

POSTECH Newsletter

Vol.52 www.postech.ac.kr



Pohang University of Science and Technology
International Relations Office
San 31, Hyoja-dong, Nam-gu, Pohang 790-784, Korea

Tel: +82-54-279-3681~3689

Fax: +82-54-279-3590

iao@postech.ac.kr

www.postech.ac.kr

Feature 03

- 03 Bilingual Campus and Three-year Intensive Globalization Plan
- 05 Professor's View on the Globalization of POSTECH

Research Activities 06

- 06 Mussel Adhesive Protein with Improved Property Developed
- 07 Stencil Techniques to Fasten the Realization of the in Vitro Liver
- 08 A Transporter ABCG40 Mediates Cellular Uptake of the ABA, the Drought Resistance Hormone

Honors and Awards 09

- 09 Professor Won-Ki Hong Elected IEEE Online Content Director
- 09 POSTECH Team Wins APIEMS Best Paper Award
- 10 Professor Han Woong Yeom Becomes APS Outstanding Referee
- 10 Professor Sang-Wook Cheong Receives McGroddy Prize
- 11 POSTECH Student Awarded at TMS Annual Meeting
- 11 APBioChEC '09 Awards POSTECH Student

Campus News 12

- 12 POSTECH Ranks Best in Patent Power in Asia
- 13 Tenure System Revised: Stricter Standards for Life Tenure
- 14 The 2010 Matriculation and Bilingual Campus Declaration Ceremony Held
- 15 New Partnership with India: Great Potential Lies Ahead
- 15 Art gallery café 'Monet' Open

Student Activities 16

- 16 Wie Gehets! Ich bin Berliner!
- 18 Why Korea, Why POSTECH?

Bilingual Campus and Three-year Intensive Globalization Plan



This year's matriculation ceremony at POSTECH was different from the past: from the master of ceremony to the President, every person on the podium was speaking in English. POSTECH announced the launch of the bilingual campus as of March 2010. Starting from the spring semester, lectures, faculty meetings, theses and other services provided by the University must be provided in both English and Korean, and the process of change is planned to be completed in 3 years of time.

POSTECH has announced its 'Three-Year Globalization Plan (2010~2012)' and will focus on globalization of the University in order to become a world top 50 university by 2013, which will serve as the first step for its long-term goal of Vision 2020, placement of itself in the world top 20 by the year 2020, becoming a hub for research-oriented universities of the world. A KRW 150 billion budget has been set for the plan, which includes the following areas:

1. securing excellent human resources including world-class international scholars
2. building an international joint research base by attracting world class laboratories overseas and constructing a fusion research center
3. building a global environment by establishing a bilingual campus and offering International Scholars & Students Services (ISSS) for foreigners

Among the above three, the first area is given the priority: recruiting the topnotch professors from around the world. Seven full-time international faculty members are to be recruited every year, the total number reaching 45 by 2012, taking up 15% of all full-time faculty body. Non full-time international faculty is also to be increased, from 47 in 2009 to 60 by 2012, which will form 45% of the entire non full-time faculty body.

POSTECH Newsletter Vol.52

The POSTECH Newsletter is published quarterly by the International Relations Office to provide University news and information on academic and research achievements of POSTECH members. To receive a free copy of the POSTECH Newsletter, please write to us or visit us online at www.postech.ac.kr

Contact:

International Relations Office
Pohang University of Science and Technology
San 31, Hyoja-dong, Nam-gu
Pohang 790-784, Republic of Korea
Tel: +82-54-279-3681~3689
Fax: +82-54-279-3590
iao@postech.ac.kr
www.postech.ac.kr

Edited and published by:

International Relations Office

Design:

Dongin Forum
Tel: +82-2-521-0725



POSTECH is anticipating to obtaining quality results in major research fields through active joint research and cooperation with the world-class institutes such as RIKEN in Japan and MPI in Germany. In addition, POSTECH has set a budget for the construction of a common research center to be used with RIKEN and MPI.

Launching of the bilingual campus, which encourages more usage of the English language on campus, is another way of making the foreigners' life easier at POSTECH. By its official definition, POSTECH intends to "provide an education and research environment suitable for international members of the University through writing and conducting all official activities in both Korean and English." On the practical level, POSTECH has already started to set the operational scope and rules of "Bilingual Campus." It includes not only the educational parts of the campus which enforces the lecturers to teach students in English, but also the administrative parts by assigning designated staff in each department and administrative team and hiring new part-time staff at POSTECH Language Education Center.

"In order to globalize the campus, it is necessary to create an environment for the foreign professors and students to feel comfortable communicating," President Baik said in his interview with the press, adding, "For a Korean university, it is an unavoidable step in its growth to overcome the language barrier. Quality of education comes from the professors, and to attract world-class scholars, it is our job to make the campus open to foreigners."

Other universities in Korea have put many different efforts to make their campuses global by expanding the amount of English lectures and inviting international professors. However, this is the very first attempt for a university to announce a bilingual campus and change its policy to use both languages, even in the administration.



Professor's View on the Globalization of POSTECH

I joined POSTECH last year as a full time professor in the new Division of Advanced Materials Science (AMS) which was opened through the Korean government supported World Class University (WCU) Program. It has turned out to be a wonderful opportunity for me to get to know the Korean people and understand their culture, history and food.

Seeing is believing. Experiencing the real world in Korea is exciting and somewhat different from what I had heard before coming here. I believe you will find lots of people who feel the same as I. I can imagine that studying here must be a great adventure for young foreign students. They may feel a lot of anxiety, pressure to adjust to a new environment, as well as curiosity to explore the new world of hope.

The POSTECH Globalization Program (GP) is meant to make our campus bilingual, and this can be started by teaching the Korean language to the foreigners and the English language to the Koreans on campus. It will give all of us a better understanding of each other, and decrease the barrier between Koreans and foreigners. From my experience, if the Korean language classes are flexibly offered to the new comers, it would be very useful. I took a beginner's class last semester. However, it was difficult to attend classes regularly because of many business trips. Teaching Korean may seem contradictory to the GP, but in my opinion, it is the most effective way to bring people of different races under one roof. It will help foreigners communicate with Korean people outside the campus during their stay in Korea.

