



POSTECH Newsletter

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The cover picture shows the architectural view of a bacterial condensin.

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Twentieth Commencement Celebrated



the graduates with an address in which he acknowledged the accomplishment POSTECH has made in its short history of just a little over 20 years:

“ ... POSTECH has advanced into a leading institute of Asia and the world, now eyeing on a place in the world top 20 list, but the world has come down to a position where it is faced with an urgent predicament at the moment. ... There is a critical need to contemplate the frame of mind for the 21st century in order for you to become the academics that plan and create the new spirit.”

Chairman Ku-Taek Lee also delivered a speech in which he stressed the demand for advanced scientific technology:

“Technology of the highest level is compulsory in order for us to wisely overcome the current economic recession and become an advanced nation. I urge you to carry with you the pride and a sense of responsibility as Korea’s best talent, and to do your very best for the development of technology and the advancement of your country.”

Of the undergraduate graduating class, 12 were early graduates, 24 were conferred 2 degrees in their double majors, and 6 had successfully completed their minor requirements. All together, 12 foreign students were awarded degrees, including Liu Chao of China, who was conferred a Ph.D., and Annamalai Alagappan of India, who received a master’s degree.

This year’s top of the undergraduate graduating class was Sungjae Ha who scored a grade point average (GPA) of 4.21 out of the perfect 4.3, tying with the highest GPA in POSTECH history. Ha, who has been accepted to MIT as a graduate student, wished to thank his roommate’s father for helping him make out a concrete goal when he was studying hard, but blindly. “As I was able to grow through my time spent at the best educational institutes, POSTECH and Daegu

POSTECH celebrated its 20th Commencement on February 18, 2009.

Three hundred and fifty one bachelor’s degrees, 196 master’s degrees, and 156 doctorates were awarded during the Commencement exercises held at the University Gymnasium. With the newly conferred degrees, the accumulated number of degrees granted since the first Commencement in 1989 reaches the total of 12,199, with 4,676 bachelor’s, 5,916 master’s, and 1,607 doctoral degrees. Among the graduates who received their doctorates from POSTECH, 320 are currently employed as faculty at universities in Korea and around the world.

The 20th Commencement ceremony began at two o’clock in the afternoon. Observing the proceedings was a crowd of over 2,500 guests, which included President Sunggi Baik, Chairman Ku-Taek Lee, Founding Chairman Tae-Joon Park, Governor of Gyeongsangbuk-do Kwan Yong Kim, and Mayor of Pohang Seung-ho Park.

President Sunggi Baik, through his Commencement address, summoned the

graduates to strive to meet the challenges the current time is beset with, which can only be settled with complex and comprehensive knowledge and technology. He also emphasized the responsibility upon the graduates to share the fruits of their education with a wider humanity, through leadership and service:

“The problems facing the world today are no longer cleanly cut to fit specific spheres; the big, new and tangled problems such as energy and climate change call for the experts of different realms to come together and come up with a synthetic and systematic approach. ... The core of POSTECH education is to stimulate in students, through thorough learning of basic subjects and cultivation of communication skills, the ability to overcome the boundaries of fields and regions, and the fundamental capacity to tackle the universal issues with insight and courage.”

Founding Chairman Tae-Joon Park congratulated

Science High School, I would like to advise younger students pursuing a career in science and technology to try and study at excellent schools,” said Ha. When asked about the most memorable moment while at POSTECH, he answered, “I will never forget the 2006 POSTECH-KAIST Science War. I was in the baseball team which had gone through the toughest summer training camp in

preparation for the game. But we lost by a whisker. We were mortified and exasperated, and couldn't help crying.”

The Hogil Kim Award, presented to the esteemed student for bringing recognition and honor to the University, was awarded to Kuk-hyun Cho who, during his time at POSTECH, swept numerous

intramural and extramural programming and hacking competitions. Cho was also recognized for having made a huge contribution to the victory in the hacking competitions of the 2006 and 2007 POSTECH-KAIST Science War.

The best doctoral theses awards, the Sung Kee Chung Award for the science thesis and the Kun Soo Chang Award for the engineering thesis, were awarded to Woo Youn Kim of Department of Chemistry and Jung-Min Kwon of Department of Electronic and Electrical Engineering, respectively. The awards have been established by funds donated by Professor Sung Kee Chung of the Department of Chemistry and Professor Emeritus Kun Soo Chang of the Department of Chemical Engineering, both awards presented for the third time this year. The recipients Kim and Kwon plan to continue research as Postdoctoral Fellow at POSTECH, and join Samsung Electronics Research Institute, respectively.

DoHyeon Kim graduated with no less than 4 bachelor's degrees, leaving a definite mark in POSTECH history. His answer to the beyond impressive, seemingly impossible accomplishment: “Because it was fun.” Mathematics and chemistry had always interested him ever since high school, which was why he kept studying the fields along with his other major, life science. He added computer science and engineering to his series of specialties for more practical a reason. “In my freshman year, I took a class in which I studied papers one on one with the professor. Through that course, I realized that computer illiteracy can be an obstacle in research in any field, especially now that integrated technologies have come into the spotlight.” Kim plans to continue his studies at POSTECH School of Interdisciplinary Bioscience and Bioengineering (I-BIO), conducting gene research using computers to analyze the extensive data. But his ultimate goal doesn't halt at becoming the best life scientist. “I want to start a venture business, expanding a good item that I may come across in research. Or, Chief Technology Officer of a biotechnology company would be good, too. Research must not end in academics, but lead to technology development and commercialization, contributing to the betterment of the quality of life.”





Less than 2 weeks after the graduates were marched off to their buoyant futures, 840 new Postechians were welcomed into the community.

The Matriculation ceremony was held on March 2, at the Auditorium, with 1,000 guests and parents gathered. The newly entering student body included 305 freshmen, 225 candidates for master's degrees, 216 students in M.S.-Ph.D. integrated programs, and 94 Ph.D. candidates.

