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CONTENTS

NTHU EARNS HIGH RANKING IN THE NUMBER OF U.S. PATENTS RECEIVED

The National Academy of Inventors (NAI) and the Intellectual Property Owners Association (IPO) recently announced their "Top 100 Worldwide Universities Granted U.S. Utility Patents in 2014." By virtue of the 114 U.S. patents granted to NTHU faculty members in 2014, NTHU was ranked at the 11th in the world, the highest position amongst all universities in Taiwan.

The list is published annually, and for 2014 NTHU shared the 11th place with the Korea Institute of Science and Technology, which also had 114 U.S. patents.

For 2014 the top three places went to the University of California System (453), MIT (275), and Tsinghua University in Beijing (230). In addition to NTHU, another 10 Taiwanese schools were ranked among the Top 100, including National Taiwan University, which came in 16th (93), and National Chiao Tung University, which came in 20th (87).

According to Professor Pan Ci-ling, NTHU's Vice President for Research and Development and Director of Operations Center for Industry Collaboration, after being ranked at the 15th in both the 2012 and 2013 rankings, NTHU has not only moved up in the rankings, but also increased its number of patents, indicating the great strength of our research and development efforts. Even more importantly, these recent patents will eventually become the driving force behind innovative research and development in Taiwan and abroad.

NOBEL LAUREATE ERIC CORNELL VISITS NTHU

ⓐ Dr. Eric Cornell.
ⓑ Student asking Dr. Cornell a question.

On July 8 Eric Cornell, who was awarded the 2001 Nobel Prize in Physics, gave a talk at NTHU titled "Particle Paleontology: Looking for Fossils of the Early Universe inside Electrons." He opened his talk by stating in fluent Mandarin, "Wo hen gaoxing gen nimen tanhua," which elicited thundering applause from the audience. The event was held at NTHU's International Conference Center and a large number of high school students took the opportunity to see a Nobel laureate in the flesh.

The event was organized by Professor Ite A. Yu of the Department of Physics. In his introduction, Yu stated that in light of NTHU's longstanding emphasis on atomic physics, Dr. Cornell is very happy to visit NTHU and we hope that this will lead to additional collaboration and exchange in the future.

At his first meeting with Cornell, Yu discovered that during his undergraduate years studying physics at Stanford University, Dr. Cornell wasn't sure he wanted to pursue a career in physics. Thus he took a leave of absence and spent a year in Taiwan and China, where he taught English and studied Chinese. But after finding out how difficult Chinese was, he decided that he had better stick with physics. The rest is history. Yu wondered if one can really conclude from Cornell's experience that learning Chinese is more difficult than physics, but one can surely agree that Chinese and physics can both be seen as a type of tool: Chinese language is a tool to understand the wisdom of traditional Chinese culture, and physics is a tool for discovering the secrets of nature.

In his welcoming address, Professor Pan Ci-Ling said that Dr. Cornell chose for himself the Chinese name Kang Aili (康愛理), which carries the meaning of "Cornell loves physics." Pan also said that while they were chatting prior to the event, he mentioned the recent dust explosion at a water park in Taiwan. Cornell replied that he has had his own experience with burn-like injuries, and spent six weeks in an intensive care unit. As it turns out, in 2004 Cornell contracted necrotizing fasciitis, commonly known as flesh-eating disease, which resulted in his left arm and shoulder being amputated, leaving him with a large amount of scar tissue similar to that caused by burns. Fortunately, he made a speedy recovery and after six months resumed working.

In 2001, Cornell, Wolfgang Ketterle, and Carl Edwin Wieman were jointly awarded the Nobel Prize in physics "for the achievement of Bose–Einstein condensation in dilute gases of alkali

atoms, and for early fundamental studies of the properties of the condensates."

