

2012 UNIST Science Camp held

Kazakh Olympiad National Teams and Turkish high school students visited UNIST

Application List

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Last summer, Kazakh Olympiad National Teams and Ozel Nilufer Fen Lisesi High Science School from Turkey visited UNIST in order to attend '2012 UNIST Science Camp' separately. They experienced not only high scientific technology education in UNIST, also Korean culture.

From May 21st to 31st, Kazakh Olympiad National Teams attended '2012 UNIST Science camp' on the way to participate international olympiad. They are comprised of 13 students with 3 teachers. They made themselves into three groups on the basis of their majors as chemistry, biology, and physics. Each group did experiment with three professors in UNIST. Especially most of the students who were in the chemistry group were interested in Layer-by-layer assembly with Prof. Kim Byeong-su and people in the biology group were satisfied with the lab experience such as Western-blotting with Prof. Suh Pann-ghill.

Besides, they toured Ulsan including Hyundai Heavy Industries and Busan. As assistants, many UNIST students from Korea and Kazakh helped them enjoy the camp. They spent all the time with the teams during the camp. Jang Hae-seung, one of the assistants, said, "It was impressive that Kazakhstan students were good at both playing and studying. Also, I think they have enough qualification to be called as 'national teams'."

After the camp finished, another camp started. Ozel Nilufer Fen Lisesi High Science School students from Turkey visited UNIST. They placed more emphasis on experiencing Korean culture rather than studying. They toured not only Ulsan but also other cities such as Gyeongju, Pohang and Busan. Ahmet Faruk Budak, one of the students, mentioned "Activities in the camp were so nice to know Korean



culture and UNIST. This plan ran perfectly, reached success." In this case, the UNIST Turkish students who served as translators played important roles. Ekrem, one of the assistants, said "The students' vision has been expanded for a few days much better than they were in their country."

Through this camp, UNIST let the gifted international students know that UNIST is the leader at scientific technology education. Ekrem said "It was an interesting step-stone for UNIST to become top of the world university." Over 70% of the students from Kazakh indicated their intention to apply for UNIST. Also, the camp acted as a bridge in the exchange between the Middle Asia and South Korea. Ahmet Yasir Acar from Turkey mentioned, "Before the camp, I have expected only a small country but we have met a coun-

try spreading around the world with fabulous people."

Although this was the first time to hold a camp for the international students, there are many opinions that the camp was successful. Yasar Cenik, the Turkish advisory teacher, said, "All camp schedule was good." However, there were a few problems. For example, most of the Turkish students were in trouble with different taste. Therefore, the camp needs to be corrected the flaws through prior investigation beforehand.

This camp was part of UNIST-KATEV Memorandum Of Understanding signed with KATEV last March. By maintaining a friendly relationship between UNIST and the Middle Asia, UNIST is scheduled to run another science camp next year.

Kang Hyun-joo

2nd award at Odyssey of the Mind World Finals

Interview with Park Hyun-kyu, team leader of LAON



The team 'LAON', which was made by UNIST undergraduate students, won the second prize at the Odyssey of the Mind World Finals as representatives of Korea. From May 23rd to 26th, this competition was held at Iowa State University with about 18000 students from all over the world. UNIST's 'LAON' participated in the second project among 5 projects and won the second prize. Only 'LAON' was in the ranking among the Korean teams. 'LAON' got a high score from their creative solutions to the challenging assignment, and suggesting original ideas through team work for the spontaneous assignment. 'LAON' was composed of 6 UNIST sophomores: Park Hyun-kyu, Han Mi-ru, Kim Do-hoon(all from the school of Nano-Bioscience and Chemical Engineering), Park Kwang-soo(school of Design and Human Engineering), Kim Kyung-jin(school of Urban

and Environmental Engineering), and Kim Hyung-kyung(school of Mechanical and Advanced Materials Engineering).

The team leader Park Hyun-kyu said "First of all, I want to thank the president of UNIST and doctor Jeong Kyu-yong(a director of Jeong-And-Jeong plastic surgery) for helping us participate in this competition. Our team wanted to challenge competitions like this which we can only take part in when we are undergraduate students and the Odyssey of the Mind World Finals gave us a chance like that. We can improve our creative thinking skills by gathering teammates, holding idea meetings, and working together through this competition. The Odyssey was a great chance for competing with creative minds from other countries. We are very glad to have had a great experience like this." He said that cooperation over the four fields - the idea part(Kim Do-hoon, Han Mi-ru), design part(Park Kwang-soo, Kim Hyung-kyung, Kim Kyung-jin), planning part(Park Hyun-gyu), practicing and preparing for the spontaneous assignment part(all teammates) - led the team to get good results. Also he wants to say to readers, "Enjoying something will lead to better results and self development than the attitude that specs and results will be rewarded. If you get the chance to participate in something with a team, don't miss it. Seize those chances, feel and experience many things."

Kwon Keun-yeong



UNIST goes hand in hand with Seoul National University

A step towards a New Leap

On May 25th, Ulsan National Institute of Science and Technology (president, Cho Moo-je) and Seoul National University College of Medicine (dean, Kang Dae-hee) signed the Memorandum Of Understanding (MOU) for activating joint research at Seoul National University. They have agreed to collaborate in the research and activate the co-research. This MOU is the second agreement between UNIST and SNU, following last year. This MOU aims to activate exchanges in study.

30 staff members of both institutes including Vice President for Research Affairs of UNIST (Suh Pann-ghill) and Dean of Seoul National University College of Medicine (Kang Dae-hee) attended the agreement ceremony and discussed holding a co-symposium and having substantial co-research.

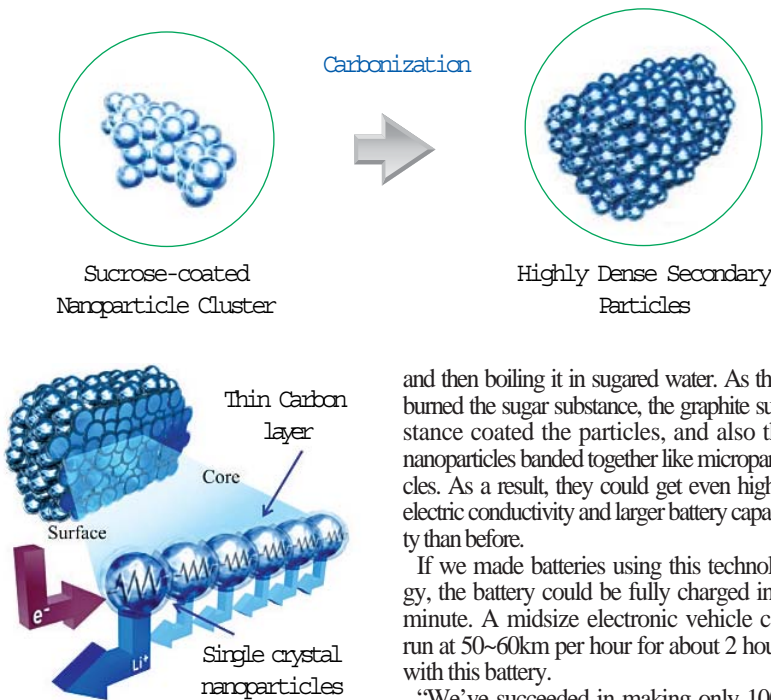
UNIST and SNU have agreed on mutual cooperation through this MOU. Above all both institutes emphasized joint research in specific projects, exchange programs for the students, teaching staff and researchers, sharing scientific research facilities and research findings, promoting commercialization, holding regular seminars and symposiums. They will manage the committee of co-research for the detailed plans.

"This MOU with Seoul National University College of Medicine will help develop research for medical issues. This will make huge achievements for the study of life science" said Prof. Suh Pann-ghill. Dean Kang Dae-hee also stated, "We can fulfill the ultimate goal of life science-the realization of human health through this MOU."

Choi Go-eun

Just 1 Minute for Charging Electronic Vehicles

Prof. Cho Jae phil's team developed the technology



Particle array from surface to core

Prof. Cho Jae phil and his team members from the Interdisciplinary School of Green Energy, developed a new technology for charging lithium secondary batteries. This technology can reduce the charging hours by up to 1/120 times.