Among the new Postechians were 25 international students from 5 countries of China, France, India, Mexico, and Pakistan. Philippe Lavole drew particular attention; the French national had participated in an internship program at POSTECH in 2008, and returned, this time to pursue Master of Engineering in his field of Electronic and Electrical Engineering.

Two Identical twins were welcomed to POSTECH as well; Han Eol Kim and Han Gil Kim, who graduated from Youngju High School, both enrolled, in the Departments of Electronic and Electrical Engineering and Mechanical Engineering, respectively.

Also brightening the freshman class was Min-Woo Baek of Department of Chemistry. Baek, an early graduate of high school, taking only 2 years to master the 3-year curriculum, is a Charcot-Marie-

Tooth disease patient. The incurable genetic disease confines him to a wheelchair and makes it laborious for him to even hold a pen. But it didn't keep him from reading voraciously, learning English and memorizing Chinese characters, and studying college level chemistry books ever since he set his mind on POSTECH as his goal. Baek said that all areas of chemistry interested him and that he still had much to learn. "I got to where I am all alone, without getting any help of private educational institutes or tutors. Now, with the

guidance of excellent professors at POSTECH, wouldn't I be able to make even bigger accomplishments?"

In the Matriculation address, President Sunggi Baik encouraged the new students to follow the example of Founding Chairman Tae-Joon Park and engage themselves in "self-reflection and self-betterment to grow into worthy Postechians furnished with the qualifications of the global leader, serving the common good."



Consciousness versus Unconsciousness: Standard for Partition



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The way to prevent intra-operative awareness has been paved by joint efforts of medical science and physics.

Intra-operative awareness, familiarized through some thriller movies, is a unique physiological phenomenon which causes the patient under general anesthesia to recover consciousness during surgery. The patient experiencing intra-operative awareness may feel the pain or pressure of the surgery, hear conversations, or feel as if he cannot breathe, but may be unable to communicate any distress because he has been given a paralytic or muscle relaxant.

Professor Seunghwan Kim (Department of Physics), in a joint research with Doctor UnCheol Lee of University of Michigan, who is a POSTECH graduate, and Professor Gyu-Jeong Noh of Seoul Asan Medical Center, has demonstrated the mechanism behind loss and recovery of consciousness through anesthesia, and detected the exact moment when a subject loses consciousness after being administered an anesthetic.

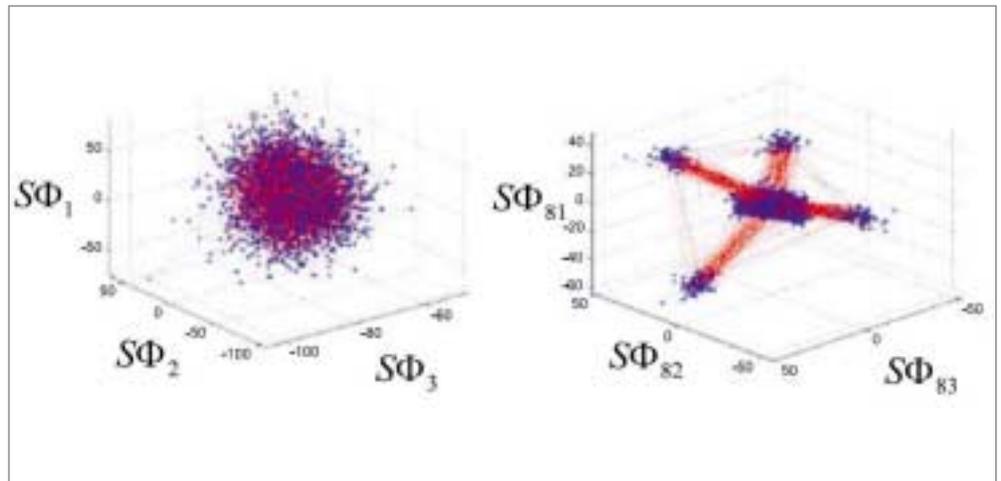
Utilizing the analytic method called nonlinear dynamics which is used mainly to identify complex physical phenomena, Professor Kim's team investigated the functional organization of brain activities in the conscious and anesthetized states.

Recordings were obtained from 14 subjects who underwent induction of general anesthesia with propofol, and in the analysis, the team demonstrated that loss of consciousness is reflected by the breakdown of the spatiotemporal organization of gamma waves, and that induction of general anesthesia with propofol reduces the capacity for information integration in the brain. Additionally captured was the moment the amount of information going from the frontal to the occipital lobes rapidly

dropped, which coincided with loss of consciousness.

The data congregated through the research directly supports the information integration theory of consciousness and the cognitive unbinding paradigm of general anesthesia.

The results of the study were published in the November 20, 2008 online issue of *Consciousness and Cognition*.



1. Two trajectories composed of higher ranked (upper figure) and lower ranked (lower figure) electroencephalography [EEG] complex sets show distinctive transition processes.

MASAM 1.0 Introduced

A multi-platform supporting mobile applications software development environment technology has been developed. More than 30% of current development effort is expected to be saved through the new environment.

Professor Kyo-Chul Kang (Department of Computer Science and Engineering) and his research team have joined efforts with Electronics and Telecommunications Research Institute (ETRI) in the Mobile Platform based Application Development (MoPAD) project which launched in March 2007 with the support of the Institute for Information Technology Advancement.

The first report of the research outcomes took place on January 6, 2009, through which development of Mobile Application Software Agile Methodology (MASAM) 1.0 was announced.

MASAM 1.0 is a development methodology for mobile

application software based on reusable architectures and components. It adopts the agile methodology, simplifying the process and reducing the time and effort required for development, easing the burden of the developers in swiftly coming up with new products.

The new development environment supports different platforms, solving the drawback of the existing technology which called for duplicate development of the same software to fit each platform. It minimizes the development effort and increases productivity, improving both quality and reliability of mobile application software.

