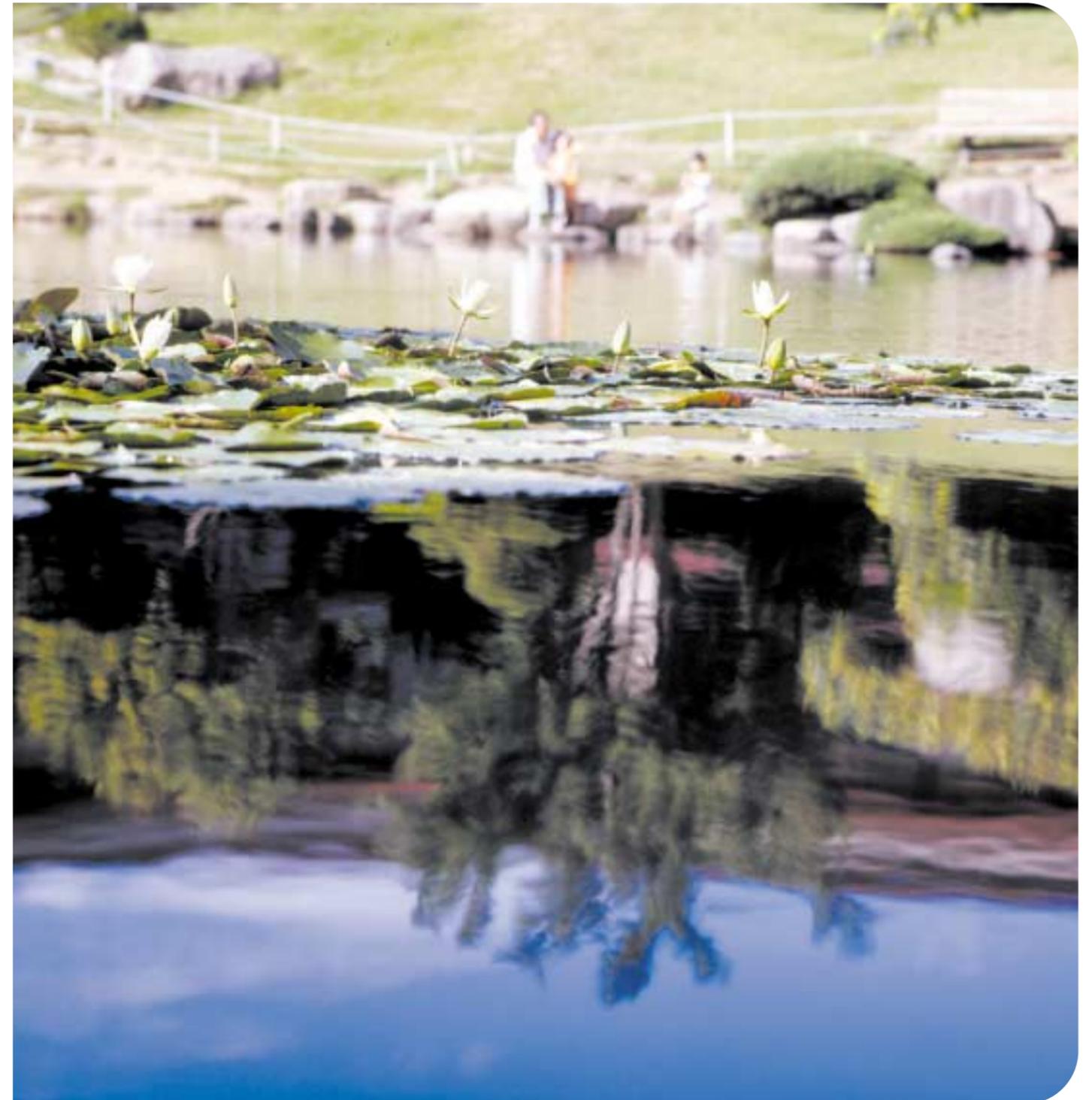


# POSTECH Newsletter

Summer 2010 Vol.53 [www.postech.ac.kr](http://www.postech.ac.kr)



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# May Sunrise Festival 2010

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Switch Your Passion 'On'  
This year's motto of the annual festival at POSTECH has a double meaning. The word 'on' may be used in the sense of 'to switch on' in English, but in Korean it means 'everyone' or 'all together': a fiesta where all can enjoy themselves.



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# POSTECH Hanoi Office Inauguration

May 18, 2010, Hanoi



## Globalization Plan in Action: POSTECH Opens Second Overseas Office in Vietnam

Great steps were taken to attract outstanding students and to activate joint research through the inauguration ceremony held on May 18 in Hanoi.

POSTECH has recently drawn attention to itself by opening up another overseas office in Vietnam after its first one in Beijing. The event is a singular move towards the university's globalization, because no Asian university has ever installed such an office in Vietnam.

The inauguration ceremony took place in the POSCO corporate office on May 18, in the presence of President Sunggi Baik along with fifty POSTECH faculty and staff members, and personnel of the Ministry of Education of Vietnam. Moreover, on May 17 and 18, President Baik sought to conclude agreements with four universities in Vietnam as listed below: Hanoi University of Technology, Vietnam National University of Natural Science in Hanoi, University of Natural Science, and Vietnam National University of Technology in Ho Chi Minh City. Academic exchange plans were discussed in depth during the meetings.

Through this inauguration, POSTECH seeks to enhance the level of academic exchange and promote joint research with premier Vietnamese universities. Also, it hopes to attract outstanding students of the region on a relatively large scale. The first few steps of its course include increased scholarship opportunities and educational programs for non-Korean students who have academic excellence. By building this bridge between the two academic worlds, POSTECH intends to activate its 'three-year globalization plan' which was launched early this year. The plan, which is included in the POSTECH project, aims to invite international scholars, establish strongholds for joint research by attracting foreign elite research institutions and transform the university into a bilingual campus with an investment of more than 150 million US dollars. In short, the university is taking appropriate measures in order to truly globalize itself.

Therefore it is anticipated that the inauguration of such an overseas office is expected to pave the way toward the establishment of a more sophisticated global network. Subsequently, another overseas office is under process: the POSTECH Delhi Office is under a plan to be opened in October.