However, first of all, understanding each other via face-to-face communication is important in order to establish a comfortable life. At the same time, we should provide different levels of English classes for the Korean students depending on their ability. This will help them prepare themselves for the outside world, allow them to help the foreign students, and enhance the university image towards globalization. In some cases, the language barrier puts off non-Korean people from



Professor Masaki Kawano

Division of Advanced Materials Science
Tel: +82-54- 279-8740 Email: mkawano@postech.ac.kr

coming here. At the University of Tokyo, we started such English classes several years ago, which have become very popular among students and young faculty. The University of Tokyo made a contract with a private English academy to provide additional English classes on campus. It clearly increased students' motivation for learning English. Interestingly, I often see, in downtown Pohang, some young Korean students in elementary to high schools, trying to speak to foreigners in English, probably because of their English curriculums in school. Unfortunately, I myself never had such an experience, because I look just like a Korean.

Another important factor for the high quality of life is food. Personally, I love Korean food. However, I notice that many foreigners have a problem eating Korean food. There are not many fusion or western style restaurants around campus. It will be wonderful if we can eat some dishes of Indian, Thai, Chinese, Japanese, Italian, and French cuisines for reasonable prices on campus.

In Japan, I used to teach typically 50 to 100 students in a class. I never imagined that I would ever live in Korea and teach classes in English. I had been a little nervous about that, but actually, I find teaching small classes a lot of fun because it is possible for the lectures to be

interactive. I work with a Korean TA for my classes. My TA gathers questions from students after class and asks them to me for the students. My TA is a kind of interpreter for me. Through this experience, I realize that TAs can play an important role for foreign professors. At the same time, it is an opportunity for the TAs to learn more. This is true for my research group, too.

The situation of science in the world has totally changed in the past ten years because of the political strategies of some Asian countries. In the Asian countries such as Singapore, Taiwan, and China, huge money has been invested to recruit brilliant foreign students and faculty from all over the world. Globalization of campuses has already been started as national projects in these countries. Just like the economy, the balance of the world's scientific power will change in the coming ten years.

In this sense, globalization of the campus is truly a way to go in order to upgrade POSTECH. It is essential to provide a world-class education and research environment for talented students in order to make the GP attractive. A key to the success of the GP is to understand one another, and express and exchange thoughts through communication. At the same time, we need to consider the balance between Korean and foreign students. Everybody must be happy with the GP. It should not be just a passing vogue. I have seen many cases where foreign students in Japan become great professors in their own countries. Fortunately, many of them are still big fans of Japan. I truly hope that the Korean and foreign students at POSTECH spend a wonderful time during their campus life. Especially, I am sure that many foreign students at POSTECH will be great leaders in their own countries, spreading the name and fame of POSTECH. Although they will be leaving our campus in several years, their footprints at POSTECH will NEVER disappear. They can be the greatest supporters of Korea. Let's establish the Korean-style Globalization Program.

Mussel Adhesive Protein with Improved Property Developed



Professor Hyung Joon Cha

Division of Molecular and Life Sciences

Department of Chemical Engineering

Tel: +82-54-279-2280

Fax: +82-54-279-5528

Email: hjcha@postech.ac.kr

Professor Hyung Joon Cha (Department of Chemical Engineering) and his team have succeeded in developing a highly condensed liquid bio-adhesive material based on the mussel adhesive proteins (MAPs) by complex coacervation, which shows superior adhesive properties. Recently, MAPs found in byssus of mussel, have come to be recognized as useful biomaterials for direct use as bio-adhesives in medical applications and in the engineering of new marine-inspired adhesive materials. As purified natural MAPs are difficult to obtain, it has not been possible to experimentally validate the complex coacervation model from mussel, which make the results more valuable and remarkable.

Professor Cha's team has used the characteristics of mussels that grow attached on boulders as secreting adhesive proteins. Byssus is composed of byssal thread and plaque in edges. MAPs exhibit both non-toxicity and strong attachment to any type of inorganic or organic surface in a wet environment. Various type of MAPs has been defined by fp, abbreviation for foot protein, and types 1 (fp-1), 3 (fp-3), and 5 (fp-5) MAPs have been extensively studied. However, the details of the adhesion process, including condensation of MAPs in vacuoles, and secretion as a watery liquid but with no dispersion into the surrounding water, have remained poorly understood. The team has already been able to solve the problem of getting the materials by complex coacervation.

In the present study, the team investigated the formation of complex coacervates using hybrid MAPs (fp-151 and fp-131) and hyaluronic acid (HA). A coacervate is a tiny spherical droplet of

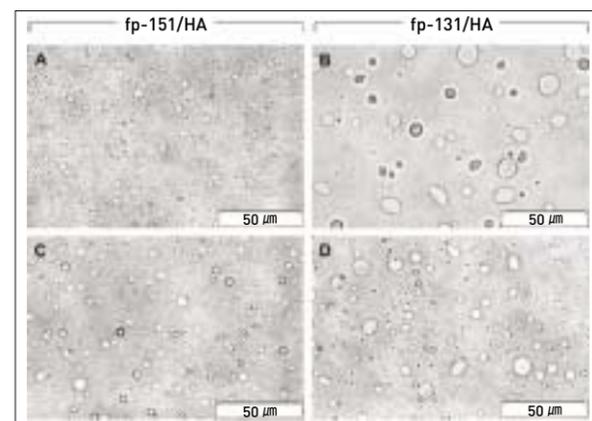


Figure above shows light microscopic morphology of complex MAP/HA coacervates.

assorted oppositely charged polymers which are held together by electrostatic interaction.

Complex coacervation refers to the phase separation of a liquid precipitate when solutions of two hydrophilic colloids are mixed under suitable conditions. HA is an anionic polysaccharide that contributes to cell production and migration as one of the major components of the extracellular matrix, and is found in all tissues and body fluids of vertebrates, as well as in some bacteria. In addition to those, microencapsulation of oil particles was performed using complex coacervation to demonstrate potential application in the field of adhesive drug carriers.