In efforts to effectively commercialize the technology, the research team has developed architecture and framework of the level applicable on-site, which are currently going through the inspection routine, the final product scheduled to be introduced in the first half of 2009.



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New Sepsis Medication Development to Rev Up

POSTECH, joining hands with Dong-A University and Seoul Pharmaceutical Co., Ltd., hastens development of a novel sepsis medication materialized with domestic technology.

POSTECH team of Professor Sung Ho Ryu and Professor Yoon-Keun Kim (Department of Life Science), in a joint research with Professor Yoe-Sik Bae of Dong-A University, supported by POSCO and Ministry for Health, Welfare and Family Affairs, has developed peptides that effectively prevent progression of sepsis.

In animal experiments, the peptide ligands newly developed for formyl peptide receptor like-1 (FRL1) in septic mice resulted in a survival rate of 80% whereas those that didn't get the injection died within 24 hours.

Sepsis, the cause of over 200,000 deaths yearly in the United States alone, is a serious medical condition occurring when host immune defenses fail to combat invading microbes: a pathogen enters the blood vessels and causes a whole-body inflammatory state and blood coagulation, eventually leading to organ dysfunction and death.

The only choice for severe sepsis medication has been the multinational corporation Eli Lilly's 'Xigris' which has a low curing rate and a high price.

The new sepsis treating substance, whose

development technology is to be transferred to Seoul Pharmaceutical Co., Ltd. based on the agreement signed on January 22, 2009, is low molecular peptides which accelerate the host's defense mechanism. The therapeutic receptor enhances the bactericidal activity, and inhibits both the production of pro-inflammatory mediators induced by lipopolysaccharide and cecal ligation and puncture induced immune cell apoptosis.

The peptides, being low molecular ones, do not harm the immune system nor have as many side effects. In addition, the composition process is simple, allowing for low cost production.

These advantages, added to the therapeutic and bactericidal properties of the peptides, are presumed to contribute to the development of new and more effective sepsis medications, expectantly to overcome the limits of the existing one.



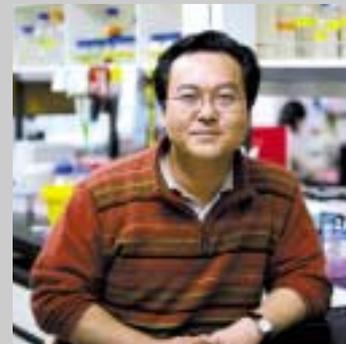
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Metal Atom Chains on Graphene Nanoribbons



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Professor Seung-Hoon Jhi and Ph.D. Candidate Seon-Myeong Choi, both of the Department of Physics, in their study of metal doped graphene nanoribbons, discovered that the adsorbed metal atoms form atomic chains which can be used as reagents to identify the edge atomic structures of the graphene nanoribbons and also as gate-driven spin valves to control the spin current in graphene nanoribbons.

Graphene, the basic structural element of all graphitic materials including graphite, carbon nanotubes and fullerenes, is a one-atom-thick planar sheet of carbon atoms that are densely packed in a honeycomb crystal lattice. Placed in layers on top of each other, it would take 200,000 membranes to reach high enough to match the thickness of a human hair.

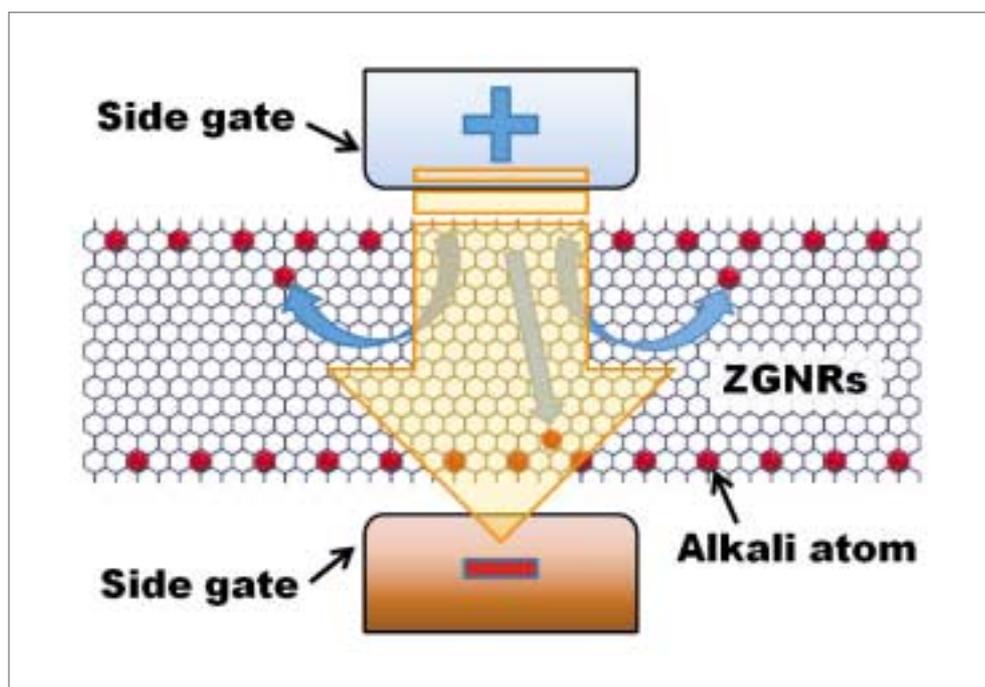
Graphene nanostructures have attracted great attention due to their unique and intriguing electronic and transport properties. Particularly, the graphene nanoribbons' carrier mobility is very promising for high-speed electronic devices.

Professor Jhi's team studied electronic and magnetic properties of alkali and alkaline-earth metal doped graphene nanoribbons by the pseudopotential density functional method. The findings are that strong site dependence is observed in metal adsorption on graphene nanoribbons, and that the adsorbed metal atoms are found to spontaneously form atomic chains at the edges of zigzag-edged graphene nanoribbons.