First formulated in the 1920s, the Bose-Einstein condensation theory predicts that atomic gases condense at extremely low temperatures. According to this theory, groups of atoms gather in the lowest energy state as a single entity, called "Bose condensates." These Bose condensates made it possible to use a simplified theory to study such phenomena as superconductivity, super fluidity, and the quantum phase transition phenomenon of condensation bodies. Bose-Einstein condensation also has major implications for a number of related fields and research topics, including condensed matter physics, quantum information and computation, precision measurement, quantum simulation, and nonlinear physics.

Dr. Cornell's current research focuses on finding the origins of fundamental symmetry breaking, a topic which delves into the formation and the birth of the universe, as well as what it is made of. He believes that the key to these puzzles may well be hiding in the elementary particles well known to us as electrons. Cornell stated that precision spectroscopy can be used to observe the electric charge of an electron and to determine if it carries a charged dipole. He hopes that the results will help answer the mystery of the origin of the universe.

Dr. Cornell and NTHU faculty.

STUDENT TEAM WINS AWARD AT EUROBOT 2015

ⓐ During the contest the DIT team members donned Taiwan black bear hats and the flags of R.O.C. and NTHU.
ⓑ NTHU's DIT team.

A team of students from NTHU's Department of Power Mechanical Engineering recently participated in the Eurobot 2015 contest held in Switzerland. Named "DIT," the NTHU team spent nine months designing their entry. In recognition of their strong showing among 16 semi-finalists, the NTHU team received the "Team Spirit Award."

Eurobot is an international amateur robotics contest held in Europe. Since its establishment in 1998, it has garnered much interest from the business sector, and many of the entries were sponsored by companies which place their logo on the entry. The theme of this year's contest was "Robomovies."

For DIT team leader Chou Tsu Lien, Eurobot is an important event due to the high level of technology employed by the contestants, as well as the way it tests the participants' ability, especially in the area of managing unforeseen circumstances—an essential skill for success in all areas of life. Moreover, since the contest is open to all nationalities and age groups, it also gives participants a chance to learn about a wide range of developments in the field of robotics.

According to another team member Lin Pei Ying, each team had to build two robots: a large one and a small one. The small robot had to be able to climb a set of stairs connected to a stage and then roll out a red carpet. The large robot had to perform such tasks as gathering popcorn, installing spotlights, and closing clapperboards.

He also pointed out that climbing was the most difficult task for the small robot. Lin also indicated that there were many variables to take into account, such as the dry air in Switzerland, since it increases the possibility of static electricity which can burn out a robot's electronic chips.

According to team leader Chou Tsu Lien, his team was the only one from Asia at this year's contest, and also the only team entirely comprised of undergraduates; most of the other contestants were graduate students, some of them were professional engineers. In such a stiff competition, the DIT team made quite an impressive showing. Chou was also impressed with the openness with which the contestants

exchanged knowledge and information with one another.

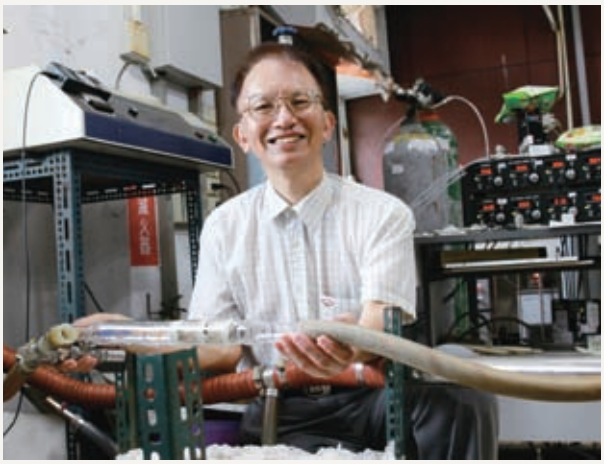
Chou also pointed out while robotics is already an advanced field in Europe, his team's control technology attracted much attention, especially when people discovered how little it cost to create. Although the DIT team was set up only two years ago, thanks to the guidance of professors Lin Chao An and Chen Jian Shiang of the Department of Power and Mechanical Engineering, the team has already met with considerable success. One of the aims of establishing the DIT team is to encourage students to cultivate their self-study skills and ability to effectively respond to crisis situations, both of which were essential to the team's recent success in this year's Eurobot contest. The diligence and pragmatism of the DIT team is an excellent role model for all students at NTHU. Their recent achievements demonstrate that when perseverance and ingenuity are applied in good measure, success is just around the corner.

a Team Spirit Award received by the NTHU team.

b Report on Eurobot 2015 in a Swiss magazine.