This microencapsulation system could be effectively used in the development of new adhesive biomaterials. It includes self-adhesive microencapsulated drug carriers for biotechnological and biomedical applications such as bio-cosmetic products and food additives. "Through this research, we have developed a bio-adhesive material with extraordinary physical characteristics, and it is significant that we have found the mechanism of mussels' secretion of concentrated adhesive substance. We believe this has opened various possibilities of utilization of bio-adhesive materials," commented Professor Cha.

The results of the study were published in the March 1, 2010, online issue of Biomaterials, the May issue of the journal Biomaterials. This work is supported by the National Research Laboratory program and the Brain Korea 21 program from the Ministry of Education, Science and Technology, Korea.

Stencil Techniques to Fasten the Realization of the in Vitro Liver

Professor Jaesung Park (Department of Mechanical Engineering) and Korea-America co-research team including medical school of Harvard University have succeeded in observing the mutual interaction between the layers of primary hepatocyte (liver) cells and non-parenchymal (functional) cells created by the stencil created by the microfabrication techniques.

To treat damaged or diseased liver tissue, hepatic tissue engineering has been studied as a new therapeutic approach. The reconstruction of functional hepatic tissue mainly depends on the ability to control factors that influence the cell environment, including cell-matrix interactions, soluble stimuli, and cell-cell interactions. Among those, cell-cell interactions play a critical role, but it has known to be hard to culture the primary hepatocyte which functions properly.

By the conventional methods, the researchers tried to observe the interactions between the hepatic tissue cells cultured on the plain culture dish in controlled environment. However, this method has a critical limitation that hepatic functions change when the cell's location changes. The team of Park created a stencil plate by the feeder layers using microfabricated polydimethylsiloxane (PDMS). Increasing the heterotypic interface using the layered cell patterning technique in micropatterned hepatic co-cultures significantly enhances the liver-specific functions of hepatocytes, including intracellular albumin staining, urea synthesis,

albumin secretion, E-cadherin expression, and glycogen storage.

To assess the hepatocellular characteristics of micropatterned hepatocytes, they evaluated morphologic, phenotypic, and functional characteristics of hepatocytes patterned in single culture and when co-cultured on fibroblast feeder layers. The sequence of micrographs in Figure 1 illustrate step-by-step how the two different micropattern configurations were generated using the PDMS stencil with hepatocyte cells (in pink) and non-parenchymal (in green) cultured at the same time.

The results of the study showed that multidimensional interactions between cells are happening, and they found that more active interactions than of the previous method. They also succeeded to demonstrate uniform intracellular albumin staining and E-cadherin expression, increased liver-specific functions, and active glycogen synthesis in the hepatocytes when the heterotypic interface between hepatocytes and fibroblasts was increased by the layered patterning technique.

"This patterning technique can be a useful experimental tool for applications in basic science, drug screening, and tissue engineering, as well as in the design of bioartificial liver devices," Professor Park commented.

The results are published on the issue of January 2010, Bio Techniques.



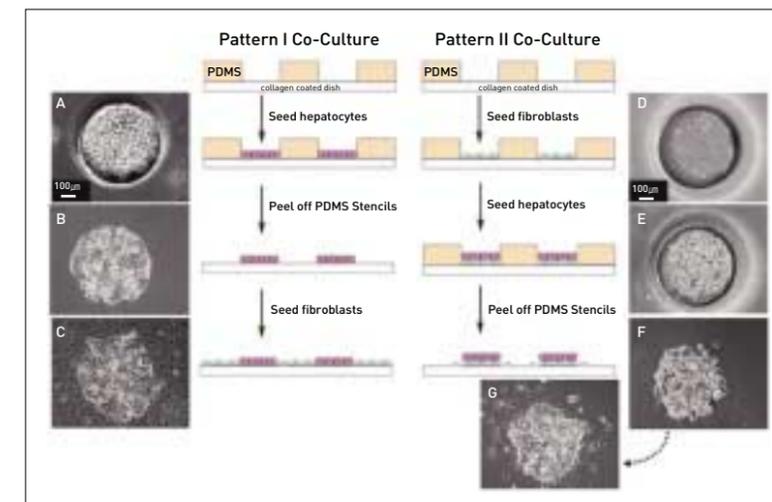
Professor Jaesung Park

Department of Mechanical Engineering

Tel: +82-54-279-2188

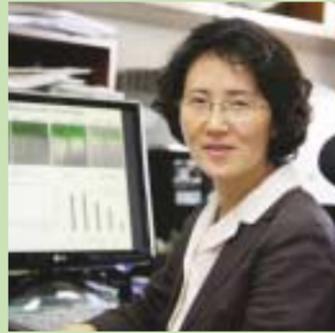
Fax: +82-54-279-5899

Email: jpark@postech.ac.kr



Pattern I (on the left) shows cultivation on flat, and the Pattern II (on the right) shows cultivation in layers.

A Transporter ABCG40 Mediates Cellular Uptake of the ABA, the Drought Resistance Hormone



Professor Youngsook Lee

Division of Integrative Biology and Biotechnology
 Department of Life Science
 Tel: +82-54-279-2296
 Fax: +82-54-279-2199
 Email: ylee@postech.ac.kr

Professor Youngsook Lee (Division of Integrative Biology and Biotechnology) and her team have found a transporter carrying abscisic acid (ABA), a stress hormone, synthesized in plants undergoing stresses like extreme climate or salinity. Their results integrate ABA dependent signaling and transport processes, and it is expected to open a new venture for the engineering of drought-tolerant plants.

They have succeeded to find the existence of transporter ABCG40 that can transport ABA, a hormone known to be produced in responses to environmental stress such as extreme temperatures, high salinity, or drought and plant pathogens. In both animals and plants, hormones are known to play essential roles in the regulation of growth, development, and environmental response, and they are circulated throughout the organism in part by the extracellular fluid. Plant hormones are known to be transported over long distances, such as auxin and ABA. These two are weak acids, and thus, they exist in either protonated, uncharged or in anionic forms depending on the prevailing pH. In drought condition, the pH of plant extracellular fluid increase. Therefore, for effective transportation of anionic forms ABA into the cells, plant needs protein carriers.