The self-assembled atomic chains can be used to analyze the atomic structures of the graphene nanoribbon edges, which had proved difficult due to the extreme thinness of graphene.

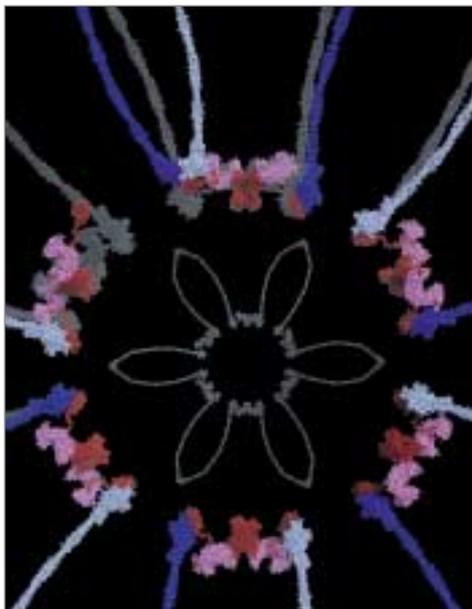
Also, such doped graphene nanoribbons exhibited intriguing magnetic properties such as hysteresis and spin compensation as metal atoms switch from one edge to another at alternating gate voltages. Using this phenomenon, the research team suggested a schematic model for the spin-valve structure that drives alkali metal atoms from one edge of a zigzag-edged graphene nanoribbon to the other.

The research outcomes were presented in the December 31, 2008 issue of *Physical Review Letters*.



1. A schematic drawing of a spin-valve structure with a side gate that drives alkali metal atoms from one edge of a zigzag-edged graphene nanoribbon to the other.

Structure and Mechanism of MukBEF Condensin Deciphered



1. Chromosome condensation is a fundamental aspect of all forms of life. Condensin complexes are the key mediators in this process. Little is known about how these machineries achieve higher-order compaction of chromosomes. In an effort to address this question, Woo et al provided the full view of the intersubunit interactions in a bacterial condensin, the MukB-MukE-MukF complex, by solving three different crystal structures. In this image, a rosette-like oligomer of the MukB-MukE-MukF complex is reconstructed based on these structures. Biochemical study showed that this closed ring structure can be opened in an ATP-dependent manner, which appears critical for the function of this condensin.

A research team of Department of Life Science's Center for Biomolecular Recognition and Division of Molecular and Life Science, consisting of Professor Byung-Ha Oh, Doctor Jae-Sung Woo, and Doctor Jae-Hong Lim, has solved secrets of the ring-shaped molecular structure of the MukBEF condensin, the key mediator of chromosome condensation.

In eukaryotic organisms, chromosomes are found in the nucleus of every cell. Before cell division, chromosomes are condensed, and the two replicated copies of the chromosomes are partitioned into the two daughter cells. In prokaryotic organisms, chromosome condensation also takes place to insure partitioning of the replicated chromosomal copies into the two newly divided cells.

Chromosomes are long DNA molecules, ~1,000-10,000 times longer than the size of normal cells. How such a huge molecule can fit into a small volume in a cell and how the cell can divide replicated chromosomes into two exact halves without tangling and tearing is still a baffling mystery.

Chromosome condensation is a well-known

phenomenon, even mentioned in middle and high school textbooks, but the underlying mechanisms have been elusive. Professor Oh's team brought to light the protein complex's molecular structure as well as its functional mechanism.

The findings are also expected to be utilized in applied research for development of antibiotics or anticancer substances, since cells cannot grow normally when chromosome condensation is hindered.

The research outcomes were presented in the January 9, 2009 online issue of *Cell*.

"This is only the beginning of research in the chromosome condensation area," evaluated Professor Oh, declaring the team's plans to continue research in condensation mechanism in eukaryotic cells which have more than one chromosome. He added that compared to prokaryotic cells, "condensation in eukaryotic cells is estimated to be controlled by much more intricate mechanisms because each chromosome is condensed separately."



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Professor Barlat Owns Three of Ten Most Cited Papers



Professor Frederic Barlat of Graduate Institute of Ferrous Technology (GIFT) has been recognized for 3 of his papers having been selected in the top 10 most cited papers of the past quarter of a century by *International Journal of Plasticity, IF 4.516*, the globally esteemed publication in the metal materials area.

The paper titled, 'Plastic behavior and stretchability of sheet metals. Part I: A yield function for orthotropic sheets under plane stress conditions', published in 1989, ranked 2nd on the most cited list, is particular in that it was cited 7 times in 1996, but 11 years later, in 2007, 43 papers excerpted from it, drawing an inverse shape of a graph compared to

most other papers.

The 2 others papers of Professor Barlat, which ranked 3rd and 10th on the top 10 list, also show increased citation frequency over the years. This phenomenon is reckoned to arise from the fact that the model, introduced in his papers, have been extensively used recently in the metal plate plasticity simulation programs, and that Professor Barlat has been committed to many joint research projects with significant research groups supported by the U.S. National Science Foundation (NSF) and the United States Air Force.

According to Scopus, the Elsevier's research abstract and citation database, Professor Barlat has published 35 papers through *International Journal of Plasticity, IF 4.516*, the total number of citation being 1,370.

In recognition of the outstanding achievements, Professor Barlat was awarded the International Journal of Plasticity Award in 2006 for Outstanding Contributions to the Field of Plasticity.

International Journal of Plasticity, IF 4.516, has an impact factor that ranks 13th among the 222 journals of the field, the average impact factor being 1.49.

Professor Barlat joined GIFT in 2007. He received his Ph.D. from Institute National Polytechnique de Grenoble, and currently resides as one of the world's leading scholars in continuum mechanics, fracture mechanics, and metal plasticity.