"We should internationalize POSTECH by world standards in order to evolve into a university with a worldwide reputation for excellence," commented President Baik at the inauguration. "We will ambitiously implement the internationalization of the university through more overseas offices such as the one in Hanoi, and contribute to non-governmental diplomacy with the local population."

## Event Featured in Major Vietnamese Newspapers

Including an Interview with President Sunggi Baik

THE inauguration of the POSTECH Hanoi Office was published by the local Vietnamese press, including the *Tuoi Tre*, on May 20 and 21. The articles focused on the significance of the event and POSTECH's plan to increase the amount of academic exchange between the two entities. The press reports included an interview with the President, which treated four issues: POSTECH's objectives for installing the office in Vietnam, the conditions a Vietnamese student would encounter at POSTECH, the amount of support POSTECH would guarantee for students, and the President's comments regarding Vietnam's efforts to create a breakthrough in their universities' development.

POSTECH is a highly selective and prestigious university in Korea in science and technology. As it is catching up with the world standards, the need for more academicians of outstanding intelligence has become increasingly critical. Historically, most South Korean universities recruited students domestically rather than from abroad because of the challenge to provide lectures in English. But POSTECH has been evolving itself into a global campus where international students can study in English while enjoying a unique East Asian cultural experience. The launching of new programs and the installation of new offices are, therefore, the stepping stones onto a better POSTECH as it stands in the global arena.

Thus the recent inauguration of the Hanoi overseas office offers the Vietnamese students of exceptional potential in the scientific field an array of academic benefits such as full scholarships and access to POSTECH's highly sophisticated research institutions. The admission process is known to be very strict and selective, but the quality of support is to be guaranteed. The admitted students may attend English classes in order to improve their linguistic skills, but President Baik emphasized that the most important aspect will be the student's capacity to absorb scientific skills. After all, POSTECH is a specialized school for science and technology.



## The Role of Ice in the Acceleration of Underwater Photosynthesis

A Newly Discovered Mechanism May Lead to Climate Regulation



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A team of environmental photochemists led by Professor Wonyong Choi of POSTECH has succeeded in explaining how natural ice in Polar Regions can provide the ocean with bioavailable iron content, which ultimately contributes to the prevention of global warming. This achievement in research has gained substantial attention from the international community as it was introduced in several well-known publications in the field of science and technology such as the May 6th issue of *Environmental Science & Technology*, and the May 17th issue of *Chemical & Engineering News*, a recent newsletter for the American Chemical Society (ACS). Moreover, the May 28th issue of *Science* particularly selected the study as its Editors' Choice, and provided a brief summary.

According to previous studies, the aqueous Fe(II) normally becomes available to phytoplankton when dust blows in by the wind, or the outflows of rivers let the Fe(III) oxide particles flow into the ocean. But the phytoplankton needs the iron oxides to be in a more soluble Fe(II) state, because they are unable to access the oxides when in a Fe(III) insoluble state. Iron oxides are the main content of mineral dust particles among the atmosphere, and the main provider of iron to the phytoplankton in the open ocean, but in order to intake the iron content, they must undergo a photochemical, biological transformation reaction. The major contributor in this particular process is sunlight. The electrons coming from sunlight transform the Fe(III) into Fe(II). Also, when bioavailable iron or aqueous Fe(II) is scarce in ocean waters, the primary productivity in the marine environment becomes limited.

But Professor Choi has stated that the ecology in polar settings is quite different from other regions because of the extremely low temperature. His study shows that before the iron particles enter the water, they are most likely to freeze into the ice or snow that exists in thick layers. Professor Choi has hypothesized that ice may be a crucial element in the process. "In Polar Regions, the sun constantly irradiates the surface for six months and most of the ground is covered in ice and snow," said Professor Choi. "So I wondered what kind of unique chemistry might happen in that environment."

Professor Choi and his research group proposed that photoreduction may occur more quickly when ice is involved because of a concentration effect. When the water freezes, the iron oxide particles get pushed out of the orderly ice lattice and become condensed in an area around the boundaries of the ice crystals that have liquid-like characteristics. These narrow channels are called grain boundary regions. Professor Choi has concluded that ice makes charge transfer more efficient by bringing iron oxide particles closer to electron donors, such as organic acids or other iron oxide particles.

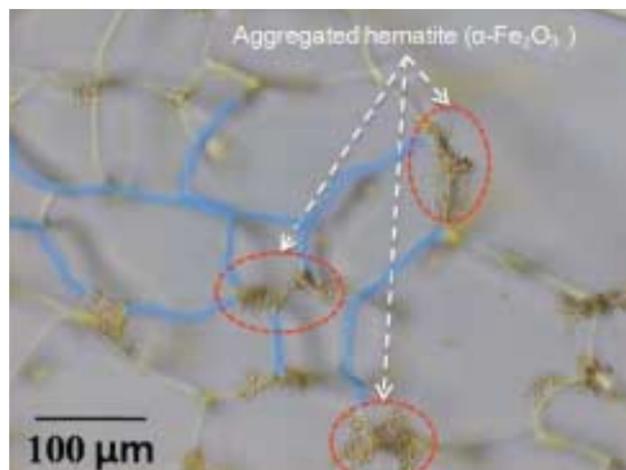


Figure on the left is a SEM image that shows the oxidized iron particles concentrated in the liquid-like areas in the border area between ice particles.

An article in the journal *Environmental Science & Technology* reported that Professor Choi and his colleagues have been comparing the photoreduction of iron oxides caught in ice to those contained in liquid water. Both samples were irradiated with ultraviolet light for 48 hours in the presence of formic acid, which is an organic acid frequently seen in droplets of cloud water. The researchers were then able to observe greater than 10 times more Fe(II) ions in the ice than in liquid water. A similar experiment was conducted under natural sunlight outside the Korean Polar Research Institute's Dasan station in Ny-Alesund, and the researchers discovered that ice accelerated photoreduction about five times more over liquid water.

This research achievement is significant in the sense that it discovered the role of 'ice' in the process of iron oxides transforming into a suitable form to nourish phytoplankton. Since the phytoplankton absorbs carbon dioxide content in the atmosphere and then stores it in seawater, the researchers pointed out that the process contributes to the prevention of global warming. "This unexpected discovery of the role of ice seems to have drawn domestic and worldwide attention on me," said Professor Choi. "I believe this discovery will become of great help in enhancing the capability of microorganisms in performing photosynthesis."