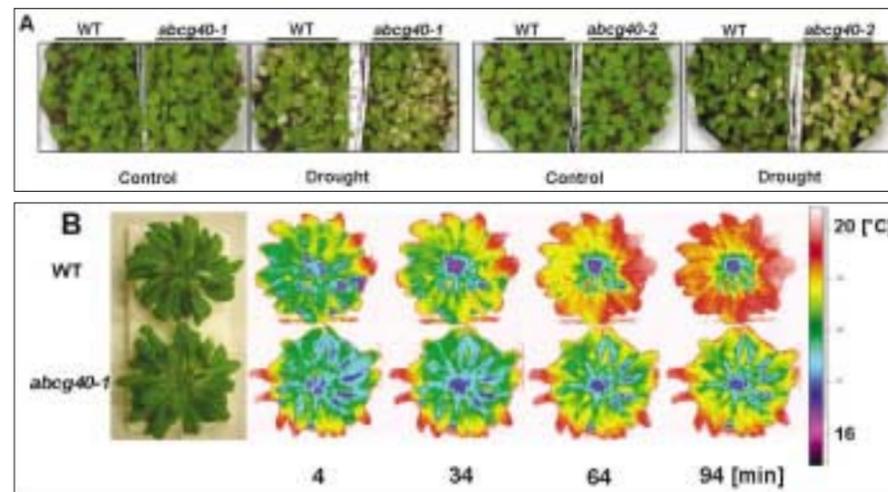
For ABA to be able to protect a plant, it should be imported inside of the plant cell, but no transporter has been identified before. The ABCG40 proteins that absorb ABA quickly into cells, and it activates stress-tolerant

genes inside cells. Drought-stress experiments provided further evidence that AtABCG40 is integral to stress tolerance. Plants were grown for 2 weeks under standard conditions, and water is subsequently withheld. Leaves of the two mutant lines (*abcg40-1*, *abcg40-2*) withered faster than those of the wild-type (WT) plants (see figure A).

Stomata of *abcg40* plants are less sensitive to ABA. In figure B, the delayed elevation of leaf temperature after ABA treatment of *abcg40* plants was compared with wild-type (WT). Leaf temperature was monitored using an Infrared Thermal Imaging Camera.

Considering the fact that the rapid adjustment to a stress, such as drought stress, is a prerequisite for plant survival, these results have significant potential to further applications. "This finding of uptake process of ABA and the crucial role of the transporter ABCG40 may help develop a plant that is adaptable to the extreme conditions of environmental stresses," Professor Lee commented.

Professor Enrico Martinoia, a renowned professor in the field of plant ABC transporters from Switzerland, has participated in this research. The results are published on the January 18 issue of Proceedings of National Academy of Science of USA (PNAS). This research is supported by the Ministry of Education, Science and Technology, and National Research Foundation of Korea.



Professor Won-Ki Hong Elected IEEE Online Content Director

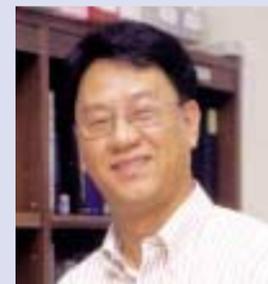


Professor Won-Ki Hong (Department of Computer Science and Engineering, Division of IT Convergence Engineering) has been appointed as Online Content Director at the Board of Governors Meeting of Institute of Electrical and Electronics Engineers (IEEE) Communications Society, held in Hawaii, USA, in December 2009.

IEEE is an international non-profit, professional organization incorporated in the State of New York, USA, and the largest technical professional organization in the world with more than 395,000 members in around 160 countries. As Online Content Director, Professor Hong will be in charge of directing all online services such as the digital library, online publications, and so on.

Professor Hong has been very active as a program committee member and organizing committee member for IEEE CNOM sponsored symposiums such as NOMS, IM, DSOM and APNOMS. He has served as Technical Chair (1998-2000), Vice Chair (2003-2005) and Chair (2005-2009) for IEEE Comsoc Committee on Network Operations and Management (CNOM). He joined the Department of Computer Science and Engineering at POSTECH in 1995. He also serves as Head of the Division of IT Convergence Engineering.

POSTECH Team Wins APIEMS Best Paper Award



Professor Kwang-Jae Kim (Department of Industrial and Management Engineering) and his team won the Best Paper Award at the Asia-Pacific Industrial Engineering and Management Systems (APIEMS) held on December 14 to 16, 2009, in Kitakyushu, Japan.

The winning paper, titled, 'Ideation Support System for Product-Service System Development,' was coauthored with Professor Yoo Suk Hong (Seoul National University) and Professor Kwang Tae Park (Korea University), presented a systematic guideline to support the idea generation for new product-service systems (PSS). The models and strategies of about 90 existing PSS cases were analyzed, and the

insights extracted from the analysis are used to facilitate the idea generation process. The generated PSS ideas are expected to serve as the basis for developing new PSS concepts as well as a stepping stone for further, in-depth research on PSS which has been understudied so far.

The APIEMS is a conference that aims to provide a forum for exchange of ideas on the latest developments in the field of industrial engineering and management systems among researchers and engineers of universities and industries, creating opportunities for collaboration among the participants.



Professor Han Woong Yeom Becomes APS Outstanding Referee



Professor Han Woong Yeom has been selected as the 2010 “Outstanding Referee” by American Physical Society (APS), which is given to recognize scientists who have contributed to the development of physics by assessing manuscripts for publication in the APS journals.

It is exceptional for such a young professor to be selected as the Outstanding Referee, which is considered to be one of the highest honors for physicists. Professor Yeom has received his doctorate from Tohoku University, Japan, and is acknowledged as one of the world’s leading authorities in surface and nano-physics.

APS’s appreciation of the efforts of these Referees not only keeps the standard of the journals at a high level, but in many cases, also helps authors improve the quality and readability of their articles, even of those that are not published by APS. The highly selective Outstanding Referee award annually recognizes about 150 of about 45,000 currently active referees. The honorees are selected based on the quality, number, and timelessness of their reports, without regard to APS membership, country of origin, or field of research, and it is a lifetime award.