Graduate Students Publish in IEEE's *Microwave Magazine*

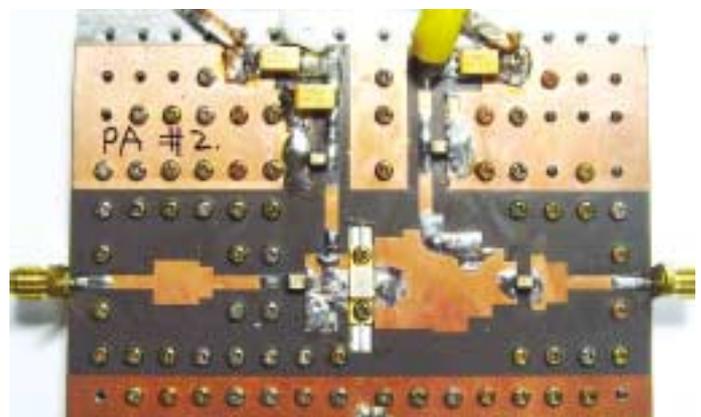
A team of Ph.D. candidates has published in the February 2009 issue of the Institute of Electrical and Electronics Engineers (IEEE)'s *Microwave Magazine*.

Jangheon Kim and Junghwan Moon of the Department of Electronic and Electrical Engineering, under the guidance of Professor Bumman Kim, have presented a development strategy for a high-efficiency power amplifier designed for saturated operation with high gain at a high frequency to maximize the weighted frequency power-added efficiency.

The team's power amplifier demonstrated power-added efficiency of 73.2% at 3.2 GHz operating frequency, which is equivalent to the weighted power-added efficiency performance of 97.9%. The existing power amplifiers' efficiency level is marked at about 83% at 1.2 GHz, which would convert into about 50% at 3.2 GHz.

Power amplifiers are one of the main fundamental building blocks of all modern wireless communications systems, used in base stations and mobile units. The efficiency level of the power amplifier determines the amount of energy consumed by the communication systems.

High-efficiency power amplifiers produce less heat, requiring smaller cooling systems, and ultimately diminishing the size of the wireless communication



base station. Smaller base stations are expected to lead to cheaper rental fees and production costs, resulting in more widely spread mobile communications infrastructure.

For this high-efficiency power amplifier design, the team was awarded the Highest Efficiency Award at the 2008 IEEE International Microwave Symposium's Student High Efficiency Power Amplifier Design Competition.

Six POSTECH Projects Selected for the Government-Run World Class University Program

Six of the POSTECH submitted projects have been selected for the World Class University (WCU) program newly launched in early 2008 by the Ministry of Education, Science and Technology.

WCU project aims to foster world-class universities by providing the funding for the selected projects for which world-renowned scholars are invited and hired. Participation of international scholars and researchers are promoted in 3 types: first, recruiting scholars to establish new academic departments or specialized majors; second, employing foreign scholars in existing academic programs; and third, inviting distinguished world-class scholars to teach and research in Korea. Of the 6 POSTECH proposals that have been selected, 3 are for type 1, and 2 and 1 are for types 2 and 3, respectively.

A total of 66 universities applied with 477 research plans which underwent the 3-stage evaluation procedure, consisting of expert panel review, international peer review, and comprehensive panel review by the WCU Project Management Committee, led by the Korea Science and Engineering Foundation. 131 proposals of 52 research teams at 18 universities have been selected as beneficiaries of the 5-year government funding amounting to a total of \$6.2 billion, with the annual budget of \$1.2 billion. "Through the project, at least 5 Korean universities will join the world top 200 universities," Ministry official Joo-ho Park commented.

In accordance with the selection results, POSTECH will be establishing, within the year 2009, Department of Integrative Biosciences and Biotechnology, Graduate Institute of Advanced Materials Science, and School of Information Technology Convergence Engineering. As for the type 2 enterprises, collaborative research projects on development of high-performance steels for environment-friendly automobiles and nano-bio-information integrated technology are among the projects to be progressed. Through the type 3, the world's foremost researcher in computer vision Professor Takeo Kanade of Carnegie Mellon University will be joining POSTECH researchers for joint development of human sensing technology for elderly care.

The total funding POSTECH will receive through the WCU project for the next 5 years reaches over \$11 million, coming at third in amount after Seoul National University and Korea Advanced Institute of Science and Technology.

Ten Year Agreement Signed with ExxonMobil

POSTECH has established an academy-industry partnership with ExxonMobil, the world's largest oil and gas corporation.

POSTECH President Sunggi Baik visited ExxonMobil Research and Engineering Company in New Jersey for a signing ceremony held on February 27, 2009.

The Master Research Agreement on collaborative research in petroleum, petrochemicals and energy, valid for 10 years starting March 1, 2009, binds the two institutions to develop and fund joint research projects, and to cooperate on procurement of original technology and intellectual property rights.

With its headquarters located in Texas, ExxonMobil is the global giant who was the first to break the total market capitalization of \$500 billion in the history of the New York Stock Exchange. The January 2009 issue of *BusinessWeek* reports Exxon's total market capitalization at \$406.6 billion and its net profit at \$390.3 billion, both ranked the largest in the world. The company commands close to 30 thousand researchers of its own and has a reputation for the punctiliousness in its selection of partners.

The principal component behind Exxon's selection of POSTECH lies in the world class research infrastructures, including the Korea's only Pohang Light Source, the world's only Graduate Institute of Ferrous Technology, the National Center for Nanomaterials and Technology, and the Pohang Institute of Industry Advancement, in addition to the abundant human resources of top quality.

On POSTECH's account, the newly established affiliation is expected not only to expedite the University's leap into the world class research-oriented institution and attainment of reinforced research competitiveness, but also to bring on a ripple effect on its efforts to propel and establish new strategic academy-industry alliances.

President Baik commented that in the today's society running on knowledge-based industries, "the university must not linger on satisfying its traditional role of offering restricted ground for education and research." He added that "with the partnership with ExxonMobil serving as an opportunity, POSTECH will make every effort to bring about restructuring to the existing businesses and emergence of new enterprises."