Professor Choi's research team was under support of the Ministry of Education, Science and Technology of Korea, the Korean Polar Research Institute, and certain research support projects including the SRC project under the National Research Foundation of Korea.



## One More Step Toward 'Green Cars'

Anisotropic Fatigue Behavior of Magnesium Alloys Investigated



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**E**NVIRONMENTAL protection has surfaced as a major problem that the world needs to solve, and there is no doubt that car pollution takes up a large portion of it. Therefore, the need for eco-friendly cars or 'Green cars' with lower emissions and more fuel efficiency is has increased, which explains why the recent work on the related subject conducted by POSTECH and the Korea Research Institute of Standards Science (KRISS) is gaining significance.

It has been reported that Professor Chong Soo Lee and Sung Hyuk Park, a Ph.D. candidate of POSTECH have made a discovery in their research which strengthened the possibility Green car development. In joint research with Dr. Seong-Gu Hong and Dr. Yong-Hak Huh of KRISS, they have identified the anisotropic cause for the fatigue characteristics of magnesium alloy (rolled Mg-3Al-1Zn) for the first time.

Magnesium alloy is a metal becoming increasingly popular due to its merits in light weight, especially for transportation equipments. It is being called an eco-friendly material because it is both stronger and lighter compared to other metals: about one-third lighter than aluminum and two-thirds lighter than steel, and therefore needs less fuel. According to Professor Lee, the usage of magnesium parts can reduce the weight of the car by approximately 10 percent, which allows it to become 6 to 8 percent more fuel efficient. The automobile industry is currently making huge efforts to utilize the alloy in the fabrication of motor vehicles by inserting hybrid, fuel cell and other automotive technologies, and parts made of magnesium alloy are considered

as the key element to the completion of Green cars.

However, magnesium alloys have not been widely commercialized in the automobile industry because the research work on fatigue behavior has not yet been advanced enough. Fatigue behavior, which is related to the prediction of how the properties of metal react to stress and time, is critical as it influences the durability of the metal. The research in this area was hindered because of the twin deformation and columnar texture properties of magnesium.

The POSTECH-KRISS joint research team performed various fatigue tests of magnesium alloys and found that magnesium has anisotropic fatigue characteristics. Moreover, they identified a change in the fatigue behavior depending on the loading direction. This work is fundamental in the sense that it may lead to the elevation of the fatigue characteristics. The team has submitted a patent application for a technology that allows them to augment the life and durability of magnesium by approximately 48 percent.

Professor Lee stated that the fatigue behavior of magnesium alloy is a critical property that affects the safety of passengers. He also added that this research accomplishment by POSTECH and KRISS would vitalize the Green car industry and other eco-friendly manufactures, and that the joint research team plans to work to commercialize the promising metal. The study appeared in the *Journal of Materials Research* as the cover paper of the May 2010 publication.

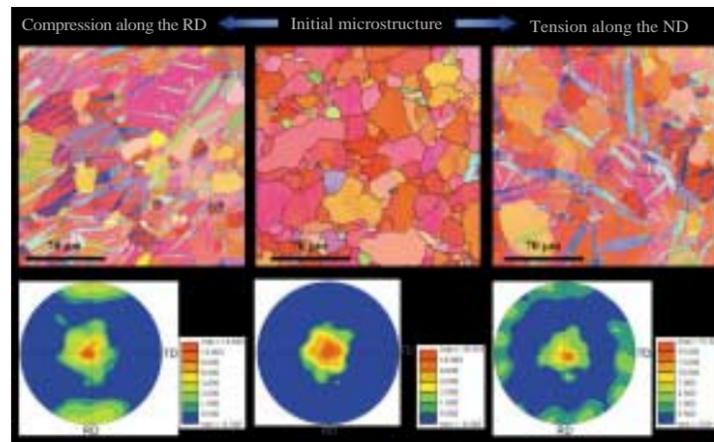


Figure on the left includes inverse pole figure maps and (0002) pole figures of the materials compressed to 2% along the RD and tensioned along the ND. It shows the twin formation and texture evolution by compression along the RD and tension along the ND in rolled AZ31 Mg alloy. The results revealed that although the developed twin morphologies and textures are caused by the same {10-12} twinning, their characteristics are totally different.

## Nearly Massless Electrons in Silicon to be Realized

The Core Technology for Ultrafast Silicon Device

**T**HE core technology that enables the realization of the fastest, nearly massless electrons has been successfully devised by a research team led by Professor Han Woong Yeom, Director of the Center for Atomic Wires and Layers at POSTECH. This achievement may lead to a breakthrough in the development of a truly new technology for semi-conductor devices.

Professor Yeom's team successfully developed a core technology that will enhance the speed of a silicon device by several ten-folds through utilizing the interface, which is the boundary between two non-miscible materials, of metal film and silicon. The speed of the semiconductor device depends on the effective mass of the electron that transmits the electric signal, which means the smaller the effective mass of the electron, the faster the movement of the electron inside the semiconductor and thus the speed of the device. However, the effective mass of the electron is an intrinsic property of materials, and the academic world has been assuming that it is technically almost impossible to manipulate it on purpose. That was why industries such as the telecommunications sector chose to use expensive compound semiconductors, which have much smaller effective masses, instead of silicon.

Previously, an electron that moves as fast based on a small effective mass has been detected from graphene, a single layer of honeycomb lattice made of carbon atoms. Although this discovery has attracted a great amount of attention from the academic and industrial communities, it has been difficult to commercialize the discovery due to arising complications when attempting to incorporate it into the existing technology of semiconductors.

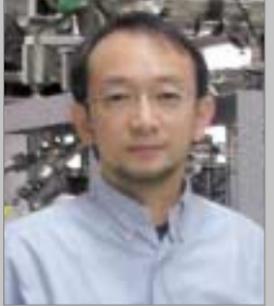
But the core technology that has been developed this time stands as an entirely new method, because it decreases the size of the

effective mass largely by one twentieth of what it was before based on conventional semiconductor materials. Professor Yeom has revealed through experiment and theory that the effective mass of silicon greatly decreases itself when the electrons of the metal film and the electrons of the silicon interface interact at the interface. This happens when a metal layer that is very thin as 0.3 nanometers, only a single layer of metal atoms, becomes connected with silicon.