Professor Sang-Wook Cheong Receives McGroddy Prize

Distinguished Professor Sang-Wook Cheong (Department of Physics) received the James C. McGroddy Prize, becoming the first Korean recipient of the Prize. Professor Nicola A. Spaldin of the University of California, Santa Barbara, and Professor Ramamoorthy Ramesh of the University of California, Berkeley were the other recipients honored at the American Physical Society (APS)’s March Meeting held in Portland, U.S.

Professor Cheong was recognized by the Prize Committee for his “groundbreaking contributions to the advancement of the understanding and utilization of multiferroic oxides, both in theory and experiment.” So far, he has published about 500 SCI level theses including 7 in *Nature* and 2 in *Science*.

Professor Cheong obtained his bachelor’s degree in mathematics from Seoul National University (1982), and a Ph. D. in physics from the University of California, Los Angeles (1989). He worked at Los Alamos National Laboratory (1986-1989), and was a member of technical staff at Bell Laboratories. Since 1997, he has been a professor at Rutgers, The State University of New Jersey. He became the founding Director of Rutgers Center for Emergent Materials. His field of specialty is the physics of complex oxides, including multiferroics, colossal magnetoresistive oxides and high T_c superconductors. Professor Cheong became a Fellow of the APS in 2000, and has received a number of awards. He is currently a Divisional Associate Editor for *Physical Review Letters*, and a Distinguished Visiting Scholar at the National Synchrotron Radiation Research Center, Taiwan. He has been a Distinguished Professor at POSTECH since 2006.

The McGroddy Prize was established in 1997 by the APS. It was named after James C. McGroddy, who was the winner of the APS’s George E. Pake Prize in 1995, and the Vice President of IBM. It has been awarded annually, and currently comes with a cash award of \$10,000. It is known as one of the most honorable awards given by the APS along with the Olive C. Buckley Prize. Sixteen percent of the recipients have received Nobel Prize.



POSTECH Student Awarded at TMS Annual Meeting

Mr. Ji Hoon Yoo (Department of Materials Science and Engineering) received the Best Poster Gold Medal Award at the 6th International Symposium on Ultrafine Grained Materials (UFG-VI), one of the biggest symposiums of the Minerals, Metals and Materials Society (TMS) Annual Meeting, which was held in Seattle, USA, on February 15 to 17, 2010. The meeting was an outstanding success with a total of 175 abstracts received, an all-time record for a TMS symposium.

Mr. Yoo proposed a new evaluation method for property of matter without an experiment using the Finite Element Method, after executing experiments and simulations of Equal Channel Angular Pressing through his award winning paper titled, ‘Analysis of Post-Equal Channel Angular Pressing Behavior by the Finite Element Method.’ It drew attention by suggesting such simulation for the first time in the field.

The TMS is the biggest professional organization for materials scientists and engineers, encompassing the entire range of materials engineering, from minerals processing and primary metals production to basic research and advanced applications of materials. While TMS is headquartered in the United States, its scope is international in both membership and activities, which include nearly 10,000 professionals and students from over 70 countries of 6 continents.



APBioChEC ‘09 Awards POSTECH Student



Mr. Sang Woo Seo (Department of Chemical Engineering) won the Best Student Poster Award in the division of System Biotechnology/Metabolic Engineering in the Asia-Pacific Biochemical Engineering Conference 2009 (APBioChEC ‘09) held on November 24 to 28, 2009, in Kobe, Japan.

Mr. Seo was awarded the honor for his paper titled, ‘Synthesis of post-transcriptional modulator for fine-tunable expression.’ This winning paper drew attention for suggesting new methods of controlling the amount of translation of the DNA of colon bacillus into the protein after its transcription to messenger RNA, which carries coding information to the sites of protein synthesis: the ribosomes. This research is expected to be used in pharmaceuticals and biochemical industry, providing one of the fundamental tools for synthesizing a living organism with the new metabolism.



APBioChEC is a conference for the delegates from the Asia-Pacific region to exchange new ideas and application experiences, establish business or research relations, and to find partners for future collaboration in the field of biotechnology and biochemical processes. APBioChEC 2009 was the 9th of the conference series since its inauguration in 1990 in Kyungju, Korea, with the title of “Biotechnology for Sustainable Development.” The conference has been a platform for efficient exchange of the latest research results in many branches of sciences related to biotechnology.

POSTECH Ranks Best in Patent Power in Asia

UNIVERSITIES/EDUCATION/TRAINING											
RANK	UNIVERSITY/ORGANIZATION	COUNTRY	2009 U.S. PATENTS	PIPELINE GROWTH	PIPELINE IMPACT	SELF-CITING	ADJUSTED PIPELINE IMPACT	PIPELINE GENERALITY	PIPELINE ORIGINALITY	PIPELINE PEOPLE	WEIGHTED PIPELINE POWER
1	University of Texas, U.S.		112	1.24	1.04	22.0%	1.54	1.80	1.73	467	467
2	University of California, U.S.		271	1.08	1.05	15.1%	1.05	1.40	1.05	469	449
3	University of Central Florida, U.S.		58	1.27	1.19	22.9%	1.49	1.31	1.76	452	452
4	Iowa State University of Science and Technology, U.S.		32	1.07	1.20	13.7%	1.20	1.07	1.83	444	444
5	University of Washington, U.S.		54	1.15	1.05	36.2%	1.44	1.75	1.34	476	375
6	State University of New York (SUNY), U.S.		59	1.27	1.12	8.1%	1.11	1.81	1.74	352	352
7	Tulsa University, U.S.		14	1.05	1.08	21.2%	1.09	1.13	0.91	354	334
8	University of Wisconsin, U.S.		119	1.11	1.04	18.2%	1.04	1.15	1.52	385	285
9	Northwestern University, U.S.		39	1.16	1.17	26.4%	1.47	1.85	1.59	378	278
10	Virginia Polytechnic Institute and State University, U.S.		38	1.15	1.18	8.7%	1.18	1.42	1.85	358	258
11	California Institute of Technology, U.S.		83	0.86	1.02	12.3%	1.02	2.51	0.53	351	251
12	Massachusetts Institute of Technology, U.S.		141	1.01	1.08	18.8%	1.08	1.41	0.30	379	179
13	Stanford University, U.S.		123	0.92	1.22	11.2%	1.22	1.83	0.75	395	195
14	University of Colorado, U.S.		27	0.86	1.18	25.2%	1.18	0.90	0.82	363	163
15	Rice University, U.S.		38	0.75	1.19	26.1%	1.19	0.86	0.66	354	154
16	University of Massachusetts, U.S.		44	1.17	1.23	18.1%	1.23	1.85	0.90	349	149
17	Purdue University, U.S.		47	1.14	1.19	18.3%	1.19	1.75	0.59	341	141
18	University of Oxford, United Kingdom		19	1.15	1.17	13.5%	1.17	1.23	1.82	325	125
19	Pohang University of Science and Technology, South Korea		33	1.07	0.95	1.2%	0.95	0.88	2.85	334	134
20	University of Maryland, U.S.		38	0.91	1.12	6.0%	1.12	1.63	1.48	320	120