President Sunggi Baik and Dr. F. Emil Jacobs, Vice President of Research and Development, ExxonMobil Research and Engineering

Green Light for Establishment of Max Planck Institute in Korea



President Sunggi Baik and President Peter Gruss of the Max Planck Society

The Max Planck Institute, the basic research institute considered world's best, is being lured into Pohang.

POSTECH President Sunggi Baik visited the Max Planck Society in München on January 23, 2009, met with President Peter Gruss and signed a Memorandum of Understanding on research collaboration.

In addition to settling on active exchange and joint research efforts, the MOU includes agreement in principle for establishment of the Max Planck Institute in Korea.

The Max Planck Society-Korea Joint Symposium, which was held at POSTECH in October 2008, in substance, served as the final round of inspection for the selection process. The Max Planck representatives who participated in the Symposium are said to have highly regarded it.

The final step remaining before establishment of Max Planck Korea is official is the approval of the subcommittee and the council of the Max Planck Society, whose meetings are planned in October and November, after which the concluding agreement will be signed.

Germany's Max Planck Society is an independent, non-profit scientific research organization with an annual operating budget of \$2.1 billion, and 15,000 researchers working in natural sciences, life sciences, and the humanities. The Max Planck Florida Institute is the only Max Planck Institute for scientific research that is located outside of Germany. If foundation of Max Planck Korea is fixed, it will be the second.

President Gruss of the Max Planck Society commented that he expected foundation of Max Planck Institute in Korea, where research and education has made a rapid growth, "would allow opening of the new ground for scientific collaboration," and that he would continue to "cooperate in the remaining process."

When established, Max Planck Institute in Korea will gather 200 researchers and focus on materials research, including advanced molecular materials and new materials. The 9-year project's construction, equipment, and operation expenses alone are estimated to be over \$211 million.

POSTECH has joined efforts with the province of Gyeongsangbuk-do and the city of Pohang to attract establishment of Max Planck Institute in Korea.

Partnership with Fudan University to Continue



President Sunggi Baik and Fudan University President Yuliang Yang

POSTECH has renewed its cooperation agreement with Fudan University.

President Sunggi Baik of POSTECH visited the Fudan campus in Shanghai on March 5, 2009, to visit research facilities of the University, meet with President Yuliang Yang, and to attend the agreement signing ceremony.

With the renewed agreement in action, the two Universities will further expand their cooperative measures for mutual growth, promoting cultural, educational and scientific exchange through means of joint research activities, faculty and student exchange, and jointly organized conferences, symposia, etc.

Fudan University is one of the newer partners of POSTECH, the alliance having started in 2002.

Through the renewed 5 year agreement, the two Universities plan to continue to share expertise, open up new opportunities for collaborative research, and strengthen the friendly and productive bond.

AEARU Board Meeting Hosted at POSTECH

The 24th Board of Directors Meeting of the Association of East Asian Research Universities (AEARU) was hosted at POSTECH between April 8 and 10, 2009.

President Hiroshi Matsumoto of Kyoto University, the current Chair University of AEARU, President Jun Chen of Nanjing University, Secretary General Mao-Jiun Wang of National Tsing Hua University, and Associate Vice-President Tongxi Yu of Hong Kong University of Science and Technology were among the participants of the Meeting.

The representatives of the 5 universities joined President Sunggi Baik and other senior officials of POSTECH in discussions on revitalization of exchange between Member universities, the possible schemes for reinforcement of undergraduate education, as well as future direction and plans of AEARU.

The 3-day program included the Meeting, visitation to POSTECH's major research facilities and POSCO, and a tour to Gyeongju, the ancient capital of the Shilla Dynasty.

The AEARU Board of Directors consists of the Chair University, the Vice-Chair University, the immediate



past Chair University, and 2 other Member universities of different regions, its Meeting held semiannually.

AEARU was established in 1996 for the purpose of promoting exchange and research collaboration among East Asian research-oriented universities. The 17 Members of Korea, Japan, China and Taiwan's leading universities cooperate through activities

including the Annual General Meeting, the Board of Directors Meeting, and various kinds of symposia and workshops.

The adjacent AEARU events include the Student Summer Camp in August at Osaka University, a materials science workshop in November at POSTECH, and the Annual General Meeting in December, which will be held at Tohoku University, Sendai, Japan.

U.S. Ambassador Visits POSTECH

U.S. Ambassador Kathleen Stephens, who also goes by her Korean name of Eun-kyung Shim, visited POSTECH on January 12, 2009, to meet with President Sunggi Baik and senior officials of the University, and to deliver a special lecture on Korea-U.S. relationship for POSTECH students.

Ambassador Stephens' first ties to Korea began in 1970s when she taught English for 2 years at Yesan Middle School in the province of Chungcheongnam-do. As a career diplomat, she has held posts in Seoul and Busan, the former Yugoslave Federation, Northern Ireland, and in Washington D.C.

Ambassador Stephens, after meeting with President Baik and conversing about current conditions and future directions of higher education in Korea, gave a lecture titled, 'Building a 21st Century ROK-US Alliance'.

The lecture called on reinforcement of cooperation between the two countries by seeking a new and advanced alliance, actively exchanging in education, research and civil areas. The POSCO International Center Auditorium, where the lecture took place, was packed with Postechians with many standing in the aisles and the back.

Ambassador was accompanied by her son James Whong who is a student at Franklin W. Olin College of Engineering in Needham, Massachusetts. Mr. Whong was met and guided on a campus tour by members of POSTECH Students' Association.



President Sunggi Baik and Unison Chairman Jung-Soo Lee

GWE Draws \$400,000 Endowment

POSTECH Graduate School of Wind Energy (GWE) received a \$400,000 endowment from Unison Co., Ltd., the first of the \$2 million the company avowed.

Unison, the Korean manufacturer and exporter of wind power generation system, had concluded an agreement with GWE in April 2008, on establishment of 'Unison Wind Power Fund', committing to an annual contribution of \$400,000 for a period of 5 years beginning 2009.