NTHU RESEARCHER DEVELOPS A REVOLUTIONARY EMISSION-CONTROL DEVICE

Prof. Huang demonstrating his revolutionary Electro-Catalytic Honeycomb.



To reduce the amount of nitrogen oxides (NOx) and sulfur dioxide (SO_2) in automobile exhaust and boiler flue gas, three years ago Professor Huang Ta-jen of the Department of Chemical Engineering invented the "electro-catalytic honeycomb (ECH)." After three years of development and testing, this revolutionary device is finally ready for production. The ECH is a most compact device for the novel technology of promoted NOx decomposition (PND) and promoted SO_2 decomposition (PSD). Small in size and low in cost, it is expected to fully replace the selective catalytic reduction (SCR) technology currently used to remove nitrogen oxide from automobile exhaust and the current desulfurization systems for removing sulfur dioxide from boiler flue gas. Furthermore, the ECH allows considerable enhancement of the combustion efficiency.

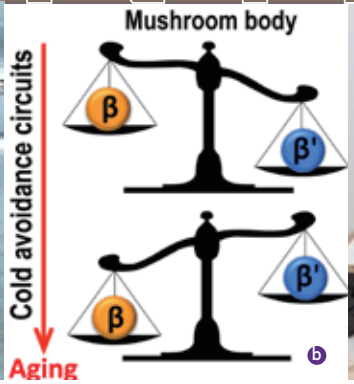
The ECH has been patented in Europe, America, Taiwan, Japan, Korea and Canada, and major automobile companies in Europe, Japan and Korea are currently considering applying it to their vehicles. Prof. Huang presented his invention at the 11th International CTI (Car Training Institute) Conference: SCR Systems held in July in Stuttgart, Germany. Sponsored by CTI, this is Europe's biggest and best conference on SCR technologies.

According to Prof. Huang, more than eighty percent of the energy currently produced relies on combustion, and the higher the combustion temperature, the higher the combustion efficiency. However, high-temperature combustion is accompanied by the production of large amounts of nitrogen oxides, toxic gases which pollute the air. In order to bring nitrogen oxides emissions within the increasingly stringent standards, during the 1970s major automakers adopted a combustion process in which the exhaust is recirculated and cooled, and then mixed with the fuel to reduce the combustion temperature and thus the amount of nitrogen oxides produced. However, this process is not very effective in reducing NOx pollution but significantly reduces combustion efficiency. Thus, the SCR System has to be used for NOx reduction, which requires the use and refilling of the reducing agents. This is not only costly but also inconvenient. The number of automobiles produced every year continues to increase, and the air pollution continues to worsen, making technology for reducing the amount of nitrogen

oxides a must-be-solved problem. Hence this year's CTI conference has posted the ECH as an innovation at the first place. Prof. Huang's newly developed technology doesn't require any reducing agent, and directly converts nitrogen oxides into nitrogen and oxygen. However, early prototypes of the PND device were too large to be practical. While working on solving this problem, three years ago Prof. Huang suddenly thought of the honeycomb-type device that he was familiar with years ago when he was conducting research in the United States and decided to try out an entirely new structure for his invention.

Prof. Huang says that at present the vast majority of SCR devices used to reduce the nitrogen oxide emissions produced by cars require using a urea solution as a reducing agent, but this results in the production of ammonia as a hazardous byproduct. By contrast, using the ECH to remove nitrogen oxides doesn't require a reducing agent, thereby greatly simplifying the NOx removal system and reducing the manufacturing cost. In addition, Huang's ECH allows considerable enhancement of the combustion efficiency and thus considerable reduction of fuel use, thereby reducing greenhouse gas emissions. Prof. Huang says that he hopes this invention will benefit mankind by reducing air pollution and that if any non-profit institutions are willing to promote it, he would be willing to authorize the use of it free of charge. He would like to see his invention to be used in every car, every engine, and every boiler around the world.

