opportunity comes their way.

President Chi-Huey Wong congratulated all the graduates and told them that it is truly a privilege for them to study with first-rate faculty in such an outstanding academic environment. His keynote centered on the theme of academic research and social responsibility; he emphasized that the knowledge one has gained in the university will not be enough to understand or solve many of the world’s complex problems. Developing an attitude of lifelong learning, therefore, is extremely important. President Wong believes people engage in academic research for two reasons. One is curiosity or interest, the other is instrumentality. It was interest that led President Wong to dream of a beautiful future; and it was interest that supported him and allowed him to persevere through countless trials and hardships. In addition, President Wong emphasized the importance of realizing our responsibility to fellow human beings.