Prof. Cho's team solved the problem by reducing the nanoparticles of lithium batteries,

and then boiling it in sugared water. As they burned the sugar substance, the graphite substance coated the particles, and also the nanoparticles banded together like microparticles. As a result, they could get even higher electric conductivity and larger battery capacity than before.

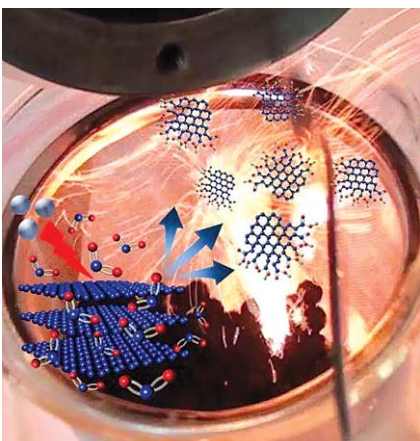
If we made batteries using this technology, the battery could be fully charged in 1 minute. A midsize electronic vehicle can run at 50-60km per hour for about 2 hours with this battery.

"We've succeeded in making only 100g of it, but we have to make up to 10kg to commercialize this," stated Prof. Cho. He predicted that he could develop the battery on a commercial scale by merging the anode material technology in a few years.

The research team already applied for domestic and international patents, and this research findings were published in "Angewandte Chemie, International Edition".

Choi Go-eun

UNIST Prof. Baek Jong-bum's team develops the production process of graphene



Researchers at UNIST have developed an environment-friendly and easy way to produce graphene. Graphene is a carbon nano-material which tore off the first layer of graphite. It is called an advanced material of dreams because it has high electrical conductivity and movement of electrons.

In March, MEST (Ministry of Education, Science and Technology) announced that Prof. Baek Jong bum's UNIST team was successful in finding new technology which can substitute for existing production techniques. The established technology needs toxic material, such as strong acid or a highly corrosive substance, and involves a complex process to make graphene.

Prof. Baek's team reduces graphite and dry

ice to powder, together at a high velocity to form a carbon dioxide compound. Then, they disperse this graphite in a solvent, like water. By this process, the edge of the graphite swells selectively and separates easily. However, the property of graphene doesn't change. Also, the rate of carbon dioxide reduces by 20%.

The conventional method to make graphene is to first oxidize the graphite by strong acid and an oxidizing agent, so that it becomes oxidized graphene through an ultrasonicator, and then the final material can be collected by reduction. But, using this way, there are environmental contaminations, and disadvantages of it losing its own electrical and structural characteristics in the oxidation steps and through the ultrasonicator. It is necessary to use a cancer-causing agent to recover the above problems, but despite this, as much as 70% of these problems can be reduced.

"Through this research, we substituted the conventional ways for an environment-friendly method of construction to make mass production using comfortable sonicators," Professor Baek said.

Also, the scientists from Ulsan National Institute of Science and Technology, led by professor Baek, published their work in the Proceedings of the National Academy of Sciences of the United States of America (PNAS.)

Lim Do-yeon, Lee Sang-myeon

Koo's paper posted on global journal



A UNIST undergraduate led the development of improved performance lithium secondary battery silicon negative electrodes. As this technology developed, it was prepared to improve the charge capacity of lithium secondary batteries which are used in electric cars requiring high energy density.

Koo Bon-jae (Interdisciplinary School of Green Energy senior, 23)'s paper was introduced in the global chemistry journal, 'Angewandte Chemie International Edition' on July 29th.

(The title of the paper: 'A highly crosslinked polymeric binder for high-performance Si negative electrode in Li-ion batteries')

Koo's paper opened the possibility of application in the formation of high-volume silicon negative electrodes. He developed the improved performance that has an excellent electrochemical performance and has five times larger charging capacity than the currently available group of carbon negative electrode materials using a three-dimensional network structure with shape-memory polymer. Li-batteries have been widely used in mobile communication devices such as cell phones, notebook computers, etc. Recently, they have drawn attention as the power source of hybrid electric vehicles and intelligent robots as well as the power storage cell system for renewable energy sources such as solar energy, and wind power.

However, in the case of commonly used carbon negative electrodes, there is the issue that increasing the energy density causes a lower limited capacity (372mAh/g). These days, for improving the capacity, silicon negative electrode material which has 10 times larger theoretical capacity (420mAh/g) than a carbon negative electrode has come out as a substitute.

Silicon negative electrodes are formed by 400% of the severe volume expansion during an electrochemical charge reaction by chemical bonding with lithium. This problem disrupts the electrical connection during repeated charge-discharge cycles so that the lithium storage capacity is rapidly degraded.

Koo succeeded in dramatically improving the electrochemical performance and the charge capacity by effectively suppressing the volumetric expansion with strong physical and chemical combining between the polymer, which has a three-dimensional network shape memory structure, and the cathode particles.

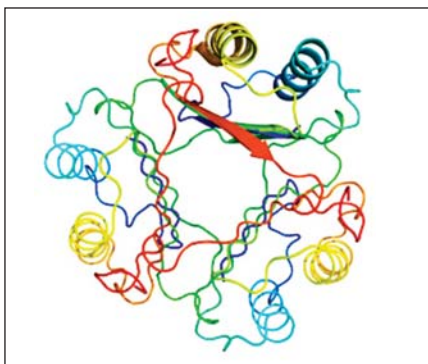
This study result, which effectively improved the volume expansion, will contribute to increase the stability of the battery. Especially, high reliability has been also suggested as an important issue due to the battery explosions and the battery plant explosion problem at home and abroad. Prof. Choi Nam-soon (Interdisciplinary School of Green Energy) said, "Artificial polymers developed in this study have a great significance in accelerating the commercialization of silicon negative electrodes that can store more electrical energy."

"In June, I attended an International Lithium Battery conference (IMLB 2012) in which more than 2,000 domestic and foreign experts in secondary batteries and I presented the results of this research. Through a variety of experiences, I could be confident so that I could obtain the results of this study", he said. He said about his future goals, "I want to appreciate Prof. Choi Nam-soon who helped my research with theoretical understanding, the purpose of the experiment, and analysis of the results as well as the course map for many things. I will join the UNIST graduate school and I want to do research about solving the problem of volume expansion of the silicon cathode and electrolyte secondary battery."

Kwon Hye-ri

Professor Suh's paper- MIF mediates antidepressant effect of exercise.

More exercise, lower probability of getting depression.



The picture is gene of MIF which can be increased by exercise. It is known for its antidepressant effect

Suh Pann-ghill, who is a professor of UNIST in the Nano Bioscience and Chemical Engineering school, published his research in the PNAS journal (Proceedings of the National Academy of Sciences of the United States of America) on July 23rd, 2012. His research had been conducted in collaboration with POSTECH and other organizations. The research was supported by the National Research Foundation of Korea.

The research team found that MIF

(macrophage migration inhibitory factor) expression increases due to exercise by analyzing long term exercise and sources of electric shock therapy used for treating depression. Also, the team found in a model of nerve cells that MIF influences depression through the process of increasing brain derived neurotrophic factor which depression patients lack and serotonin. After that, they confirmed it by animal testing. In short, they found that long term exercise can help remedy depression.

Suh Pann-ghill stated "The research can be the basis for the development of a perfectly different style of antidepressants and therapy". Also he pointed out that MIF can be used as a biomarker which means that MIF is a hint for the development of new antidepressants and helps patients to check whether they are depressed. He anticipated that new therapies using MIF will be more effective because MIF is already in our brain.

Because MIF, whose expression is increased by long term exercise, already exists in the brain, there is a probability of getting safer and more effective antidepressants. This is the special meaning of the research.

Park Hye-won

Seo Bo-jeong's paper selected in Applied Physics



Seo Bo-jeong, who is an undergraduate student in the school of electrical and engineering science in UNIST, has issued his findings about metamaterials in the Journal of Applied Physics. The research was carried out

to develop a technology either to let light passor to loosen the speed of light by using metamaterials. This could be applied to medical imaging technology and an electromagnetic wave.

The paper posted online on June 6th under the title of "Observation of trapped-modes excited in double-layered symmetric electric ring resonators" was the first research figuring that light could be trapped in the 3rd dimension symmetric structure. Until now, it has occurred in the 2nd dimension asymmetric structure.