The Electro-Catalytic Honeycomb represents a completely new approach to removing nitrogen oxides from automobile exhaust.



RESEARCHERS DISCOVER THE AGE-DEFYING NEURAL PATHWAYS OF FRUIT FLIES

A research team at NTHU's Brain Research Center has identified the mechanism by which dopamine levels in the nervous system of fruit flies are regulated in response to changes in ambient temperatures, thereby slowing the aging process. Their research has been published in the July 2015 issue of the prestigious journal *Nature Communications*.

According to team leader Prof. Ann-Shyn Chiang, previous research on such animals as mice, fish, and monkeys has shown that while maintaining their body temperatures in slightly cold environments will reduce the amount of free radicals produced through metabolism, a process which slows down aging and degeneration of the neural system, thereby reducing the risk of neural disorders. This process can be seen as a kind of built-in anti-aging mechanism.

The research team found that as fruit flies age, their proclivity to avoid cold is significantly reduced, and that such behavior is mainly controlled by two parallel circuits in the brain called mushroom bodies (MB). In young fruit flies, one of these circuits, MB β', secretes large amounts of dopamine to maintain the fly's ability to detect and avoid low temperatures. However, as the fly ages, the dopamine levels of the MB β' reduce by half, significantly reducing the fly's ability to avoid low temperatures. This shortage of dopamine is partially made up for by the other neural network, MB β, which secretes enough dopamine to maintain the fruit fly's sensitivity to extremely low temperatures. By controlling dopamine secretion, these two separate neural circuits help the aging fly to maintain a slightly lower body temperature and increase its resistance to low temperatures, while maintaining its sensitivity to dangerously low temperatures.

Members of this pioneering research team included Hsiang-Wen Shih, lead author and a Ph.D. student at the Institute of Biotechnology; Professor Chia-Lin Wu of Chang Gung University; Professor Tsai-Feng Fu of National Chi Nan University; Professor Chien-Chung Fu of NTHU's Department of Power and Mechanical Engineering; Dr. Sih-Yu Lai, who earned his Ph.D. from NTHU's Institute of Biotechnology; and Sue-Wei Chang and Tsung-Ho Liu, both students in NTHU's Department of Power and Mechanical Engineering.

The research team indicated that all enzymes involved in physiological responses are regulated by temperature, so that temperature change is a fundamental factor for all physiological behavior. Previous studies have mostly focused on identifying the sensory neurons which detect temperature ranges, as well as their temperature-sensing ion channels. However, how these temperature signals are processed, organized, and consolidated after they reach the brain, thereby enabling the organism to choose a suitable ambient temperature, has not been explored. In addition to discovering the mechanism by which fruit flies ameliorate the aging process, this research provides a reasonable explanation for why this phenomenon exists.

ⓐ Prof. Wu Chia-lin of Chang Gung University (left); Ann-Shyn Chiang of NTHU‘s Institute of Biotechnology (center); and Shih Hsiang-wen, lead author and Ph.D. student in NTHU‘s Institute of Biotechnology.

ⓑ As fruit flies age, the MB β neural network begins to play an increasingly significant role in their ability to detect and avoid low temperatures.

ⓒ Some of the apparatus used by the research team was jointly developed by NTHU‘s Brain Research Center and the Department of Power and Mechanical Engineering.

NTHU STEPS UP RECRUITMENT IN MALAYSIA

a Representatives of NTHU and Kuantan educators from Pahang Province.

b Vice President Tai introducing NTHU to attendees at the education fair.

c NTHU alumni from Malaysia at 2015 Study in Taiwan.