"POSTECH GWE is the only institute that produces talent armed with specialized knowledge in the wind energy sphere," said Unison Chairman Jung-Soo Lee, adding that it is expected that "GWE-born professionals would grow to be leaders of Korean wind energy development."

POSTECH plans to employ the contribution as GWE research fund as well as support for GWE students and graduates to actively advance into the related industry.

Professor Kyung Seop Han, Dean of GWE, remarked that the Unison Wind Power Fund was an enormous encouragement, and that with this as the stepping stone, POSTECH GWE would strive to develop into the Mecca of wind energy research.

GWE was established to meet the demand for expertise in renewable energy area, its lectures first taught in March, 2009.

MOU Signed with KIPO

POSTECH concluded a Memorandum of Understanding with the Korean Intellectual Property Office (KIPO), agreeing to cooperate in upbringing of creative talent and building of capacity in intellectual property rights.

The signing ceremony took place on February 6, 2009, at the Daejeon Government Complex, with POSTECH President Sunggi Baik and KIPO Commissioner Jung-Sik Koh representing each party.

The MOU promotes the national effort to encourage top universities to participate in KIPO's ongoing project of generating intellectual property rights experts. The two organizations agreed to provide gifted inventors with more chances to be educated at POSTECH, and to promote and implement programs to discipline them. Also included in the MOU is intellectual property training for researchers, and support in and provision of technical analysis for patent disputes.

President Baik commented that the intention of the new partnership coincides with the POSTECH Vision 2020 whose objective is to educate creative, progressive and global leading professionals, and to continuously produce significant research achievements.

The alliance between POSTECH and KIPO is noteworthy in that it is made between a government institution in charge of all intellectual property related affairs in Korea and a leading university in the intellectual property field. It is anticipated that this will serve as an opportunity for the spread of the awareness of the importance of intellectual property rights capabilities and the concurrent education.



President Sunggi Baik and KIPO Commissioner Jung-Sik Koh



2009 PANT Held at POSTECH

The Pan Asian Number Theory Workshop (PANT) was held at POSTECH's POSCO International Center between January 8 and 11, 2009.

The Workshop, jointly hosted by the Department of Mathematics, Pohang Mathematics Institute, and the Continuous and Discrete Mathematical Research Organization, was arranged and presented by the recently appointed POSTECH Distinguished Professor John Coates who, as Chairperson of the organization committee, gave the keynote address on elliptic curve.

World-renowned scholars of Korea, Japan, India, and China participated in the organization committee, and 25 preeminent number theory authorities were invited from Korea and around the world to speak at the event.

PANT was prepared for the purpose of building number theory related research network in Asia, with PMI as the axis, fundamentally promoting exchange and collaboration among the field's experts of the world.

"We expect that successful hosting of PANT will cast an affirmative reflection on PMI and the POSTECH Mathematics Department, as well as help grasp the direction and trend of the global research on number theory, and contribute to the internationalization of the education offered at POSTECH," said Head of the Department of Mathematics Professor Youngju Choie.

Beautiful Memories from UC Berkeley

Hyun Kyu Park

Senior

Department of Mechanical Engineering

I still remember the time when I got the program participant selection results for the POSTECH Summer Sessions Program 2008. My heart fluttered as I saw my name on the list. Since it was my last chance to spend time at a foreign university during my college life, I felt very fortunate to be offered the opportunity. I had always wanted to be a visiting student, and dreams came true!

The university I chose to visit was UC Berkeley. I had all the reasons for it, but the biggest above all was because the school was well-known for its high standards of education; I wanted to experience a well-organized educational program with excellent professors and intelligent students. And to enjoy the diversity that the school offers; I wished to meet many people from various cultural backgrounds and make new friends. And also to travel in the leisure time; Berkeley is located near San Francisco which has beautiful attractions plus good travel options, I had heard.

All these plans worked out. What first impressed me about Berkeley was its “liberal atmosphere”. There was diversity and freedom, much more than I had experienced in Korea. I could feel the “openness” on the day I arrived: everybody was greeting each other, trying to socialize. Being Asian didn’t make me feel like the minority there; rather, I felt like I was being accepted as part of a large community. I was also lucky to have a roommate



from India. He introduced me to the Indian food he had brought from home, and I taught him how to make Korean Ramen noodles in return. It was a unique experience to be close to someone with a totally different cultural background.

A lot of fun, but also a lot of work. The class I took at Berkeley was called “International Human Rights” in the Legal Studies Department. One might ask why I, an engineering student, took such a course. I wanted to have a special experience by taking a class not offered at POSTECH. I also wanted to test myself and see if I could keep up with American students in a high demanding academic class. Thus, I decided to challenge myself in the field of international human rights. The class took place Monday through Thursday for two

hours. Most of the participants were students from the Legal Studies Department. Half of them were from UC Berkeley, the other half from all around the world, mostly visiting students for the summer session. This composition made the class very interesting: different races, different nations, different cultures, and different heritages, altogether in one classroom. The class was based on discussions. We focused on the daily human rights issues and combined them with the law book theories and history of human rights. Since we had a high degree of variety in the class, we could really share what was happening around the world. I recognized the fact that people could have totally different views regarding the same topic, and that they continuously had to try to discard their prejudices.



to Hollywood, where our youth hostel was located. But the bus station was surrounded by haunts of dangerous-looking men; homeless people and drug-addicts were everywhere. We really felt insecure. I became to understand why guns were necessary in the U.S. Suddenly, a seemingly-homeless person addressed us and asked a question: "Do you have 45 bucks?" We were scared at first, but also somehow surprised to be asked for such a specific amount of money. I dared to reply: "Why do you need 45 dollars?" And he replied: "I need to go to San Francisco. I can't live here. It's too dangerous!" The guy felt the same way we did!