Professor Yeom's study displays that the electronic band of a monolayer lead film drives a hole band of the Si inversion layer formed at the interface with the film to have a nearly linear dispersion with an effective mass about 20 times lighter than bulk Si and comparable to graphene, which was found using angle-resolved photoemission. The reduction in mass can be accounted for by a repulsive interaction between neighboring bands of the metal film and Si substrate.

Their recent discovery is a breakthrough in the sense that the electron's effective mass is lighter than any other semiconductor materials, and that it utilizes silicon, an element that facilitates the easy commercialization of the device. Hence, this discovery is expected to greatly increase the possibilities of application to silicon-based thin-film devices, and also to a number of semiconductor varieties.

The study was accomplished by Professor Yeom's team in joint research with Professor Myung Ho Kang, Dr. Keun Su Kim and Mr. Sung Chul Jung in support from the Ministry of Education, Science and Technology and the Korea Science and Engineering Foundation. The discovery was published in the June 18<sup>th</sup> edition of the *Physical Review Letters* and will be applied for international patents.



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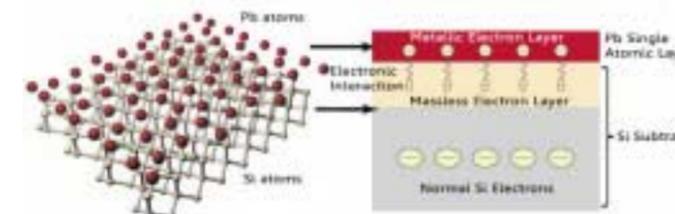


Figure on the left is a diagram of a monolayer lead film conjugated to a silicon substrate. The red spheres represent the lead atoms. The effective mass of the electrons of silicon atoms that are close to lead atoms shrink to a great extent

## POSTECH Alumnus Young-Jun Son at University of Arizona

### Promoted to Full Professor in Only Ten Years



**I**n June, 2000, Dr. Son was appointed as assistant professor at the University of Arizona when he was only 26 years old. Recently, after only ten years, he has been promoted again to the rank of full professor due to his brilliance in production engineering.

The case is considered exceptional because North American universities are not known to be generous when promoting professors. It is said that it usually takes six years for an assistant professor to become a candidate for associate professor, and another six years for an associate professor to become a candidate for full professor. There are wide variations among universities, but many associate professors remain without being promoted and such a process commonly takes up to eight years.

Nevertheless, Dr. Son was promoted to associate professor in 2006 with tenure and to full professor after only four years. This can be viewed as an exceptional development considering that it is at least five years earlier than the average, and that no one has been promoted as fast since year 2000 at the University of Arizona.

In order to have an early promotion in a North American university, high levels of achievements are required. Dr. Son is known to have published over a hundred dissertations on academic journals of international recognition or on international conference proceedings. He has also gained high marks for his qualified performance in research projects done with governmental organizations of the United States such as the US National Science Foundation and the US Department of Defense.

Dr. Son graduated as the best student of the year from POSTECH's Industrial and Management Engineering Department in 1996. He finished his master's in four years at the Pennsylvania State University and obtained his Ph.D. in 2000. Additionally, he has been honored by the Society of Manufacturing Engineers in 2004, by the 'Institute of Industrial Engineers (IIE)' with an award for scientists younger than 35 in 2005, and his papers were honored as the best by the IIE Annual Meeting in 2005, 2008 and 2009.

## POSTECH Venture Incubation Center Yields a 'Promising Export Firm'

**F**OOD Science Inc., a small-sized firm located in the POSTECH Venture Incubation Center was selected as the most promising export firm in the category of small to midsize enterprises by the Daegu-Gyeongbuk Regional Office of SMBA. It has been known that its merits in successfully tackling the international market have contributed the most to the selection. The corporation is known for developing nutraceuticals by screening natural substances, researching candidate materials to develop brand-new medicines and deploying global marketing activities.

The corporation became known for its beverage product that cures the aftereffects of alcohol, the 'Morning Power.' The technology of natural extraction used to develop this particular product was transferred by POSTECH, and is patented by the South Korean Intellectual Property Office. Morning Power also received the Korean Intellectual Property Office Award through years 2008 and 2009, which proves its popularity in the domestic market.

Dr. Jin-Hyeon Park, the representative of Food Science Inc., stated "We are planning to expand our boundaries to Vietnam and China starting this July, based on our success in Russia and Mongolia in 2009. I should mention that our ability to open a market overseas started with the technology that has its roots with POSTECH."



Dr. Jin-Hyeon Park

## Professor Kimoon Kim of POSTECH Becomes Earl L. Muetterties Memorial Lecturer at UC Berkeley

**P**ROFESSOR Kimoon Kim from the Division of Advanced Materials Science, POSTECH Fellow and Director of the Center for Smart Supramolecules, has been designated as Earl L. Muetterties Memorial Lecturer by the University of California, Berkeley, from 2010 to 2011.

The Earl L. Muetterties Memorial Lectureship is known to be granted to qualified scholars of the field of inorganic chemistry, and Dr. Kim is the first Korean to receive the honor. The award was instituted in order to commemorate the world-renowned Professor Earl L. Muetterties of UC Berkeley, and his contributions to the field of inorganic chemistry. Historically, twenty-five other scholars have been named with the Lectureship, all known as the brightest in the particular area. A number of Nobel Prize laureates of chemistry including Henry Taube (in 1983), and Richard R. Schrock (in 2005) are on the list of Earl L. Muetterties Memorial Lecturers.

The honor was given out of recognition of Professor Kim's research work on the development of metal-organic porous materials with multiple potential applications, such as in catalysis, separation, and gas storage, including the first homochiral metal-organic nanoporous material, and also on the supramolecular chemistry of cucurbituril. Furthermore, it has been reported that Professor Kim is planning to give lectures about the latest trends in the research field, and hold discussions with interested professors and students to celebrate the occasion.