NTHU recently participated in the 2015 Study in Taiwan Education Fair organized by the Taiwan Education Center, Malaysia. This was the first time for NTHU to undertake recruitment activities in north-central Malaysia. During the event Malaysian high schools students, both Malay and overseas Chinese alike, learned about higher education in Taiwan and how to gain admission to top universities such as NTHU.

A total of 33 Taiwanese institutions of higher education participated in the event, which was attended by nearly 10,000 students and parents. According to Prof. Tai Nyan-Hua, Vice President of Academic Affairs, in this era of fierce competition among universities, no one can afford to miss an opportunity to recruit talented students, especially overseas Chinese from Malaysia. Malaysians have long constituted the majority of overseas Chinese studying in Taiwan, most of whom are graduates of private Chinese high schools in Malaysia. The total number of such Chinese schools has remained about the same in recent years, but their enrollment figures are increasing. However, due to the fact that public schools charge a lower tuition and are more widely distributed, an increasing numbers of ethnic Chinese are choosing to send their children to public high schools. In light of this trend, NTHU is increasing its efforts to recruit ethnic Chinese who have graduated from Malaysian public schools. We hope that when these students learn about the outstanding educational opportunities available at top-tier universities in Taiwan, they will choose to pursue higher education in Taiwan, rather than in such places as Hong Kong, Singapore, Australia, America, or Europe.

During the fair, the representatives of NTHU were touched by the visit of a number of NTHU alumni from Malaysia who took time out of their busy schedules to attend the event and helped to promote their alma mater's publicity efforts. Malaysian overseas Chinese have been attending NTHU since 1994. Although their numbers are not large, their connection with NTHU remains strong long after they graduate. From their experience upon returning to Malaysia, it's clear that their educational background at NTHU was a valuable asset in their pursuit of a successful and rewarding career.

A RESEARCH TEAM DEVELOPS HIGH-EFFICIENCY THERMOELECTRIC MATERIALS

Prof. Chen Sinn-wen, whose groundbreaking joint research has recently been published in *Nature Communications*.

Working in collaboration with researchers at California Institute of Technology (Caltech), a research team led by Professor Chen Sinn-wen at the Department of Chemical Engineering is investigating ways of producing CoSb3-based filled skutterudite, one of the most viable candidates for thermoelectric applications in the automotive industry. As part of this ongoing endeavor, they have recently developed a low-doped Ce, which is of high quality and relatively stable. Moreover, since Ce is the most abundant and low-cost of all rare elements, there is a significant potential for commercial applications of this newly developed material. Their research has recently been published in *Nature Communications*.

While energy consumption increases worldwide, energy sources continue to be limited. In light of this looming energy crisis, a considerable amount of research is currently being carried out to fine ways to improve energy efficiency and alternative energy sources. One promising area of research focuses on the development of ways to recover waste heat and convert it into electricity. At present, one of the key challenges in such endeavor is to design thermoelectric materials with better conversion efficiency.

According to Prof. Chen, this joint project got started when researchers at Caltech took notice of his team's achievements in phase diagram measurement technology. Then Caltech arranged a joint project under the aegis of the International Energy Program of Taiwan's Ministry of Science and Technology. The lead researcher at Caltech is Professor Shi Naide, who specializes in the design of thermoelectric materials and the measurement of their quality.

While CoSb3 was already considered to have good thermoelectric properties, the addition of Ce makes it even better, and Prof. Chen believes that further improvements are also possible. According to Prof. Chen, cars waste a lot of heat, but if that heat can be effectively recycled, that would result in a significant increase in energy efficiency. Prof. Chen says that thermoelectric material produced with a small amount of doped-Ce has a great competitive advantage, since Ce is the most abundant of all the rare elements on the surface of the earth. Thus it has strong potential for future commercial applications.

In addition to having their study published in *Nature Communications*, Prof. Chen and his colleagues at Caltech had previously found that CoSb3 doped with a small amount of In can significantly enhance the quality of thermoelectric materials to 1.2. This additional finding has been recently published in the prestigious journal, *Energy and Environmental Science*.