POSTECH became the first and only Asian university to be ranked within the top 20 universities around the world for its patent power. The journal *IEEE Spectrum* released its 2009 rankings of patent power, based on the number of patent applications made throughout the year. There are only two non-U.S. universities among the top 20, demonstrating the great strength of American universities, and POSTECH ranked the 19th, following the University of Oxford, UK, the only other non-U.S. university.

Especially in the “Pipeline Originality” indicator, POSTECH received the highest points (2.85) among the top 20 universities. The “Pipeline Originality” indicator measures the variety of technologies upon which an organization’s patents are built, based on the concept that inventions created by combining ideas from several different technologies tend to be more original than those which are incremental improvements upon the same technology.

The average score of 1.0 was assigned to all patents from the same year and class, scores above 1.0 showing outstanding performance on the given metric.

“To be recognized original demonstrates the researchers’ lead in their fields,” President Sunggi Baik said, adding, “Going further from here, we will make every effort to have more powerful and compatible ability in every research field.”

The survey was conducted for *Spectrum* by 1790 Analytics in Mount Laurel, U.S., a research firm specializing in patent citations analysis. The company evaluated 1,027 organizations with the most influential and potentially-productive patent portfolios. The number of U.S. patents obtained in 2009 was counted to derive an organization’s overall Power score. To avoid statistical anomalies, only organizations that were awarded 25 or more patents in 2009 were considered. The organization’s patent count was then multiplied by the product of four variables of Pipeline Growth, Pipeline Impact, Pipeline Generality, and Pipeline Originality.

The survey was conducted in different classes including industries, and in the University/Education/Training class, the top 5 were universities of Texas, California, Central Florida, Iowa State, and Washington.

Tenure System Revised: Stricter Standards for Life Tenure

The POSTECH tenure system is undergoing a major transition in an effort to further improve the quality of faculty as well as keep up with systems of other top universities around the world. As the result, POSTECH professors will now face a tougher screening for life tenure.

Until now, junior professors without life tenure could still sign new contracts for seven-year terms and stay on as assistant professors. Under the new tenure system, junior professors must get evaluated for life tenure within the first seven years of employment. When evaluated unsatisfactory, they must leave school on one-year probation.

Unlike the existing system, associate professors can now establish tenure earlier in their careers, on an average of four years from the start of their employment. As the result, professors with tenure can maximize their capabilities in a more stable environment, and the untenured faculty can venture for a new career at an early stage. Newly tenured teaching staff will be provided with exceptional support of the university, in terms of research expenses and resources.

In addition to the time limitation, much stricter an evaluation is to be applied, which includes a comparative assessment of talent and achievements against those of 3 to 5 professors of the world’s top 20 universities in the related field. Faculty evaluation by students and alumni, which had been conducted once a year, will now be done twice a year. Those with top evaluation results will receive more research funding as well as financial support for international activities. This reformed system is identical to that of Harvard University.

“Professors displaying their abilities on education and research at their best are the key for a university’s growth,” President Sunggi Baik said. “By applying the new tenure system, we expect to see young and talented professors be able to better concentrate on their main responsibilities of education and research. Moreover, we will place a great weight on each faculty member’s potential to grow rather than focusing on the short-term performance, allowing for a huge change to take place in the faculty community.”



The 2010 Matriculation and Bilingual Campus Declaration Ceremony Held



The 2010 Matriculation and the declaration of Bilingual Campus with both Korean and English as official languages were celebrated in the ceremony held on March 2, 2010, in the university auditorium, with 868 new undergraduate and graduate students joining the occasion.

Three hundred and seven bachelor's, 203 master's, 105 doctorate and 255 integrative program candidates have officially become members of POSTECH through the matriculation ceremony. And with the official launch of the Bilingual Campus, all lectures, meetings and administration related activities are to be conducted in both Korean and English.

This year's matriculation was particularly meaningful in that the 307 freshmen were selected by POSTECH's new admissions procedure called the Admissions Officer System, which places an emphasis on the individual's unique talents and aptitudes over their test scores. The new system, now prevailing in Korean higher education, was practiced at POSTECH for the first time, the 307 students being the very first products.

In his matriculation address, President Baik stated, "Using English as another official language on campus is the first step POSTECH needs to take in order to develop into a real world-class university." President Baik added that POSTECH faculty and staff

members would devote all energy to providing full educational support and sufficient welfare benefits to future global leaders. President Woo Hyun Paik of LG Electronics was invited to give a congratulatory speech, in which he addressed the virtues desired of global leaders in today's society.

New Partnership with India: Great Potential Lies Ahead



President Sunggi Baik and IIT Delhi Deputy Director M. Balakrishnan.

President Sunggi Baik, accompanied by Dean of Admissions Moo Hwan Kim, Head of Mathematics Department Hyungju Park, and Manager of International Relations Office Jung-Hee Yang, visited India on April 5 through 8, acting upon POSTECH's growing interest in the great potential of cooperating with India and its top universities.