He said, "At first, it was unfamiliar to enter the laboratory just with an interest of physics. However, my advisor helped me to understand vari-

ous kinds of themes and other graduate seniors also helped me to achieve the results. This work made me interested in experiments as well as theory. From now on, I would like to do research and study about nuclear fusion more."

Choi Eun-mi, an academic advisor in the school of electrical and engineering science, said "It is very honorable to issue findings in the journal of Applied Physics. The result in the paper can be further expanded to ideas applicable to novel devices in the frequency bands of microwaves, millimeter waves, and THz waves, etc."

Jo Shin-yeong

'Peak of excellence' and 'have earnestness'

Vice president, Jung Moo-yeong's advice for UNISTARs as a mentor

July.19,2012 at Administration building room no. 507, Vice president, Interview, (Vice president: V, Student reporter: S) UNIST

S: You have seen the growth of UNIST. What do you think of UNIST's growing up?

V: I had not seen the growth of UNIST. President (Moo Je Cho) and I have made changes and growth. The UNIST founders had changed the paradigm so that the purpose of UNIST was converted from education to researching and studying.

Currently most say that UNIST has developed better than expected. UNIST has the most promising potential growth compared to KAIST, GIST and POSTECH.

S: You had been a professor of POSTECH. Why did you come to UNIST?

V: Because of new possibilities. When I was preparing to retire at POSTECH, President Moo Je Cho called me and explained the curriculum and role of vice president of UNIST. "I want to make a new university (UNIST) with you"

He said that he was lucky because he could catch opportunities such as founding new universities. One is a private university, the other is a public university: POSTECH and UNIST. However, He had a hard time making a new university because of the differences between private and public.

S: Did you have any trouble founding UNIST?

V: I had previously founded

POSTECH. However POSTECH is a private university. I didn't distinguish private universities from public universities. So I had a hard time accepting the means of a public university such as funding for establishing the university and securing a government budget. I learned these from President Cho.

S: What do you think about changing UNIST (national university) to UNIST (institute of Science and technology like KAIST, GIST)?

V: There is no perfect system. However, if UNIST changes, the first people who will have advantages are students because students can be exempted from military service automatically. If UNIST changes into an Institute system such as KAIST, GIST, there are many things which UNIST should think about and prepare for. Though KAIST and GIST get along in this system. Then UNIST would adapt to this system because UNIST is good at adapting in change and paradigm.

2. As Vice president, Techno-management Dean and a Professor

S: You are one of the Techno-management undergraduate professors, in addition to being vice president of UNIST. Are there any differences between your view as a professor and as vice president?

V: Yes, there are many differences between them. As professors, they just think about their individual projects, studies and students. However, as the head of the school, they have to take a different view. It is hard to deal with problems of school with a professor's individual mind. As vice president, I have to see the whole of UNIST and each school's characters and frictions.

He is also dean of the Techno-management graduate school. It doesn't have a long history, however it has a specific character compared to other universities such as SNU, KAIST. It is engineering character. So UNIST decided to use its engineering character as the base of graduated school so that UNIST launched and specialize Oil trading, Energy financing programs.

He said that the Techno-management graduate

school has been going well because Ulsan's enterprise environment is good for it. For example Ulsan port is a liquid fuel harbor which already had prepared for Energy trading and investment.

3. Advice of the Vice president

S: You had studied in the U.S.A, so do you have any advice for preparing UNISTARs to study abroad?

V: Have desperation. Do self-examination. I was a person who had no idea about studying abroad. However, these days, if you have no exact idea about studying abroad when you prepare for it, you can't survive. See, there are a number of the unemployed people who have studied in abroad. Have desperation and exact objectives. Bear these two things in mind.

S: Have you ever had a hard time studying? How did you get over it?

V: There is no royal road to learning. You can feel frustrated if you find that other people have already done work about a specific topic which you want to study. However, you do nothing to give them up because other people have done them. Rather, dig into previous works and find the differences between theirs and yours. Suppose scissors were studied. Is it end of scissors study? No, you can set different cutting methods. Like, the study is not done and can still be developed.

S: What do you want to say to UNIST students and faculty?

V: What I want to say to the students and faculty of UNIST is "peak of excellence". Do not forget 'Peak of excellence'. It's not just students who should think "what is my peak of excellence?" or "Can my study or research be the peak of excellence?", but the faculty of UNIST as well.

UNIST's competitors are not SNU, KAIST, GIST or POSTECH; it's a global world. UNIST has said that it will become better than MIT. However, it does not mean that UNIST must surpass MIT right now. After 5 years, 10 years, UNIST will jump up on the MIT stair with proper objectives, an exact plan, and peak of excellence.

S: What is your wish for this year?

V: I want to set the proper peak of excellence's basics in each department. UNIST has launched ECTFE (Energy Commodity Trading & Finance Engineering program) in Techno management graduate study. I want it to have roots and proliferate.

Lee Dong-eun

KIER-UNIST team developed the lower - priced battery

KIER(Korea Institute of Energy Research) -UNIST Ulsan's next generation battery original technology center, developed a new technology that replaces platinum, which is the typical material of solar batteries, with carbon.

"Possibility of commercializing dye-sensitized solar cells"

A new technology was developed that substitutes the platinum electrode of dye-sensitized solar cells with carbon material. This technology improves adhesion by taking dispersed carbon material through composing of medusa shaped carbon nano material.

Professor of UNIST, Joo Sanghoon (School of Nano-Bioscience and Chemical Engineering, 36), Jun Yongseok (Interdisciplinary School of Green Energy, 42) and researcher of KIER Dr. Han Chihwan(40) introduced their results on the 65th page of Chem. Commun on July 20.[name of paper : Highly interconnected ordered mesoporous carbon - carbon nanotube nanocomposites: Pt-free, highly efficient, and durable counter electrode for dye-sensitized solar cells]

Dye-sensitized solar cells apply the technology that dye sensitized the solar light and makes electricity. Dye absorbs the light and makes electricity like when plants do photosynthesis,

the chlorophyll absorbs light and makes energy. Dye-sensitized solar cells are economical. Because they are easier to make than original solar cells.

Dye-sensitized solar cells are consist of dye absorbed TiO₂ of light electrode, platinum laminated opposite electrode, iodide compound electrolyte filling the space. However, platinum's price is expensive, and in the long term, it is vulnerable to iodide. That's the reason, it is difficult to commercialize. Carbon, a spotlighted alternative material to platinum, has problems because its adhesion isn't good not only carbon but also transparent electrode.

Nano-medusa shaped carbon electrodes have a large active area. So there are no big differences between them and dye-sensitized solar cells made with platinum. However, because of joint loop between carbon, conductivity and adhesion is excellent and having a good point, reducing the manufacturing cost, helps to commercialize the dye-sensitized solar cell.

Ulsan established a joint research center named KIER-UNIST in June to vitalize the fusion research. To date the center has published more than 50 SCI papers in the field of energy and proceeded various business to invigorate region energy industry with Ulsan.

Jin Woo-young

No proctor system, is it okay?

There are plagiarized papers and fake diplomas in many intellectual fields. So society wants and needs talented people with morality and probity. To raise these people, UNIST has used the 'No proctor system' since the school's inauguration. Through this system, students are motivated by self-esteem, pride and conscience as a UNISTAR. The students of UNIST sign an 'Honor Code' before writing answers as a part of the 'No proctor system'.

However, there are students who are dissatisfied with system. About 78% of the surveyed students(80 students out of a total of 103 students) replied that there is a problem with this system. Many of them replied that the problem of the 'No proctor system' is cheating, because they think the 'No proctor system' creates an environment where cheating is easy. Also they think conscientious students are harmed to their grade due to unscrupulous students. Relative deprivation and distrust between students in the same school will result. We don't know if there is more cheating here than at other universities that don't implement this system. But why do they think cheating is a problem of the system? As mentioned before, it causes students to feel the temptation to cheat. A student pointed out "It induces a student who would not normally cheat to cheat." Also, grades are directly connected to scholarship so cheating causes more complaints about unscrupulous

students. Another student said "UNIST supports many scholarships compared to other universities so the temptation to cheat is several times greater." Many students have complained that the punishment is not clear and it is hard to expose students who have cheated. They say the "No proctor system" should be supplemented.