The class was very challenging: the reading assignments for each class amounted to 40-50 pages. In addition, in order to get involved in the daily discussions, I had to catch up with at least some background knowledge about social science; that was tough work every day. The highlight for the course was the final term-paper assignment. I had to document a 15-page paper about the current human rights problems in China and North Korea, and possible solutions. It was the first time in my life to complete such a large-scale organized paper, let alone in English. But through the challenge, I could not only improve my English skills, but I also could establish my own view on

human rights issues. After completing the paper, I felt like a human rights specialist.

But the academic burden didn't make me sacrifice my travels. Every weekend, I traveled to wherever possible: San Francisco, Sacramento, Los Angeles, San Diego, Las Vegas, etc. I loved it! One day, I organized a trip to LA and San Diego with two of my friends. It was a memorable tour, and probably the most horrible one as well. First, we visited San Diego, had a wonderful time there, and decided to go to LA by bus. As we arrived at the Greyhound station in downtown LA, the city had already fallen into complete darkness. We had to catch the bus

The six weeks I spent at Berkeley passed by so quickly that I could not believe that it was over when it was. I was sorry to have to leave. I learned so much in the short time. There is no necessity to mention academic improvements, and moreover, I gained a deeper understanding of American culture and life. Most importantly, I could broaden my view of the world. I appreciate the POSTECH International Relations Office for allowing me to have such a beautiful experience. At the same time, I want to advise every POSTECH student to take the challenge and make the most out of the time spent at summer session programs: it will grant you ever-lasting memories in your life.



Living an Unforgettable Experience

Philippe Lavole

Department of Electronic and Electrical Engineering
M. Eng Candidate



I am French and I graduated from Ecole Nationale Supérieure d'Electronique, Informatique et Radiocommunications de Bordeaux (ENSEIRB), receiving my bachelor's degree. I decided to continue my studies at POSTECH by entering the Master's Program in the Department of Electronic and Electrical Engineering (EEE) this semester.

Actually, I had a previous experience of POSTECH life since I took a 6-month internship program last year at the CAD and SoC laboratory of the EEE Department. This internship was within the framework of my French education before my graduation. During this first stay at POSTECH, I could work in very good conditions, thanks to the modern facilities and the competent professors and administration staff. Moreover, even though I do not speak Korean, I never had

problems communicating since the level of English among POSTECH staff members is really good. Especially now, in the Master's Program, most of the classes are taught in English which is very convenient for foreign students.

I also had no problem blending in POSTECH campus and enjoying my student life with Koreans and foreigners. Some foreigners feel a little distant from the Korean lifestyle since it can be radically different from their own culture. For example, food is often a source of a problem because many foreign students would sometimes like to have meals from their original culture. But as the dorm for international students, Dormitory for International Cultural Exchange (DICE), provides a shared kitchen, food is no longer a problem.

Anyhow, I think that it is important to try to live

like a Korean student and understand the cultural differences. Usually, Korean students at POSTECH are always happy to help foreigners integrate into the campus life and feel more comfortable. Therefore, showing some interests and curiosity in Korean culture is the best behavior to adopt in order to show appreciation. All the foreigners at POSTECH that I met really enjoyed their stay here, and most of them wish they could have stayed longer.

In my case, it wasn't a random decision to choose Korea and POSTECH since I knew how prestigious this University was through its international reputation. However, it was a hard choice for me to decide to continue my studies at POSTECH because it was not a common way compared to my friends at ENSEIRB. Actually, I am the first French student to pursue a master's degree at POSTECH, so I could not get any opinion or suggestion from the French point of view.

But I do not regret my choice at all, and I am sure that this experience will be beneficial for my future carrier. In particular, I hope that it will enable me to work in Korea after graduating from POSTECH. As my mother is Korean, I always wanted to have a significant experience in Korea, more than just travelling and visiting. Sometimes, I feel a little regretful about not having learned the Korean language when I was little, because



pleasure to travel and visit new places. It is also very convenient to travel by bus or train since it is cheap and comfortable. Moreover, staying in Korea is a good opportunity to visit other Asian countries. In my case, as I had never visited Asian countries other than Korea, I wanted to go abroad. I got to visit Thailand for one week during the summer, and thanks to my Thai roommate, I had some useful advices for my trip.

All these positive points directly influenced my decision to continue my studies at POSTECH. For me, combining my studies and interests in Korean culture was a real good fortune that I could concretize, thanks to POSTECH. I sincerely thank all members of POSTECH that helped me fulfill this ambition. For my future, I am sure that my life at POSTECH will be at least as great as what it has been until now.

the more I stay in Korea and at POSTECH, the more interest I have in Korean culture.

Nevertheless, I have been learning Korean for almost 2 years now, continuing with the Korean classes offered twice a week at POSTECH. I have some relatives in Korea that I visit sometimes, but they do not speak any English, and it is very frustrating for me not to be able to express myself. This emphasizes how important it is for me to learn Korean, and I hope that I will be able to communicate easily with my relatives one day. Koreans have been really nice to me, I think especially since I look very similar to them. Sometimes, when they first see me, some of them think I am fully Korean since physically, I have strong Korean features. So it is always funny for me and for them, making the first contact easier.

I really enjoy my stay here because I get along with both Koreans and foreigners. Unlike at ENSEIRB where there were only French and surrounding countries' students, I have been able to meet at POSTECH students from all over the world. I think it is a great chance to meet such a variety of people. In the globalization context of

nowadays, this cultural diversity is a major advantage, and shows the fame and the efficient international relations of POSTECH. Thanks to the English language, we can all communicate and share our cultural identities. The best opportunity for this is the POSTECH Sunrise Festival where all foreign students get to cook traditional dishes and explain more about their cultures.

Compared to France, life in Korea is much more dynamic, especially the night life. There are so many things to do here! As living is also cheaper and more convenient, going out or eating out with friends is a common habit! I like sharing food and drink on and off campus; it is a good way to see how Koreans enjoy their free time. I am sure that you will enjoy it!

I also visited major cities of Korea such as Seoul, Busan, Daegu and Gyeongju. For me, even though many Korean cities look very similar compared to the cities in France, it is always a



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