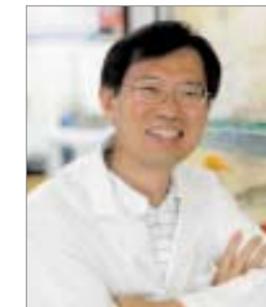
## POSTECH Students Develop High Efficiency OLED

**I**n the research project competition for undergraduate students sponsored by the Korea Foundation for the Advancement of Science & Creativity, two POSTECH students received the grand prize: Mi-Ri Choi and Seong-Hoon Woo. Both students are from the Department of Materials Science and Engineering, and Ms. Choi currently continues her work as a graduate at POSTECH.

Their research work is about the materialization of highly efficient, long-lived light emitting diode through the development of Hole Injection Layers (HIL) and anodes based on conductive macromolecules. They have been under supervision of Professor Tae-Woo Lee of their department for the past year. Their success in fabricating an Organic Light Emitting Diode (OLED) by installing a new HIL suitable for solution processing gave them high merits in the selection process.

Their work is exceptional in that the OLED they manufactured is twice more efficient and the durability has been increased up to 50 times compared to the existing products. Moreover, they have come forward with the possibility of a highly efficient and flexible organic electronic device in the sense that it may be applied in the production of organic solar cells or organic memories.

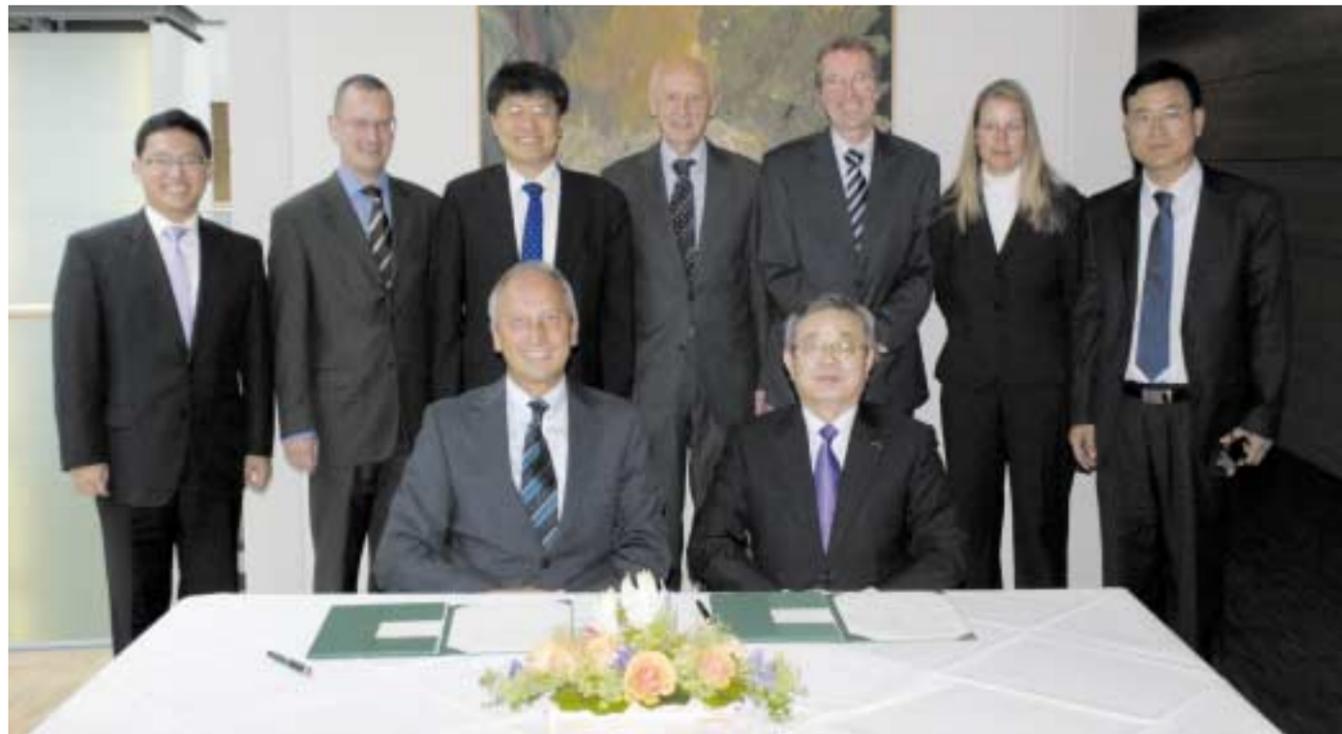
The Korea Foundation for the Advancement of Science & Creativity annually provides funding to students who show excellence in their work through the Undergraduate Research Project. Ms. Choi has also been awarded the Outstanding Poster Award at the International Meeting on Information Display last year, and has obtained the Young Scientist Award at the 21st International Conference on Molecular Electronics and Devices last May.



Seong-Hoon Woo



Mi-Ri Choi



## Max Planck Society Joins Hands With POSTECH

Center for Attosecond Science and for Complex Phase Materials Under Construction

THE Max Planck Society (MPG)'s intentions to open up a South Korean branch in collaboration with POSTECH have been discussed between the two institutions since 2008, and an MoU was signed in January, 2009. But the details for the actual establishment of the research center were agreed only recently. President Sunggi Baik paid an official visit to the President of MPG on June 14 to pursue significant relations. The two research-oriented institutions agreed to cooperate in the future.

The initial relationship between the two can be attributed to Peter Fulde, a theoretical physicist and former Director of the Max Planck Institute for the Physics of Complex Systems in Dresden. His relations with POSTECH began when he became a POSTECH professor and the President of the Asia Pacific Center for Theoretical Physics (APCTP). During his term, he contributed in establishing a program for joint research groups of an independent character and co-

sponsored by the MPG. Through this link, exchanges between the two showed a steady increase, which ultimately resulted in talks about setting up a center in collaboration with POSTECH, beginning in January 2009.

After the two MPG branches installed in Florida and India, the POSTECH institute is MPG's third effort for international cooperation. MPG has found POSTECH attractive because of the effective work that has been produced with collaboration between Korean and German scientists, and thus the joint research is considered to have potential. Professor Seunghwan Kim of the Department of Physics at POSTECH, who has been deeply involved in setting up the Centers, emphasized that "Korea is now trying to focus on creative research excellence, and this will be a very good opportunity for Korean groups to work hand in hand with top groups of Max Planck."