The school wants probity education through the 'No proctor system' to be recognized as typical of UNIST. While, there is no way to know about the intent and details of the system, to keep this system well, it should be supplemented consistently. The school should hammer the system and its intent home to the students. Not only that, there are cases which are not covered by the 'No proctor system' so it also needs to supplement. Many students want to keep this system. Like this, the school should make an effort for both students and the school. Students should take exams conscientiously then become respectable UNISTARs. Some students said "A student speaks lightly about his own cheating or even boasts about that fact." You should reflect on unscrupulous behavior whether you betray your own conscience. As the system is implemented with good intentions, both school and students should make an effort for the 'No proctor system' now and forever.

Kim Si-in

Higgs boson, Big discovery of physics

finally the found higgs boson, since scientists search for 50years

On July 4th 2012, there was a big news in science at Geneva, Switzerland. Conseil European la Research Nucleaire(CERN) found a new particle, which is assumed to be the Higgs boson, by using the Large Hadron Col

ider(LHC). This is despite Stephen William Hawking, who is an eminent theoretical physicist, having bet 100dollars that 'they wouldn't be able to find it.' Its mass is between 125-126GeV. This range corresponds to the figures predicted by CERN last December. The probability of the existence of the Higgs boson is 99.9994%(Sigma). 5 sigma means the signal of the Higgs is under the millionth error. Rolf Heuer, the director general of CERN, said "We have reached a milestone in our understanding of nature."

In modern physics, the cosmos consists of 17 sorts of particles. Particles are divided into matter particles called fermions and force-carrying particles called baryons. 12 Particles have mass, 4 particles don't have mass and the other has not been found. The 17th particle is the Higgs boson. The Higgs boson, also called 'The God particle', was theorized by English physicist Peter Higgs in 1964. And the Higgs boson was named by Benjamin Whisoh Lee, Korean Physicist and main character of the Korean novel 'The rose of Sharon is in bloom'. The reason the Higgs bosons got the nickname 'The God particle' is that it gives mass to other particles. The Higgs boson destroys the symmetry just as if Girl's Generation suddenly showed up in the armored military unit.

Scientists have been looking for the Higgs boson for over 50 years. And now they found a clue of the Higgs boson. This discovery is so important for science; it may help us answer questions like 'what is dark matter?' and 'where did the universe come from?'

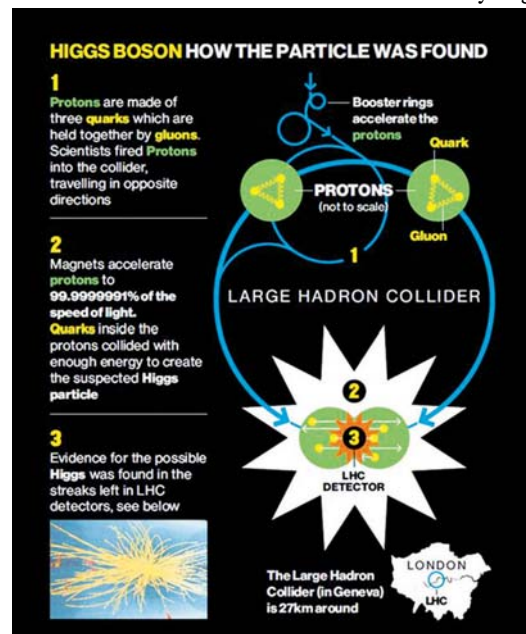
CERN made the LHC, to find the Higgs boson and to investigate the big bang theory. It occupies about 27 and is located between Geneva, Switzerland and the border of France, 100m underground. The LHC consists of 4 parts.

A Large Toroidal LHC apparatus(ATLAS), Compact

Muon Solenoid(CMS) which collides protons, LHCb which collides b-hadrons, and A Large ion Collider Experiment(ALICE) which collides neutrons. The LHC accelerates the protons by using an electric field and magnet ic field to collide the protons.

ATLAS and CMS made this result. It is an important result for the LHC. In the future, CERN has to do more research about the traits of the Higgs boson. And beyond this, ALICE and LHCb also study other things. Through discovering the Higgs boson, Scientists will reveal the cosmos's secrets and secrets of physics.

Jin Woo-young



ICISTS_KAIST 2012



ICISTS-KAIST 2012 was held at KAIST and Daejeon Convention Center(DCC) in Daejeon from August 6th to August 10th.

ICISTS is the abbreviation of the International Conference for the Integration of Science and Technology into Society. It is an international undergraduate conference, held by ICISTS, nonprofit undergraduate organization in KAIST, for the integration of science and technology into society.

The five day conference had various programs prepared for the participants.

The theme of ICISTS-KAIST

2012 is "The Age of Integration". ICISTS-KAIST 2012 proposes the union of science & technology and other disciplines as an answer to various social problems. Some topics gave us interesting aspects of science and other topics raised questions and contentions. For example, Molecular Gastronomy and Smart Phone Orchestra were very fun and different from other sessions. ICISTS-KAIST 2012 offered new insights on the integration of science & technology into society which may result in values beyond our expectations.

ICISTS-KAIST 2012 had three

Keynote Speech	During the keynote speech, internationally renowned speakers share how science, technology, and society will transform in the future.
Plenary Session	In the plenary session, all delegates are invited to discuss the general issue of integration. The lectures and discussions in this session are considered the core contents of ICISTS-KAIST.
Parallel Session	Speakers at ICISTS-KAIST 2012 deliver their expert knowledge and the most up-to-date information related to each subtopic. Three parallel sessions are held at once and delegates can choose the ones in which they wish to participate.
Panel Session	Speakers are invited on stage to freely discuss the topic of convergent studies. Delegates can explore various personal experiences and opinions of the speakers.
Start-up Session	This session is designed to spread the culture of entrepreneurship among future leaders. It will feature young entrepreneurs from the plenary session and panel discussion.
Culture Night	Delegates can explore international cultures and the culture of fusion and integration through various performances and experiences.
Team project & Poster Fair	Based on the expert knowledge shared over the past four days, delegates form a team and collaborate on a team project. At the poster fair, team projects are presented and evaluated by the speakers.

subtopics. Many speakers participated in each subtopic and exchanged opinions with delegates about each subtopic. The speakers were respected scientists, a CEO, a novelist, movie professionals, and a director.

I think that the most interesting programs were Culture Night and Public Session-Plus.

Culture Night was a program that introduced Korean culture and helped international delegates to experience Korean culture by making Korean national kites.

Public Session-Plus was opened to the participating delegates and teenagers who live near KAIST.

The topic of Public Session-Plus, which was Molecular Gastronomy and Smart Phone Orchestra, attracted the interest of participants.

On the last day, a poster fair was held at KAIST. Delegates carried out a team project to solve a global problem and they proposed their solutions through the poster fair. Their solutions were inventive and professional. I think that their solutions will be realized soon.

ICISTS-KAIST 2012 was a very professional conference and I think this conference is representative of conferences which undergraduates host in Korea.

Lee Kang-seok

Financial engineering for undergraduate

As a part of the finance and accounting program in graduate school, UNIST has financial engineering. Have you heard about financial engineering before? It is common in America but it is not so much in Korea.

Do you know what financial engineering is? Financial engineering is a process that uses existing financial instruments to create a new and enhanced product of some type. In financial engineering, any combination of financial instruments or products can be used. It might be easier to explain with an example. A good example of financial engineering is financial reinsurance. Companies that offer reinsurance options essentially provide a way for the ceding insurer to minimize a drain on available resources when a major shift in premium growth or reduction is taking place. In this scenario, the process of financial engineering helps to create a stable environment that will allow the insurer to remain solvent and stable even when extreme conditions exist. For the consumers, the work of a financial engineer to create new finance products can be a great advantage. In some cases, the new and improved product is simply a repackaging of several independent but complimentary products made available at a lower price.