BEAUTY IN CHAOS: TEACHING MANDARIN IN INDIA

a Celebrating Chinese New Year at TEC.
b TEC students at a sky lantern festival.

In 2011 NTHU established the Taiwan Education Center (TEC) to teach both Mandarin and Chinese culture at Indian universities. One of the veteran teachers of the program has recently returned to Taiwan to report on her experience.

Huang Ping has been teaching Mandarin in India for over two years, and is currently serving as teacher and director of the TEC program at O.P. Jindal Global University (JGU). Huang states that the emphasis of TEC is on teaching Mandarin, and then using language as a springboard to introduce Chinese and Taiwanese culture. For example, in addition to activities marking the Mid-autumn Festival, National Day, and Chinese New Year, the TEC program at JGU also holds film screenings and talks on how these holidays or festivals are celebrated in Taiwan.

Huang points out that while many Indian students understand the increasing importance of Greater China in the world marketplace, they are also aware of the unresolved tensions and ongoing border disputes between India and the People's Republic of China. As a result, Indians are naturally more favorably disposed to Taiwan. Most of those learning Mandarin at the TEC are students and teachers at the university hosting the Center.

Even after two years, Huang concedes that she is still getting used to living in India, especially the highly flexible and unpredictable way in which many matters are typically handled, which can leave newcomers feeling rather perplexed. But Huang has learned to appreciate the beauty in the chaos. For example, when she visited Kashmir she was deeply impressed by the majestic scenery of this troubled region. Indeed, for Huang the staggering cultural and ethnic diversity of India—22 official languages at last count—is one of the nation's greatest resources.

Huang's advice for anyone thinking about going to India to teach Mandarin is to first make sure that you are fully prepared in three areas: health, English proficiency, and adaptability. In reflecting on the past two years, Huang is struck not only by the passion her students have for Mandarin, but also by how much she herself has learned about India and its fascinating culture.

NTHU was commissioned by the Ministry of Education in 2011 to establish the TEC in India, and beginning in 2013 further support has been provided by the Ministry of Foreign Affairs. TEC currently operates five programs at the following institutions of higher education: the Indian Institute of Technology in Madras; and Jamia Millia Islamia, JGU, Amity University, and Jawaharlal Nehru University, all in and around New Delhi. TEC currently has eight Mandarin teachers, and to date has provided Mandarin training to over 2,000 students while promoting higher education in Taiwan.

PRESIDENT HOCHENG VISITS NORTH AMERICA TO PROMOTE ALUMNI FUNDRAISING CAMPAIGN

a Tsinghua Alumni Association of Southern California
b Tsinghua Alumni Association of Northern California
c Tsinghua Alumni Association of Greater New York

In preparation for NTHU's 60th anniversary celebration, President Hocheng led a delegation to North America to meet with NTHU alumni. According to Hocheng, since being established in Taiwan 60 years ago, over 60,000 students have graduated from NTHU, and that's where the idea came from for the current alumni fundraising campaign titled "60,000 Graduates—600 Million."

Hocheng's itinerary included Los Angeles, San Francisco, Vancouver, Chicago, and New York. At the end of September in New York he attended a convocation of NTHU alumni as well as a forum bringing together leading figures in academia, government, and business to discuss a range of issues, including technology, finance, environmental protection, energy, and biopharmaceuticals.

While Hocheng's visit to the US last year focused on presenting the latest developments at NTHU, this time his main purpose was to stimulate alumni participation in the 60th anniversary events and programs.

At last year's northern California alumni gathering, participants included graduates of the class of 1972 to the class of 2012. Hocheng pointed out that NTHU graduates of all ages are working all over the world, especially in Taiwan's high-tech sector.

As for the 60,000 Graduates—600 Million fundraising campaign, Hocheng said that it's an important part of NTHU's plan to upgrade essentials for maintaining the school's leading position in education and research. Thus, all the funds raised in this particular campaign are going to be allocated for educational purposes, including programs for assisting students to participate in international events.