More precisely, it has been concluded that

two centers will be established: Attosecond Science and Complex Phase Materials. To the former will become a platform for researchers and scientists of participatory institutions, who will bring their know-how, expertise and experience to share for mutual benefit. Both centers are designed to contribute to the education and training of young researchers and students.

The financial issue has not been defined yet, but rough figures point to around 30 million U.S. dollars over 5 years'. Plans have been made to upgrade the Pohang Light Source with an investment of 100 million dollars in order to enhance the quality of the research work in analyzing new materials. Also, according to Professor Kim, the current plan is to have 100 researchers at the Ph.D. level and to recruit a maximum of 30 new junior scientists. The initiative is to be reviewed in 5 years where the governance issue involving long-term financial security and full independence will be discussed.

## NTNU and POSTECH, Now in Collaboration

ON the May 13, POSTECH agreed to cooperate with the Norwegian University of Science and Technology (NTNU) with a Memorandum of Understanding. In the MoU, the two universities agreed on the details on joint activities. This relationship was developed with contributions from SINTEF, the Foundation for Scientific and Industrial Research of Norway beginning in 2006. President Sunggi Baik participated in the POSTECH-NTNU-RIST-SINTEF Workshop in Amsterdam on June 10

which included lectures about sustainable energy for the 21st century given by the Executive Vice-President of SINTEF Materials and Chemistry, Dr. Torstein Haarberg.

NTNU is Norway's primary institution for educating the nation's future engineers and scientists. The university also has strong programs in the social sciences, teacher education, the arts and humanities, medicine, architecture and fine art.

## President Sunggi Baik Gives Keynote Speech at HIT

AT the Presidential Forum held at the Harbin University of Technology (HIT), President Sunggi Baik delivered a keynote speech. The occasion was held to celebrate HIT's 90th foundation anniversary, and the theme of the Forum was 'World and China-Review and Prospect of the World Higher Education Development.'

The speech focused on the course of development of research-oriented universities in relation to the roles and challenges of research universities of the 21st century as the core of knowledge clusters. Moreover, President Baik discussed the relationship between the two universities with HIT's President Shuguo Wang on the 7th of June, 2010. His speech was also published in the June 24th edition of the *Korea Times*



## POSTECH, Ranked Best Among Specialized Asian Universities

Rated 14th Overall Among 448 Universities

THE QS rankings of Asian universities in association with Chosun Ilbo, one of the major newspapers in Korea, placed POSTECH as the top academic institute among all the specialized Asian universities. The evaluation has begun since 2009 and covered 448 universities from 11 Asian countries this year. The assessment criteria included research capabilities (60%), quality of education (20%), alumni recognition (10%) and degree of globalization (10%). Moreover, it divided the schools in four categories based on their size and whether or not the university has a medical school.

POSTECH has not only ascended three ranks in the overall rankings, but it has also been placed 8th for the number of papers per faculty, and 14th for citation per paper. Assessments made on the case show that POSTECH was able to rank as high due to its strength in research. QS-Chosun Ilbo stated that "POSTECH's reformation to become a bilingual campus with its 3-year globalization plan and the introduction of an enhanced promotion and tenure evaluation system seems to have been the foothold for such developments," implying that POSTECH has the potential to evolve further. Also, President Sunggi Baik emphasized POSTECH's capability once more to grow into one of the most respected universities worldwide.

## International Seminar Held Regarding the Undergraduate Admissions System

**A**N international seminar on the undergraduate admissions system was hosted by POSTECH on the May 6. It was held in the presence of approximately 300 administrative officials from various universities throughout South Korea, plus Ray Prado, the admission director of CALTECH. CALTECH's admission system is world-renowned for its effectiveness in selecting students for the university. During the seminar, Mr. Prado presented CALTECH's principles of selection and case studies, followed by those of POSTECH and other Korean universities.

POSTECH was the first Korean university to introduce the admissions officer system for all its freshmen students. By doing so, POSTECH aims to concentrate on other criteria than just examination grades when recruiting their students. During the seminar, Mr. Prado commented on POSTECH's admission system as advanced and sophisticated, and that all members of the university should put in their efforts to admit students who are fit with POSTECH's specialty.

Also, President Sunggi Baik noted that input from the present undergraduates

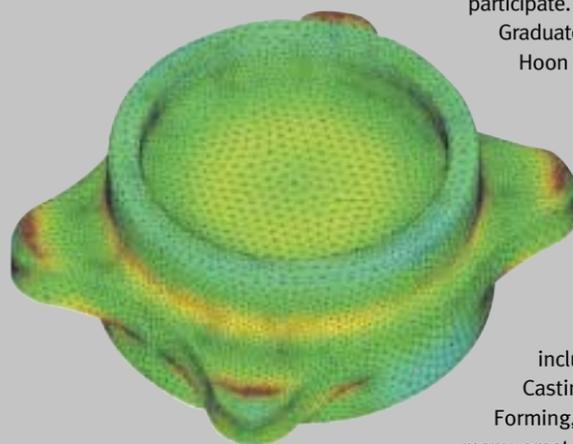
may be necessary. He explained that it is most difficult for the admission officers to determine the credibility of the candidates' self-written essays. Therefore, in order to minimize the vagueness that exists in the examination of application papers, he plans to allow the students to take part in the process. "We may consider having students to participate in the admission procedure," stated President Baik. "Next year, in 2011, we will use the student admission officers tentatively, which may allow us to fully use the system by 2012."

## Scholars of Academia and Industry Gather at POSTECH

NUMIFORM 2010, Dedicated to the late Dr. Zienkiewicz

**T**HE 10th round of NUMIFORM, the international conference on Numerical Methods in Industrial Forming Processes, was held at the POSCO International Center on the POSTECH campus from of June 13-17.

Initiated by the University of Swansea of the United Kingdom in 1982, NUMIFORM has been held every three years, and continues to encourage discussions on the current and future directions in its specialty. Researchers and practitioners from all over the world in academia, R&D institutions and industry come to participate. The conference is chaired by Professor Frederic Barlat, Director of the Graduate Institute of Ferrous Technology (GIFT), POSTECH, and Professor Young Hoon Moon of Pusan National University.