For example, the consumer may find that purchasing insurance that provides dental, hospital and prescription coverage may be significantly less expensive than purchasing individual plans. Financial engineering works in other environments as well. The financial theory of offering several existing products under one package has become very common in the telecommunications industry. Today, many providers offer bundled service packages that include local phone service, unlimited national long distance, Internet service, and cable or digital satellite television. The end result of this type of arrangement means one lower price to obtain three or more services at significant cost savings to the consumer. Sometimes known as computational finance, financial engineering relies heavily on mathematically calculating the outcome if various combinations of financial instruments are offered under one umbrella as a package deal. Usually, the

calculations indicate that the providers stand to do very well with the new hybrid financial product, as the product holds the potential to attract new consumers who would have foregone use of one or more of the instruments if the only option was to purchase them individually.

The origin of computational finance as a discipline can be traced to Harry Markowitz in the early 1950s. Markowitz conceived of the portfolio selection problem as an exercise in mean-variance optimization. This required more computer power than was available at the time, so he worked on useful algorithms for approximate solutions. Mathematical finance began with the same insight, but diverged by making simplified assumptions to express relations in simple closed forms that did not require sophisticated computer science to evaluate.

Maybe this might help you to give some more information about graduate school. The 2011 Quantnet ranking is the most comprehensive ranking to date of masters programs in financial engineering and mathematical finance in North America. These are the top 5 universities they ranked.

The first school is Carnegie Mellon University in Pittsburgh, PA and its program is Computational Finance. Princeton University has taken second place and its program is Master in Finance. The third one is Columbia University with financial engineering. The next one is New York University with mathematical finance. The last of the top five is Baruch College, City University of New York and its program is also financial engineering

Baik Ji-yeon

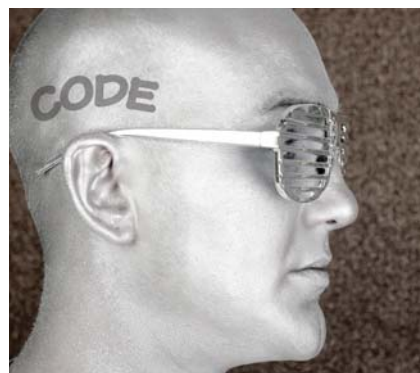


The CODE, the HACK

The instances and processes of development of encryption and decryption

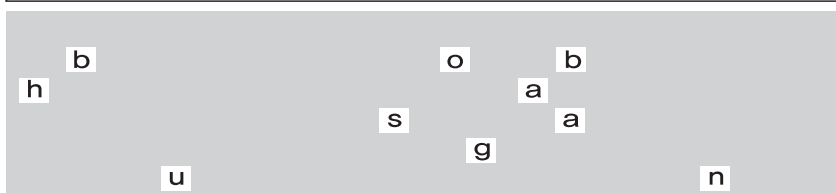
Encryption and decryption were developed long ago, and are applied to daily life. There are many cases in which they are used for military strategies. Especially in World War II, German scientists, Enigma and Turing used codes for military research. Also during our everyday lives, a password for accessing a website, of course, is one kind of code and a pattern for security of so-called, smart phones is also one. When did the encryption and decryption have been advanced since?

When sending a message in Ancient Greece, the person in charge had messengers shaved, wrote something to send on their tonsured head, and then sent it when their hair grew fully so the written things could be hidden. This way to hide the message for sending to others like above is called 'steganography'. For an example of this, It seems like just a letter from Michel to Heidemann, but when a grid plate for their interconnectivity and reliability, is put on it, then it shows hidden messages. Also, in World War II, the Wehrmacht sent a one page plot, which was reduced to little dots and then attached to a normal letter's periods. But steganography has a weakness if exposed to the opposed. If they know the way to decode the codes, they are useless from then on. Also the reverse can be a case



Dear Martin,
Maybe you have already been told that boss believes that at the last operation the police had been informed in advance. He therefore will send Bob to all the people he considers trustworthy in order to get their opinion on where the leak could be. Bob will come next Monday at noon.

Greetings Jack



that senders want to avoid above weakness, but it makes them code excessively thoroughly. It can be another weakness for steganography. The 'cryptography' can make up it those weak points.

Cryptography is the practice and study of techniques for securing communication in the presence of third parties (called adversaries). More generally, it is about constructing and analyzing protocols that overcome the influence of adversaries, which are related to various aspects in information security such as data confidentiality, data integrity, and authentication. Modern cryptography intersects the disciplines of mathematics, computer science, and electrical engineering. Applications of cryptography include ATM cards, computer passwords, and electronic commerce.

Cryptography prior to the modern age was effectively synonymous with encryption, the conversion of information from a readable state to apparent nonsense. The originator of an encrypted message shared the decoding technique needed to recover the original information only with intended recipients, thereby precluding unwanted

people from doing the same. Since World War I and the advent of the computer, the methods used to carry out cryptology have become increasingly complex and its application more widespread.

One modern security system is the RSA algorithm. RSA is an algorithm for public-key cryptography that is based on the presumed difficulty of factoring large integers, the factoring problem. RSA stands for Ron Rivest, Adi Shamir and Leonard Adleman, who first publicly described it in 1977. Clifford Cocks, an English mathematician, had developed it in 1973 but it was classified until 1997. A user of RSA creates and then publishes the product of two large prime numbers, along with an auxiliary value, as their public key. The prime factors must be kept secret. Anyone can use the public key to encrypt a message, but with currently published methods, if the public key is large enough, only someone with knowledge of the prime factors can feasibly decode the message. Whether breaking RSA encryption is as hard as factoring is an open question known as the RSA problem.

Lee Sang- myeon

Deciding your research field effectively

Through UMI explanatory meeting

Students of UNIST can learn about their future in research through the UMI group explanatory meeting. Also they can find out inter-disciplinary research field of graduate school.

UMI is an abbreviation of 'UNIST Multi-disciplinary Institute'. It helps professors who belong to different divisions to gather and make one group. If the group is made, there are many advantages such as gaining research funds easily and contacting research themes across many fields. UMI has about 50 research groups.

For example, one professor, who belongs to the school of mechanical and advanced materials engineering, and another professor, who belongs to the school of nanoscience and chemical engineering, made a 'graphene' group together.

In a group explanatory meeting, professors who belong to the group attend. There, students can learn about the field and can ask some questions to the professors. When the explanatory meeting is over, students and professors go together to 'do-dream' to have chicken and beer, or eat some pizza. At that time, students and professors can feel closer by private conversation.

Choi Sol (Nano biochemical engineering, 11) who participated in the explanatory meeting for the 'regenerative medical engineering' group in the first term said "I

wanted to know about the professor, so I made an application for the explanatory meeting." Park Jae-hyung (Nano biochemical engineering, 10), who participated in a 'graphene' group, had an opportunity to take an internship below a professor of that group.

The explanatory meeting of the first term is a 'former' period meeting. So a latter period meeting will be held at the beginning of third term. It will be held every Thursday evening just like the former period meeting.

Submitting an application for an explanatory meeting is simple. Students can apply for an interesting field through the portal site (airc.unist.ac.kr) pop-up. However, only 20 students can have an opportunity to enter each group in order of application.

Jo Young-gyu (Strategic research planning team) who works for UMI in UNIST said, "You may feel that you wear glasses when you take off your glasses. You can gain a vivid future. Also Professors are pioneers, so they can give you a path."

The explanatory meeting is for UNISTARs who don't have graduated seniors, but who have trouble with choosing their career. It is not only a chance to know about interesting fields but also a spot to meet professors.

Jo Hye-jin

UNIST 2nd term Culture Program



Date	Time	Performer	Show Theme
2012, 9, 27	19:30	Magician Choi Hyung-bae	Magic Show
2012, 10, 25	19:30	Jazz Band Prelude	Jazz Concert
2012, 11, 29	19:30	Sand Artist Ji-soo	Sand Art
2012, 12, 20	19:30	Troubad	Popera

Fusion is the general trend!

UNIST Humanities Festival 2012

The Education Center for Gifted Students in UNIST was host to 'Humanities Festival 2012', which featured the coexistence of science, technology, and humanities, from July 12th to 14th. It was intended for UNIST, KAIST, POSTECH, GIST, and National Science High School students.

Before the festival, each participant had already applied for one of the six themes (music, art, theater, film, history, design). For three days, students did different activities related to the theme that they had chosen before.