The Tsinghua Alumni Association of Northern California (THAA-NC) is also organizing a number of related programs. According to president Pi Keyu, the association is currently organizing a business mentoring program for young entrepreneurs in Taiwan, and Zhang Yuqing of the TEEC Angle Fund has already signed on. The goal is to recruit between 20 and 24 NTHU alumni to act as mentors for four or five students each.

Also, the THAA-NC is encouraging its own members as well as alumni of Tsinghua University in Beijing to return to their alma maters and share their experience working in Silicon Valley.

NTHU STUDENTS DEVELOP EFFECTS UNIT FOR ELECTRIC GUITAR

Members of the Tri-in team: Li Kuan-yi, Fang Chia-hong, and Chang Li-wen (left to right).

When Fang Chia-hong completed his undergraduate program at NTHU last year and entered the straight-thru Ph.D. program in physics, he began to wonder about how to make physics more relevant to daily life. As a result, his interest began to shift from academics to enterprise. It also happens that Fang plays electric guitar in a band consisting of fellow students, and together they developed an effects unit (an electronic device for modifying the sound of a musical instrument) they call it the "smart effects unit." In July they entered it in the "Intercollegiate Event for Matching Young Inventors with Angel Investors." Their entry won first place in the "investment potential" category. A total of 17 teams from eight schools participated in the event.

Now in the second year of his doctoral program, Fang recalls how in his junior year one of his teachers had him do some work based on a dissertation written by an NTHU graduate. In the process of groping around in unfamiliar territory, he learned a lot on how to conduct independent study in an effective manner. His teacher was impressed and nominated him for the straight-thru doctoral program. Then last year, when he read *Makers*: *The New Industrial Revolution*, he was inspired to try his hand at creative enterprise along with some of his classmates. After a false start or two, in March of this year they decided on developing an effects unit. Little did they know that a few short months later their product would have received such a positive reception that they would be ready to begin raising funds to set up a company.

Fang says that every time a practice session concludes, because he has to pack up his bulky effects units, he is always the last to leave. After internet research confirmed that lots of other electric guitarists also felt encumbered by unwieldy effects units, he decided to team up with his classmate Chang Li-wen, a hardware specialist, to develop an effects unit which is smaller, lighter, and simpler, and can be operated using app control. In addition, they also wanted to make their device more stylish, so as to be more in line with the "Internet of

things" trend.

Fang says that to develop an effects unit, you have to understand music, technology, and software. He adds that developing such a unit doesn't require cutting-edge technology, but rather the ability to integrate expertise in various fields, which is where his background in physics was so helpful.

With an average age of 22, their team is called "Tri-in" (integrate + inspire => incredible), and also includes Li Kuan-yi of the Department of Quantitative Finance and Ding Ai-wei of the Institute of Technology Management. Li has worked for the technical consulting firm Coasis and the platform 9¾, and is using her networking ability and familiarity with the market to link up with potential collaborators. Ding is applying his public relations suave to marketing their product.

As Lin Bo-wen, the Director of NTHU's Incubation Center, puts it "People are the key!" Venture capitalist looks at development potential. In addition to an effective division of labor, the Tri-in team also understands that it's not enough to solve your own problems, but that you have to come up with a solution that benefits lots of other people too. In their search for financial backing, in May of this year the Tri-in team approached the Germination Center, and in July entered the "Intercollegiate Event for Matching Young Inventors with Angel Investors." Lin says that he was highly impressed with Tri-in's enthusiasm, problem-solving ability, and practical attitude.

In the words of Professor Chang Tsun-Hsu of the Physics Department, "Chia-hong has matured a lot over the past year; he's learned how to interact with the market and how to deal with difficult personnel issues." Chang also points out the important role of the Germination Center. Chang recognized Fang's academic potential when the latter was in his junior year; and now that Fang is engaging in entrepreneurial endeavors, Chang is still highly optimistic about Fang's future, stating, "doctoral studies are all about finding ways to solve problems; whether you apply your talent to research or to enterprise, the main thing is that you make a positive contribution to society!"

NTHU

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