This conference was specially held in remembrance of Dr. O.C. Zienkiewicz, pioneer in the field of finite elements, leading founder of the Finite Element Method and co-founder of the NUMIFORM series, who passed away in January 2009. Also, a plenary lecture was presented in his memory by a distinguished scholar in the field.

A large number of topics were discussed during the conference including Conventional and Emerging Methods, Bulk and Sheet Forming, Casting, Moulding and Quenching, Thermo-Mechanical Processing, Plastics Forming, Surface Treatment, Composite Manufacturing and still others. Also, many great international scholars attended the conference including Professor Han Huétink from the University of Twente, the Netherlands, Professor Paul R. Dawson from Cornell University, USA, and Professor Ken-ichiro Mori from Toyohashi University of Technology, Japan.

## Professor Seungmoon Choi Elected Co-chair to Technical Committee on Haptics

**P**rofessor Seungmoon Choi, Assistant Professor at the Department of Computer Science and Engineering, POSTECH, was elected Co-chair to the Technical Committee on Haptics of the Institute for Electrical and Electronics Engineers (IEEE) as the Asian representative for the year 2010.

The committee concentrates on enhancing mutual exchange between entities that are related to Haptics and fusing various subjects of research together. It is involved in activities such as adjusting academic conferences in the field, arranging tutorials or workshops and participating in publishing special volumes of academic journals, especially the *IEEE Transactions on Haptics*.

Professor Marcia O'Malley of Rice University in the USA, the North American representative, was elected Chair and Dr. Marc Ernst of the Max Planck Institute for Biological Cybernetics, Germany, as the other Co-chairman representing Europe. Their terms of service are to last two years. Established 125 years ago, the IEEE is the most respected international academic institution of the field of electrical engineering and computer science that has 375,000 members from 160 different countries.



## Professor Moon Jeong Park Represents South Korea at Young Researchers Workshop

**O**n May 30, the leaders of Northeast Asia held a summit meeting in the Jeju Museum of Art along with a Young Researchers Workshop Luncheon that linked South Korea, Japan and China. The workshop was titled as 'Green Wave for Opening the Eco Future' and was attended by sixty-three young scientists below the age of 40, who discussed the topics of 'Green IT', 'Green energy,' 'Green city' and 'Green environment.'

In the presence of the South Korean President Myung-bak Lee, the Japanese Prime Minister Yukio Hatoyama and the Chinese Prime Minister Jiabao Wen, the representatives of young scientists from each country made a presentation on climate change and environmental energy. Dr. Moon Jeong Park, Assistant Professor at the Department of Chemistry, POSTECH, represented South Korea for the event.

During the luncheon, President Lee promised to give greater attention and investment to the joint research among the Northeast Asian countries.





## A Midsummer Night's Dream

### Post-AEARU Camp

**Song Jaewoo**  
Department of Life Science  
Senior

If I have to write about the 2009 AEARU summer camp in only one sentence, I will call it a midsummer night's dream. It was only a one-week camp, but indeed one of the most precious times in my college life.

AEARU, which is pronounced "ah-eh-ru", stands for the Association of East Asian Research Universities. Including POSTECH, 17 universities from South Korea, Japan, China, Taiwan and Hong Kong are members of AEARU. AEARU summer camp is for undergraduate students of those universities, and is held annually in one of the member universities. The camp changes its theme each year, and students discuss, take lectures and take parts in activities under that theme. Other programs such as cultural exchange between students and sightseeing are also included in the camp.

In 2009, the camp was held in Osaka University, Japan, with the theme, "Think and act: How can we contribute to the next generation?" About 53 students from 13 universities plus staff students from Osaka University participated in the 2009 AEARU camp. Four students participated in the camp from POSTECH: Me, Myungwon, Sangjee and Jihoon. We were the only Koreans in that camp since no student participated in the camp from KAIST or Seoul National University.

There can be a lot of ways to write about 2009 AEARU camp. I want to write about the precious people I met in the camp, because I think the most important thing I gained from the AEARU camp is friendship. I feel unfortunate that I can only write about a few of them due to lack of space. I am so sad because of it. There are so many people who are so precious!

Kevin, whose original name is Yang Kaifan, was my roommate. He was from Tsinghua University in Taiwan. He had a cute face and an outgoing personality. He and I had a lot of deep talks in our room. We talked about love, politics, courage and the future. We even shared our secrets. We often chose not to sleep in order to talk. I do not know how we could be that close after meeting just one or two days. He not only liked me but also liked other Koreans, and sometimes he even called himself a Korean.

Lucy, whose real name is Xu Yue, was a girl from Tsinghua University in China. During the camp, each participant was grouped with other 3~4 participants each day, and the group members changed every day. But surprisingly Lucy and I were in the same group almost every day. We rode on a rollercoaster in Universal Studios Japan together, joined a welcome party together and travelled Kobe city together. She had a genuine concern for others and really liked new friends whom she met in the camp. I can absolutely say that I was very lucky to know her.

The 2009 AEARU camp was finished on the 23rd of August. But the friendship between participants continues until today. Kohei Matsubara, the student from Tokyo Institute of Technology, Japan, came to Pohang in March 2010. Kohei and I went to the party held by DICE in POSTECH and really enjoyed the party. After the party we went to Hyoja market and ate Soondae, which was a big surprise for him because he had never eaten pig's intestines before. Before he came to Pohang he went to Beijing and met Chinese participants there. He told me that that reunion was also very fun.

Yurie from Japan was a student of Kyoto University. Her character was similar to a Korean's. Myungwon, Sangjee and I chatted with Yurie a lot. It was so fun. One day we chatted for more than 4 hours! Since Yurie's personality was so similar to a Korean's, we sometimes forgot that Yurie was Japanese and spoke to her in Korean. Yurie was also kind to other participants. After the camp was over, she guided some participants who wanted to travel Japan more. She came to Korea in April 2010 and met Myungwon and Sangjee in Seoul. It was so sad that I could not meet her in Seoul since I was in Pohang.