Through this festival, gifted students in science and engineering could also explore the field of humanities, what they paid little attention before. Networking among the talented students would make great synergy to raise their refinements.

On the first day of the festival, there was a special lecture 'Autobiography: Make a story with your own life' by Prof. Yu Ho-shik, who belongs to the department of French Language and Literature at Seoul National University. After that, students had a fun time with the singers Slow June, Han Hee-jung and Casker in Talk&Concert, held at the auditorium.

On the second day, students and lecturers did theme activities together. Below, there is a summary of what they did

on the second day.

These activities received high praise from the students. One of the students who participated in the film theme said, "PD. Yun's lecture on the first day was very interesting. There're few protocols-Consumers who need the specific products- so that I could understand why it is hard to make SF films in Korea. We were separated into 6 teams and each team made a different SF film proposal. After presenting the proposal, team 4 finally got a DVD prize and the story concept book about the film <Blind>."

Most of the students were satisfied with the active lecturers. "PD. Yun gave us lots of advice about the structure of a proposal, brainstorming and story concept. He suggested keeping in touch through Facebook and considering the project named 'Making an SF film in 5 years' together."



On the last day, Prof. Lee Myun-woo from the design and human engineering school at UNIST, gave a lecture about 'Topics of university life vision, creativity and global leadership'. At the end of the festival, every student got his/her own certificate and souvenir.

According to the survey of participating students, most students were 'very satisfied' or 'satisfied'. One student said, "I'm definitely sure that the festival was well worth participating in. The precious time meeting friends in KAIST, POSTECH and GIST was a great stimulus to me. Moreover, thinking on the humanities was an unforgettable experience. I really appreciate this chance and I'd like to join this festival again." Although students in science and engineering are unfamiliar with the humanities, they explored unusual subjects thanks to the festival. There were also some suggestions like extending the period of the festival and expanding the field of themes to include philosophy, literature and psychology.

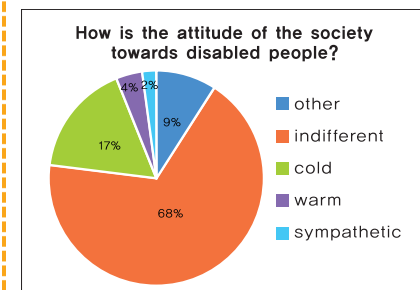
This festival will become a brand of the UNIST Education Center for Gifted Students and the other 5 Institutes of science and technology. They're going to promote this festival in the years ahead.

Kwon Hye-ri, Lee Dong-eun

Our society and disabled people?

What we need to know about their welfare and perception in society

In the past, handicapped people were often subject to great discrimination. They were probably discriminated against as a result of their difficulty in performing normal tasks, and the lack of understanding from society. Then, what is the standing of handicapped people in our current society? Are they still treated the same way as in the past? According to a survey held by a government agency, 69.9% of the participants answered that handicapped people are individuals who need help. This number shows that many people believe disabled people are subjects of sympathy, but does it also mean that society has become friendlier towards them? In order to find out, a private poll, in which mainly UNIST students took part, has taken place



and 85% of the participants replied that they believe the attitude of the society towards disabled people is either cold or indifferent.

In the same survey organized by the government, 44.4% of the respondents said that the perception of society should be changed in order to lessen discrimination against disabled people in society and 44.1% answered that a welfare program should be implemented. Then, how much do people know about the welfare program offered to disabled people? 72% of the students who participated in the private poll admitted that they are not very well informed about the welfare program. So, let's have a look at the welfare pro-

gram first.

According to the Ministry of Health and Welfare, there are approximately 2.5 million people with a handicap in Korea. It means that 5% of the total Korean population has some sort of disability. This rate is low compared to those of other countries such as Canada and the US, 14% and 18% respectively. Hence, it is probably normal to see these western countries have better welfare programs for handicapped people than the ones that South Korea has.

South Korea does have its own welfare program, which has been the subject of constant change and criticism. The Welfare of Disabled Persons Act classifies disabilities into 15 different types which can be either physical or mental. The levels of disability range from 1 to 6, and they determine the benefits and financial support a handicapped person can obtain from the government and organizations. Some of the basic benefits provided to them are cheap train fares, full medical coverage and discounted phone bills. The welfare program also tries to provide support to disabled people in education, employment, and other areas.

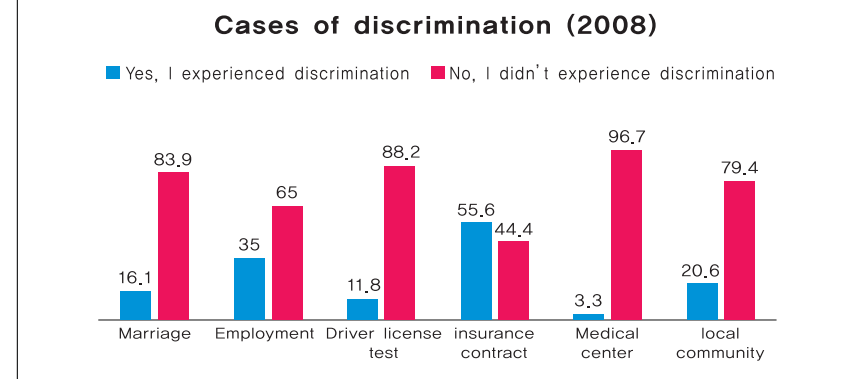
According to the special education support division, disabilities can be identified into 11 different types, and children and teenagers with one of those disabilities qualify to be enrolled in special classes or schools. As of 2011, there are 155 special schools and more than 15244 teachers that provide special education to children and teenagers with disability. Overall, there is one teacher for every 2 disabled students.

As for employment opportunities, handicapped people have a harder time finding jobs than non-handicapped people do. In addition, many of them do not qualify for financial aid from the government because of its narrow definition of poverty. Without a stable job and hard-to-obtain financial aid, it is hard for them to support themselves. In

order to promote the hiring of handicapped people, a law that requires government agencies and big companies to employ them has been passed and facilities that help disabled people to develop necessary job skills have been built.

The welfare program, which has been described so far, is probably not sufficient to meet all the needs of the disabled people. However, the fact that discrimination against disabled people still exists in society is not only the government's fault. Let's look at society's perception about handicapped people. People often forget that disabled people are independent individuals who share the same rights that we have, and look at them with only sympathy. Moreover, the problems that handicapped people face in their daily lives don't feel real to many people. Thus, people, as a group, lack interest in the welfare of disabled people, most of the time.

Research that took place in 2008 tried to find out rates of discrimination, violence and sexual abuse that involved disabled people. Most disabled people reported that they didn't feel discriminated against at school or within marriage. However, a significant number of people answered that they experienced discrimination in employment, insurance contracts and in the local community. Then,



how do they cope with discrimination? Most of them prefer ignoring it or holding back to taking active measures against the aggressor.

What can be done to change the perception of society and reduce discrimination? According to Prof. Yoo Dong-chul(Dong-Eui University), first of all, it is important to develop an indicator that can evaluate society's change in perception objectively. Then, a positive and objective image about disabled people should be publicized through different mass media such as TV, newspapers and internet. Teachers and parents should also help children to understand and accept diversity among people through volunteering activities.

Why is it so important to improve the society's perception about disabled people? Prof. Kim Kyung-mi(Soong-Sil University) answered the question through email correspondence, "In my opinion, being global implies having respect for diversity. In order to become a 'global in-jae(talented person)', it is necessary to understand and acknowledge those people who are different. Without understanding other people, it is impossible to embrace other cultures. How about you? Why do you think it is important to change the perception of society about disabled people?"

Belinda Chung Baek

New type of cyber singer; vocaloid



On July 22nd, the Vocaloid 'SeeU' debuted as a singer on the Korea music program 'Ingi-gayo' (famous pop songs). She sang and danced with the new group 'G L A M'.

Vocaloids are quite unfamiliar in Korean society, but they are well known in Japan. For example, Hatsune Miku, a famous vocaloid singer in Japan, showed her popularity in the London Olympic opening performance popularity vote. Well-known popularity vote site The top-tens (www.the-top-tens.com) had a vote for popularity with the subject 'Which singer do you want to see in the London Olympics?' and Hatsune Miku got a top honor.