During the visit, collaboration agreements were signed with Indian Institute of Technology (IIT) Delhi and IIT Madras. The scope of the newly established partnerships includes joint research, combined conferences, workshops and courses, as well as exchange of faculty, staff and students.

In addition to meeting with the leadership of both IITs to discuss potentiality and plans for future cooperation, the delegates visited

individual departments of their specialties, materials science, mechanical engineering and mathematics, to get a better glimpse of ongoing educational and research activities, share the two universities' curricula, as well as explore ways to collaborate on the departmental level.

President Baik and the delegation also visited Banaras Hindu University (BHU), one of the most prestigious universities in India, located in the historic city of Varanasi. In addition to senior administration officials, over 100 students and faculty of BHU's Institute of Technology gathered in the Senate Hall for an interaction meeting with the POSTECH delegates.

To the enthusiastic audience, President Baik gave a lecture titled, "Global Issues and Challenges for Research Universities in 21C," in which he addressed the common concerns research-oriented universities are faced with in this age, and the ways to overcome the challenges and carry out the responsibility of leading the future.

Students were also greatly interested in Professor Kim's presentation on introduction of POSTECH as well as information on its various programs and admissions.

As India moves forward, with its 1.2 billion population and its economy growing and technology advancing, it has become one of the most attractive collaboration partners. The visit is anticipated to have opened the gate to vast possibilities of joining hands with the world renowned institutes of India. In further efforts to strengthen ties with Indian universities and recruit excellent Indian students, establishment of a POSTECH overseas office in Delhi is being considered.

Art Gallery Café 'Monet' Open



An art gallery café, *Monet*, designed to function as an art center as well as a lounge, has been opened in the Jigok Community Center. *Monet*, whose name derives from the French artist Claude Monet, one of the founders of French impressionism, will hold as many as 2 to 3 exhibitions a month, spanning various genres.

Mr. Su Gil Kwon, Director of the POSTECH Service Center, plans to develop the café into the center of art and culture for the campus community. "As science and art are closely related in that creativity lies in their base and core, I believe that the café and its artwork could inspire our students," he commented.

The gallery café is open from 10am to 2am, and between 10am and 9pm on weekdays, professional baristas are available to serve drinks at reasonable prices.

Wie Gehets! Ich bin Berliner!

Young-sup Kim

Department of Industrial Management Engineering
Senior



What is your image of Berlin? Maybe, you might first think of the capital of Germany. Then what about it? Germany was divided into two parts: East Germany and West Germany. Unlike the capital city of Korea, Berlin was also divided accordingly, to the East and West Berlin. A lot of students from Korea backpack and leave to Europe, but they are mostly attracted to the famous cities like Paris, Rome and London. To the most backpackers, Berlin is a city that was once divided as current Korea, and it has 'Berlin Wall'. It also has some great beers and sausages, but Munchen is more famous for

their 'October Fest'. Berlin seems to be a great attraction to those who are seriously interested in history, but for the most people, it may be just another city in Europe, and for me, too. When I was traveling Europe 2 years ago, I stayed in Berlin only for 3 days and it was not really impressive. Only impression that I got was, "Wow! Nice railway system and many bikes!" However, after 6 months in Berlin, I am sure that now I can fill out the whole newsletter with my impressions on it.

My story goes back to April of 2009. I was seeking for an opportunity to go abroad. I had already been to United States by the summer session program. I had always been interested in the exchange program, but I was not sure where to go. All I wanted to do was get a chance to study more about the business administrations. All sister universities of POSTECH seemed to be offering nice courses with pretty good reputation. A week before I made my decision, I met Jessica who was an exchange student from TU Berlin. She is a Korean-German who loves Korea. We had become good friends, and she helped me making my decision. Well, Berlin, here I come!

During the spring semester, as I was preparing buying plane tickets and selecting courses in TU Berlin, I was getting more and more excited. By the time when the summer was just around

the corner, my heart was beating so fast that I could feel the excitement. On first day of September, I finally arrived at Berlin. The city was just like the two years ago, and I was surprised that everything felt so familiar to me.

Though semester actually started in the middle of October, a lot of students were already there to attend the German language course offered by University, and the International relation office was arranging the orientation sessions and 'break an ice' party. I still remember the orientation day. I expected a few numbers of exchange students thinking of POSTECH, but the main hall was filled with so many students from so many countries. The International relation office prepared many activities to get students more close to each other. People sitting next were glancing at each other and started small conversations like, "Hey, I am so-and-so from so-and so. What's your name? What are you studying? Nice to meet you." The first friend I met was Andrea from Italy. There were many opportunity to meet new friends; they might be in your German class or they might sit next to you. I met some friends in my German class and some from the orientation session. Some of them were studying in the same field of mine. We exchanged phone numbers and Facebooks. What I really want to say is never be shy and just enjoy meeting new people.

When semester started, the introduction session was held for one week. Every course has to deliver the introduction session, so students can get to decide what courses they want to take. Andrea, the first friend that I met, was in the same major of mine, so we were exploring classes that seemed easier to take, and we even joined the football team together. As playing football, I could meet more friends and I also went to the parties that

the university threw for exchange students. The university arranged a party every weekend in the local clubs.

Speaking of football, our team was in the third division. Just like the Bundes-Liga, the German professional football league, Uni-Liga (University league) has all university football teams in Berlin from the first to the fifth division. Matches between the teams were held on every weekend. My team had never won a game, but I am sure if the students from POSTECH were on the team, we might have been in the forth division. We played as a team in the field, but after the game, we would argue about whose country is going to win at the World Cup. Those were fun and memorable moments.

When the real winter started in Berlin, I had a chance to meet students from the Korean community. They were 2nd generation Koreans and some were half German. Since we had one thing in common, Korea, we became close so fast. I taught them Korean and learned German from them. We spent some nights talking about their identity issues that they had when they were young. Sometimes, we argued since we did not understand each others' behaviors from different cultural backgrounds. We compared Korean and German cultures. When they introduced me some nice German music and movies, I showed them Korean movies. The funny thing was we communicated in English! Thanks to them, I did not have to be lonely during holidays that people normally spend their time with families. I was already part of their big Korean family in Berlin.