Friendship between Korean participants was also strengthened during the AEARU camp. Before I went to the camp, Myungwon was the only one whom I knew personally. Sangjee was an acquaintance of mine, and I knew nothing about Jihoon. But we were able to become very close to each other in a short time. Now, among the 4 Korean participants, I am the only one who is still an undergraduate student. All the others have graduated from POSTECH. Tomorrow, the 4 of us will have an AEARU reunion in Seoul. Also there were a lot of AEARU reunions in Tokyo, Beijing, Taipei, Pohang and other places! Yes. 2009 AEARU camp is not finished. It goes on and on! Erina, Koki, Roxy, Cheng Mu, Kento, Yuki, Lucy, Katrina, Jihoon, Naofumi, Sangjee, Sho, Jacky, Ryoichi, Kohei, Wan-hsiang, Pei-Yu, Zhang Lu, Chris, TK, A-Tsai, Kevin, Keita, Angela, Myungwon, Alice, Cao Wei, Yuko, Michika, Shi Jing, Kana, Sandy, Yurie, Cyndi, Angie, Ayaka, Kazu, Chihiro, Naoya, Ryohei, Shuai, Rina, Akari, Shigeyo, Tomomi, Kayo, Naoki, Rossa, Nozomi, Mayuko, Tommy, Minami, Emiko and others, thank you so much for giving me a wonderful summer in my lifetime!



## Three Seasons of Happiness at POSTECH

Rebeca Kanzie

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I left my home country Burkina Faso in September 2005 to go to France in order to study. Leaving my family for a new country and alone was difficult and exciting at the same time because I would learn to manage my life by myself, meet new people and learn from other cultures. But life has not always been easy between the studies due to the disorientation and the nostalgia for my family. I had to make friends, succeed in my studies and achieve my goals.

My father always told me that the student has to do better than the master, the child should do better than the father and therefore I had to succeed my personal and professional life as well as my parents and do even better than them. A challenge that I would like to reach by doing all my best.

As a student at the University of Technology of Troyes (UTT) in France, I took the initiative to go abroad for a semester. Moving to a European country for my exchange semester was not interesting because I knew some European countries and in my point of view it was more rewarding to explore other continents than Africa and Europe. So when I saw the opportunity to come to South Korea at POSTECH, I did not hesitate a moment. The interesting thing is when I informed my family that I decided to go to South Korea to study, it did not surprise anyone, as everyone calls me an adventuress.

February 25th 2010 was the date of my arrival at POSTECH, I still remember that day like it was yesterday. The next day, the adventure began. When I visited POSTECH, I was amazed. It was huge! Huge compared to my university in France. Then with the beautiful gymnasium we had, I used to do sport as much as I could. The first week at POSTECH was the week for visiting the university, for integration, for getting insurance that I chose the right country and

the right university. During this first week, I made a lot of Korean and international friends. We must also recognize that I'm talkative and that I do not hesitate to reach out to people. Besides, in my opinion, being open minded is the key to success in life.

DICE, how could I forget this place! I do not know also where to begin to describe this wonderful experience in this beautiful place. DICE is the place where I started my integration in Korean life. We had formed teams of 6 to 8 people in order to help newcomers to integrate easily and create friendships. That's where I learned to love Korean food, where I improved my English, where I learned the Korean culture. There were many activities like going out together, learning Hangul, improving English with reading, discussion and vocabulary and some activities of cooking, etc...

Then comes the part where we spent most of our time, I mean courses! The teachers and my classmates were very nice, always ready to serve and assist if needed.



But to be honest I have never studied much of my life as I did at POSTECH, too much homework to do every week. Then I had to adopt the Korean lifestyle, that means sleep a little and work a lot. I want to emphasize that it was the first time for me to take courses in Marketing or Human Resources Management in English, so it was hard at the beginning to adapt. In addition, some of my professors mixed English and Korean during the course, which was difficult. But everything has been a great experience. I learned Hangul, I will not deny that the Korean language is very difficult. But I learned to read, to introduce myself and to order food at restaurants or delivery food. In short, I learned the basics of the language in order to survive in Korea.

Although I had lots of homework, I found time to enjoy my life in Korea. I visited cities like "Busan", "Daegu", "Gwangju", "Andong", "Jeju" and "Seoul". The scenery was beautiful and every time I was especially well received that I felt almost at home. Then, there were various activities that the



International Relation Office organized. We felt loved, welcomed and that our presence was not taken lightly. I want to emphasize that all universities do not invest as much for their international students as does POSTECH.

Among cooking activities proposed by DICE, I learned to prepare Korean meals like "Kimchi", "Mandou", "Kimbap". Those moments were very exciting and friendly. There was also IPUB, where I had to represent my country, Burkina Faso, by cooking a dish and a drink that people loved. I was proud to have been recognized as a good cook, to give an idea of the kinds of foods of my home country and also show people that there were many different nationalities at POSTECH.

An elementary school near POSTECH asked me to present my home country Burkina Faso to 6th grade students and also share with them my experience. This was a rewarding experience because the children had prepared performances for me, wore traditional clothes and made many paintings to greet me. For this occasion, I also wore a traditional dress of Burkina Faso, to give them an example of traditional clothing of my country. Everyone was happy at the end

of my presentation, the school principal, teachers, students and especially myself. I was happy to talk about my country to Korean children and share my personal experience.

Then came the end of my adventure at POSTECH, the end of the semester. A semester that I found very very short because I loved being in South Korea, being a student at POSTECH. But I had to say goodbye to my friends I had made. It was a moment of heartbreak, a moment of painful goodbyes, shared between the joy of finding my friends in France and the sadness of leaving my friends in Korea. But from my point of view, a good friend will remain throughout life regardless of the distance that separates us. Moreover, with the new technology, we can send each other emails, use social networks and keep in touch.

To finish, I have lots of future plans. In 2011, after obtaining my engineering diploma in Management Information Systems, I would like to get an excellent job as Consultant in Information Systems of a world-class company, and invest myself to be a key person in the company. I would like to be recognized in my profession and have an impact on my generation. You may

imagine that I would like to get married and have children. However, in my long term plans in twenty years, I would like to return to Burkina Faso and run my own business.

Oh yeah, these are my dreams, I like dreaming. Besides, a dreamless man would not live; we must dream and try to achieve our dreams. Dream, and look for the best, because that is how you could break your blinkers and reach excellence.