The word vocaloid is a compound of Vocal and Android. It can be confused with the Korean cyber singer 'Adam' but it's a little different in principle. The first vocaloid was made by a sound system company in Japan, 'YAMAHA'. YAMAHA made a software

program which can compose lyrics and melody which the user puts in. It only needs basic human tone then links the syllables. Since technique of combining lyrics and melodies was absent before existing cyber singers are needed for whole song which human sang. Now, what people do is to make a moving image and add the song to it.

This new culture can give an opportunity for amateur composers. Composers, who can't find a singer who will sing their songs, can show their piece by vocaloid. Also, there is no limit in virtual reality. So, the cyber singer can make a fantastic performance which humans can't make. However, there are still limitations to cyber singers. We use a vocaloid program which was made in Japan. The pronunciation of Korean is more complicated than Japanese so the cyber singer can't sing with exact pronunciation. Also, cyber singers are a compound of vocaloid(voice) and video. The video technology is still 2D. Therefore, there is the problem that we can't see the singer from any side except the front. If this imaginary singer can overcome these obstacles, then the future of cyber singers will be brighter than now.

Lim Do-yeon

Koreans are not happy because of the environment

Korea gets poor grade in ecological footprint

June 17th 2012, The New Economics Foundation (NEF) released the Happy Planet Index(HPI) of countries 2012. Korea ranked 63rd place out of 151 nations. HPI is designed to oppose existing indexes which take economic ability as an index. However, they selected the environment and happiness as the means of ranking countries. As the concrete components, there are life satisfaction, life expectancy at birth, and ecological footprint per person.

Costa Rica, the country which gets first place, scored 64.0 points. This country gives a shock because it is an unfamiliar nation to us. Likewise, Vietnam, well known as a developing nation, scores 60.4 and takes second place. Compared to these two countries, it's hard to believe that Korea got a poor score because Korea is much more developed in many aspects than them.

Analyzing the data in detail, there are three assessment items: life expectancy, well-being and ecological footprint per capita. Korea scores 80.1, 6.1 and 4.6 points on the three items, respectively. The interesting thing is, Korea gets great points in life expectancy and well-being. Both indexes got estimated as 'good' and

'middling'. However, ecological footprint got poor points. The average ecological footprint is 2.7 which is a lot less than Korea's. It means the ecology of Korea makes Koreans unhappy.

According to the Oxford dictionary, the definition of ecological footprint is the impact of a person or community on the environment expressed as the amount of land required to sustain their use of natural resources. Which means, the larger the size of the ecological footprint, the worse the condition of ecology. Originally, the amount of ecological footprint per capita which Earth can endure is 1.8ha. Korea gets a value 2.5 times higher than standard. In other words, Korea has no solution to preserve nature.

To lower the value, we have to decrease the waste of resources. It's time to have an interest in sustainable development. According to Kim Jin-yeol's paper <Study on the improvement of environmental budget for sustainable development : focusing on interregional environmental capacity comparison by analyzing an ecological footprint>, we have to decrease consumption of meat and food waste to decrease ecological footprint.

Lim Do-yeon

Teachers' right VS students' right

Over the conflict, head the harmony

Teachers' rights suppression and students' rights oppression are controversial issues and the source of trouble in school. For reconciliation, listen to the opinion of a high school alumnus (Han Won-seok, UNIST, Freshman) and a teacher (Lee Eon-beom, Hyewon girls' highschool).

'Teachers' rights' includes both the right of learning and the right of teaching, but generally means teachers' right of teaching. Therefore, suppression of teachers' right means teachers can't teach students ordinarily. Before students' human right laws, teachers inflicted physical punishment on students who hindered the teacher during class. However now, physical punishment is totally banned, so teachers struggle to handle disorderly students.

About this situation, Han Won-suk said, "physical punishment that inflicted on students before did not teach such disorderly students, just suppress them. Teachers should teach students not only their rights but their responsibility. And students who do not take their responsibility will be disciplined strictly." In addition, "physical punishment for education is the wrong idea. It is hard to find in foreign countries. Banning physical punishment, we should try to change our view. Physical punishment must be totally banned." Han adds,

Teacher Lee Eon-beom said, "Well-intentioned physical punishment for education is one of the traditional teaching methods. As various teaching meth-

ods exist in different societies, teaching methods are carefully decided on the basis of the society's historical recognition and social philosophy." Meanwhile Lee is alert to unquestioned adoption of the West's practices. Besides, Lee also pointed out distrust between school and home. "We need trust among parents, students and teachers to conduct 'well-intentioned physical punishment for education'. But it isn't valid because teachers enforce their authority, and parents and students do not trust school."

About students' human rights and protecting teachers' rights, Han said "human rights were guaranteed to students through my school days." And he also said "people who adhere to the past can't adapt. Students should be responsible for their actions, and teachers should know that the students' human rights guarantee is a new chance to communicate with student." Han urged us to change our ideas. Lee said "because of society's overall mood, student's self-centered character grows strong, and fitness for a group life is lowered." He implied that home discipline's necessary. "Trying to apply both 'don't hit me' and 'protect teachers' rights in the name of human right law, a small disharmony can lead to extreme circumstances. The fundamental thing to protect teachers' right is mutual trust, not physical punishment." Lee asks people to trust school.

Son Jun-seo

2012 Professional baseball, Hit the Korea peninsula.

Successively in 2011 and 2012 professional baseball is a ticket office hit. While other professional sports, such as soccer, basketball, and volleyball, lose at the ticket office, professional baseball is explosively booming. Last year, there were 6,000,000 viewers which is the top record since the league inception 30 years ago. This year, continuing the momentum, more than 7,000,000 people are expected to attend games.

What is the reason for professional baseball's popularity?

The first is the affection gained from the Beijing 2008 Olympic baseball gold medal, 2009 WBC (World Baseball Classic) second place, and 2010 Guangzhou Asian Games baseball gold medal. The media and the public began to pay attention to the Korean players showing off the strength of Korea baseball at international contests. This was connected to professional baseball ticket sales.

Second, there is the return of athletes who have been playing in foreign leagues. Park Chan-ho, Kim Byeong-hyeon, Lee Seung-yeop, Kim Tae-gyun who are famous and show off the strength of Korea baseball have come back. Thus ballpark viewers have increased to see the returning players. When Kim Tae-gyun and Park Chan-ho returned, their club the Hanhwa eagles had a surge in ballpark audience.

Third, this year, the ferocity of the rank struggle has progressed. From the start of the season to now, the top spot can still be changed. Unlike last year, there is no matchless club, and every day the rankings are

changed. Accordingly, the games are more exciting. Therefore viewers coming to the ballpark can feel excitement. Also, the nationwide popular clubs (LG Twins, Lotte Giants, KIA Tigers) good playing has caused an increase in viewers.

Fourth, there are the ballpark events. As ballparks have become a popular place for couples to go on dates, there are now wedding proposals and kiss time on the stadium monitors. Also, before the start of the game, it is common for popular singers and artists to throw the first ball. By increasing these events, the ballpark is not just a place to see baseball anymore.

Fifth, there is the formation of a new culture. Baseball's male dominated culture from the 80s and 90s is being changed into a family-oriented baseball culture. This change enables enjoying baseball with your family and having fun all together. People can enjoy the game with female fans and family fans by recognizing the cheering song or cheerleaders' cheer as one of the new playing culture.



Is it really fair ?



Fair trade coffee has been sold in many coffee shops, such as Starbucks for a long time. The consumers may drink fair trade coffee while reading the sentence -Our contract partners have the chance to break down the chain of poverty and keep their production going by making their own economic decisions- on cups. So, the consumers can misinterpret that they are helping low-income groups in the third world by drinking coffee. Fair trade products are made for providing fair opportunities to uncompetitive farmers. Also, they need fewer brokers

and have a shorter distance between consumers and farmers in comparison with normal trade. So, on the surface, it seems that consumers are helping farmers but they are not. Although there are a lot of fair trade products such as bananas, rice, corn and etc, we should find out why they are not by considering coffee which is the second largest volume of trade and most familiar food to us.

<Tricky conditions of certificate mark>
Fair trade coffee has been treated not by brokers but fair trade organizations. Farmers have to produce coffee while satisfying several standards to join fair trade organizations. The standards are different for different countries but there are things in common.