These things might make Berlin as a cool city but there are some more. Berlin is just like 80's New York, which means the city has given births to many contemporary arts and cultures. People there know how

to enjoy their lives and make it more colorful. Did you know that the electro music started in 70's right in Berlin? There is a nice bar with modern arts and cool DJs every block in the streets. Their arts and cultures were neither expensive nor fancy to enjoy. Those art works are made by students just like us. When Germany was reunified, the west part of Berlin was messy. Young and hungry artists came to the city and settled down in the destroyed buildings and street. Berlin itself became an inspiration for young artists, and the culture is mature now, but still active.

People might be curious about what I studied and what the courses are like. To be honest, I studied only the necessary parts of academy to enjoy the new culture more. I learned some precious lessons that cannot be taught in the classroom. One thing I realized when I was in POSTECH was that we are lack of emotions, cultural experiences, and broader worldviews. We can be more open-minded with a broader worldview. Why hesitate? There is a new world waiting for you. I sincerely appreciate POSTECH for giving me such a valuable opportunity and International Relations Office for their supports. I used to hate the winter due to the cold weather, but this was the best winter of my life.



Why Korea, Why POSTECH?

Regina Knobloch

Department of Materials Science and Engineering
Technical University of Berlin



“Why do you want to go to Korea?” Everyone was asking the same question when I decided to go to POSTECH. People in Europe don't really know that much about Korea, so they were totally surprised about my decision. Well, maybe I myself was surprised, too. Asian culture has always fascinated me, and I wanted to go to a special place, so I looked up partner universities of the Technical University of Berlin where I come from. When I found POSTECH, I got very interested in this dedicated university, and the more I read about it, the more I wanted to go. For me, I was especially attracted by its relevance with Material Science. If this university was founded by a big steel company, I thought they must have a good Material Science program.

So, I came as an exchange student for one year. One year full of wonders, strange things, a lot of helps, different ways of

studying and meeting great friends! Well, half a year has passed now, and I must say that I have not regretted at all staying one more semester. It needs time to understand even the tiniest part of Korean culture, to figure out all the names of Korean food, to be able to remember Korean names and several more things. So, for me, the first semester was dedicated to exploring Korea; I tried to travel as much as possible, I tried to learn Korean, I tried to get used to the food, to communicate, and I tried to get to know people. I am saying “tried” all the time because I wouldn't say everything was 100% successful.

Let's take the traveling first. During the semester, due to an interesting lab seminar on every Saturday morning, I couldn't go that far without spending a lot of money for just one day. Luckily, a good friend of mine from the dorm decided to

buy a car! So, as a small group of four or five people, we made a lot of trips around Pohang. I have to admit that we were very fortunate not to get in a car accident. Korean traffic, especially in Pohang, is always a little bit dangerous. So, I don't think I will ever again ride on a car driven by a driver who just got his license one week ago which I did at the beginning of my stay here.

What happened to my Korean language skills? Well, I learned some Korean half a year in German, and half a year here at POSTECH. Now I can read, order things in a shop, say hello and goodbye, but that's about it. Learning Korean turned out to be much more difficult than I ever expected? especially the part of understanding! I always try to read signs and hoping to know what it means, and sometimes it makes me happy to realize that the word is just an English word written in Hangeul!

Let's talk about the most important thing in everyday life: the food. What is Korean (or, Pohang) food like? It is spicy. It is a lot of meat. It is Kimchi! When I first arrived, I was really curious about Korean food, because I liked it when I tried it in a Korean restaurant in Berlin. However, fork restaurants in other countries always taste a little different. My first meal was Korean barbecue, which was really good, but after a month, I started to get bored of similar menus in the cafeterias on campus. People who can't eat spicy food or a vegetarian friend of mine have had a hard time because of the food - eating Bibimbab every day. I am so glad to have a kitchen in our dorm! I personally got somewhat used to Korean food, but many people in the dorm rely on that kitchen, not to mention the fun cooking with people from other countries.

I am living in DICE, the Dorm for International Cultural Exchange, which I really love. Foreigners and Koreans are living together and next to each other here. I have never had such a nice atmosphere and interesting people around me before. Generally on the campus, it is hard to get in touch with other students -

everyone is busy, has a meeting, or simply doesn't feel that comfortable with speaking in English. Though my lab mates try hard to be friendly to me practicing their English, the lab is still a place to work for me. Whereas, DICE is a place that I feel like home: everyone is greeting each other, thousands of opportunities to get together, and whenever you have a problem, someone is there to help you. As I am living in a foreign country, there was many times I needed help - going to a doctor, getting medicine, or simply booking a flight or a bus ticket - I always got this help in DICE! Many programs offered by students and, especially, for students! Anyone can suggest good ideas, and anyone can participate, so the programs have a broad range: English tutoring, “Survival Korean,” designing, discussions, sports activities, or just drinking tea or beer together. Since the beginning of this semester, I have given a German class to people who showed their interest before, and learn how to teach by doing so.

During the winter, I tried to leave the campus for some time, and I traveled to some other parts of Korea. I noticed that the food definitely tastes different in other areas. The landscapes were really awesome, too, like that frozen waterfall I have been to. My mother and grandmother visited me, so I tried to show them what Korea is like which was hard only in 10 days! But as far as I know, they liked it. Especially my grandmother has never traveled before, so Korean culture might have been very new to her, such as eating raw fish, sleeping on the floor, being stared

at by some Ajummas and children, and so on.

Whoever is interested in experiencing Korea, as well as studying in small classes where you know your professors, and even they know you, should definitely think about coming to POSTECH. Pohang is neither New York nor Pohang is an industry-oriented city, mostly consisting of Posco, thus not really pretty. However, POSTECH is a very dedicated university to its future and to quality education, and it is developing rapidly. Exploring the whole Korean culture may take a lifetime, so you will never get bored. Take a new step of your life, be brave and figure out what Korea is like. That's why I came to Korea.