- Guaranteed minimum price for producers, fair wages to farm hands, premiums to local regions.
- Unions of producers or farmers have to be operated democratically.
- Manufacturing methods must ensure

sustainable environment.
• Public duties and financial transparency should be kept.

• Labor environment must be safe.
If farmers satisfy these standards, they can get a certificate mark and sell their products as fair trade. However these conditions give the farmers a burden and make the processes of producing coffee complicated.

<Bottom price>
Fair trade organizations set the bottom price system that ensure the minimum price of coffee for farmers. However there are several problems with this system. First, the minimum price can't reflect the differences of different areas of production. Currently, coffee is farmed mainly in Brazil, Ethiopia and Mexico which are in the vicinity of the equator. In the case of Mexico, Oaxaca and Puebla are the main areas of production. Although these sites have very different environments, fair trade organizations set an equal minimum price. Second, the increase rate of the minimum price is extremely low. The increase rate has been 13 percent for the last 20 years. However there has been a higher rate of increase in prices and inflation in producing areas. In other words, the

increase rate of the minimum price can't catch up with that of inflation. As a result, farmers' lives are getting worse.

Because of these two main troubles, fair trade is becoming meaningless to farmers. However, major coffee companies such as Starbucks have improved their image and increased the cost of coffee by using fair trade coffee. This contradiction is not only limited to coffee. A lot of fair trade products are in major companies' deception. So when we consume fair trade products we should keep in mind that they are not always good, there is probably some trouble.

Park Yong-jae



blog.naver.com/u_journal

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- updated weekly!
- full of fascinating stories!
- service both in Korean and English

Who says scientists and engineers are nerds?

Nerd: an unstylish, unattractive, or socially inept person; especially: one slavishly devoted to intellectual or academic pursuits-Merriam Webster Dictionary

The awful truth

People related to the science & technology field never seem to be able to escape the stigma of being labeled as nerds. Let's go through the list together. Unstylish? Those of you who never coordinate, you know who you are. Unattractive? Definitely false! Socially inept? Maybe... Slavishly devoted to intellectual or academic pursuits? Most definitely yes!!! Three out of four seems like reasonable ground for such an accusation.

Perhaps it's an acquired occupational hazard. Or perhaps nerdy people's cold logic and academic passion fit in with the science world and thus science chose them. Either way, science & technology related people get stereotyped as being unstylish and boring.

UNIST's solution

To attack this potential hazard, UNIST has designed a department called "Arts, Humanities & Social Science (AHS)" in order to produce well rounded scientists who can stand on their own as "Renaissance people" after graduating. The most recent addition to the AHS family is a new course called "Music and Creativity".

Why is Music so important to scientists?

Music serves society through its humanistic, cultural, critical and aesthetic purposes. By pursuing music,

students develop skills in critical thinking, creativity, and communication. Music & science have long been known to have a symbiotic relationship due to its intricate correlation. However, the abstract nature of music often gets lost in translation when being conveyed from only a theoretical perspective. This flaw is especially detrimental to a group of scientists whose logic and comprehensions are conditioned to be based on physical laws and scientific facts. The practical implication and application of music are a cogent factor and key to the successful conveyance of music and to the understanding of why music is such a powerful vehicle in coaxing creativity and humanism out of each and every one of us.

Music only becomes completely morphed into physical reality through human discourse and interaction. In order to achieve this, we must have a balanced knowledge in basic theory, history, listening, and the actual performance aspect. Theory is the morphology aspect of music. History is the learning of cultural conventions. Through listening, students can confer various styles and periods, and develop recognition of abstract musical events. Lastly, the performance part is perhaps the liveliest embodiment of this whole process. This is the stage where all elements emerge, creating tangible products. Through this process, students refine their creativity, cognitive flexibility, and humanism.

My little experiment

Now what happens when this kind of practical application-based pedagogical system is met with the minds of brilliant scientists? I was able to witness this first hand through the "Humanities Festival 2012" that took place in the second week of July here on campus. "Humanities Festival 2012" was designed by UNIST in order to generate creative outlets by offering 6 different humanity subjects- music, art, movie, play, history and design for science and technology majors. After spending two full days with the students and auditing their final presentations, I was dumbfounded at the level of comprehension, sophistication, passion and maturity that these students showed. Five presentations were given, each one being unique, creative, exciting, and stylish all with their own merits.

Hope for the future: Trial & Error NO! Trial & Success YES!

Such astonishing results give hope and inspiration for this new trial of practical application-based pedagogy. When something new needs to be established, it always takes several tries to get it right. It also takes a lot of

patience, open mindedness, courage, creativity and passion. Despite these challenges, I have several expectations in mind. First, it is my hope that this new course "Music & Creativity" will trigger the creativity part of the brain and inspire science & technology majors to apply that creativity into their own studies, researches and projects. Secondly, Einstein was known to play the violin whenever he was stressed or hit slumps and slopes. I hope that music will serve as a stress- releasing vehicle, and further more, work as a catalyst in shaving off the competitiveness that lingers in this community. UNIST community is comprised of the elites of the elites. A common pitfall in a society like this can be the loss of individual value due to the high standard relativity. Through music, I hope students will gain a broader perspective of life and find breathing space from a potentially dry and competitive environment and ultimately learn self- worth, self-respect and self-love through this acquired profound insight. My third expectation is that through the practical application, UNIST's campus will soon turn into a musical campus with musical events flourishing all over. Currently, I have two ideas in mind. First is a monthly lunch time concert in the administration building's lobby starting late

October. Second is an "end of the semester concert", which is a requirement by all students taking the "Music & Creativity" course.

Let's redefine the word "Nerd", more specifically UNIST Nerd-A.K.A. UnistERD

It is my hope that all UNIST graduates gain a reputation of being UNIST nerds. Nerds that are stylish, attractive, socially proper, fun, creative, passionate, compassionate, and slavishly devoted to intellectual or academic pursuits. Let's all thrive on being UnistERDS. As Bill Gates stated from his "11 Rules", "Be nice to nerds. Chances are you'll end up working for one". Just remember. We are the future who will be leading the next generation. Let's all be UnistERDS!



Lee Jong-eun, AHS, UNIST

Rapidly increasing 'Mentoring program' what is the real meaning..?



Park Kyoung-yong, Division of General Studies

We already know about how competitive the Korean educational market is.

It is not only sad but also an unavoidable fact that the starting line in education is not fair because of life environment, the gap between rich and poor, and so on which are practical problems that students cannot change.

So, 'Mentoring programs' appeared to make the starting line in education fair.

In capitalism, we relate opportunities with money. As private education has developed, education is also seen through capitalist ideology.

'Mentoring programs' which started with pure objectives cannot avoid this trend.

In the beginning the 'Mentoring program' was administrated by local society, where 'mentees' could participate in the program for free and 'mentors' got little reward and transportation fare.

However, as companies and the media have started using 'Mentoring programs' as a marketing strategy, 'mentors' get more rewards than before and 'mentees' have to pay to participate.

It seems like a very good chance for undergraduate students who need money and young students (middle school students, high school students) who feel anxiety about university entrance to pay for the program.

It is not just only the benefit that 'mentors' want to take. I don't mean to criticize many mentors who work for pure objectives, but sometimes there are people who do this for the wrong reasons. They just do this to use as their 'spec' on an application form.

It's no exaggeration to say that the 'Mentoring program' is 'private education in mentoring's name'.

Recently, the Korean 'Jxxx' press established a 'Mentoring program' system which employs more than 1,000 undergraduate students. But the company's unmethodical progress and unconditional demand for the mentors' information has caused a conflict between the mentors and the company.

One student who gave up participating as a 'mentor' said 'I passed the primary-paper-selection but I declined to participate in the program. However the company often called me for requesting my college-entrance information. With the student's experience we can understand how shameless the company is.

Rapidly increasing 'Mentoring programs'

I think this phenomenon might be risen by companies' marketing strategy, students' anxiety about university entrance and college students who aim for a 'spec' which is really important nowadays.

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Unist Dictionary

Dul-le Gil
(noun)

1. The beautiful walking road which is located in UNST
 2. The road which only campus couple can walk

