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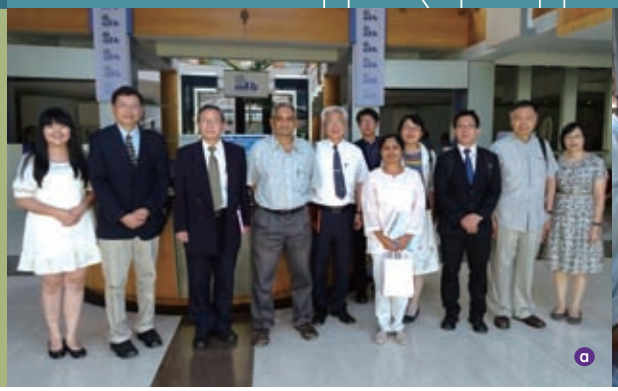


PRESIDENT HOCHENG HEADS TAIWAN DELEGATION TO INDIA

a President Hocheng (third from the left) leading the Taiwan delegation on a visit to Alliance University.
b Indian student attending the education exhibition.
c President Hocheng and delegates.

In September NTHU's Taiwan Education Center (TEC) in India held the 2014 Taiwan Higher Education Exposition in Bengaluru (formerly known as Bangalore), widely famed as "the Silicon Valley of India." Held in conjunction with the EMMA Expo India sponsored by the Taiwan External Trade Development Council, this exciting event attracted more than 6,500 visitors.

This was the third exposition held by TEC in India since NTHU was commissioned by Ministry of Education in 2011 to establish the center. With additional support provided by the Ministry of Foreign Affairs, the TEC was expanded in 2013. It currently operates four offices in India, and to date has provided Mandarin training to over 1,000 to prepare them for advanced education in Taiwan.

Taiwan's delegation to this year's exposition was headed by NTHU President Hong Hocheng and included representatives from a variety of different organizations: Academia Sinica; TEC; the University System of Taiwan; National Taiwan Normal University; Kaohsiung Medical University; Nanhua University; Ciji University; and the Taipei Computer Association. In addition to presenting their respective schools and organizations at the exposition, the delegates also visited a number of leading research and academic institutions in the area, such as the Indian Institute of Information Technology, gaining insight into the current state of education in Bengaluru, as well as opportunities for future cooperative projects.

India's steady economy growth has greatly increased the need for higher education, yet the nation's existing universities are unable to meet the demand. Thus the idea behind the combined industry-education exhibition was to attract large numbers of visitors, and then use the opportunity to introduce the high-quality educational opportunities available in Taiwan. According to President Hocheng, universities around the world are in need of talented students, of which India has a great abundance. President Hocheng stresses that the time is right for strengthening bilateral ties between Taiwan and India.

Lin, Ru-Yu, a Mandarin teacher at the TEC program at the Indian Institute of Technology in Chennai, helped to arrange this year's exhibition. According to Lin, over 1,000 students from about 15 schools attended the event to find out about Mandarin education and scholarships. Lin also fielded quite a few inquiries concerning graduate programs at NTHU in such fields as mechanical engineering, computer science, biotechnology, industrial design, and management.

NTHU RANKED AS THE TOP UNIVERSITY IN TAIWAN

On November 18th Shanghai Jiaotong University announced its "Top 100 Universities in Greater China." With a total score of 94.8, NTHU was ranked second, and Tsing Hua University in Beijing was ranked first.

In response to the news, NTHU President Hong Hocheng pointed out that there are a lot of top notch universities in greater China, making ranking a difficult task. He also stated that NTHU's high position in the ranking is due to the great importance we give to conscientiousness, as well as the way it holds faculty members to high standards while also granting them a considerable amount of academic freedom. He also pointed out that NTHU puts a lot of effort into recruiting a diverse group of highly talented students who realize their potential while studying in a stimulating academic environment at NTHU.

The areas covered in the ranking formula included personnel training (35%), scientific research (35%), quality and quantity of teachers (25%), and school resources. NTHU's faculty was rated especially high, and had the highest score on three items: ratio of faculty with doctorate, number of *Nature* and *Science* publications, and number of international patents.

First conducted in 2011, Shanghai Jiaotong University's Top 100 Universities in Greater China ranks research universities in mainland China, Taiwan, Hong Kong, and Macao.

In this year's ranking National Taiwan University came in third, followed by Hong Kong University of Science and Technology and Peking University. As for the entire list, Taiwan had 27 universities among the top 100, while mainland China had 64, Hong Kong had 7, and Macao had 2. For more details, visit the Top 100 Universities in Greater China website at: http://www.shanghairanking.cn/Greater_China_Ranking/Greater_China_Ranking2014.html

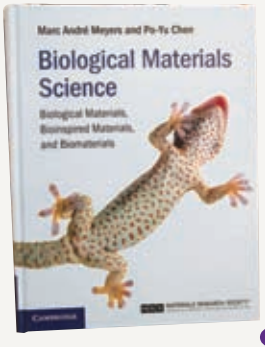
PO-YU CHEN'S GROUNDBREAKING TEXTBOOK ON BIO-INSPIRED MATERIALS

a Po-Yu Chen holding up his recently published textbook.

b *Biological Materials Science* was published in September by the University of Cambridge.

Professor Po-Yu Chen of Department of Materials Science and Engineering has recently completed a textbook titled *Biological Materials Science: Biological Materials, Bioinspired Materials, and Biomaterials.* Co-authored with Professor Marc Meyers, the book was published in September by the University of Cambridge Press and has already become required reading at a number of major campuses; a Chinese version is due to come out shortly.

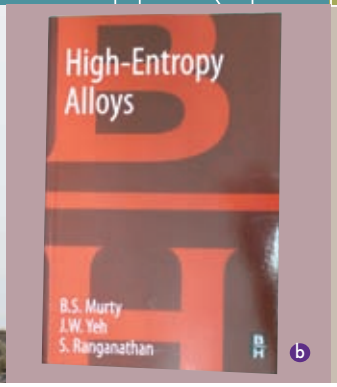
Taking Mother Nature as the guide, the emerging field of bioinspired materials focuses on using natural substances to develop materials which are light, strong, pliable, and versatile. For example, by studying shark skin researchers have learned that furrowing can be used to make a material resistant to adhesion and the growth of germs; and studying the nacre (a chalky substance formed of calcium carbonate) of abalones has led to the development of a composite material with a strength and durability similar to that of brick tiles and cement. These are just a few of the ways in which research on the distinctive qualities of plants and animals has led to the development of new materials.



In its 13 chapters and 630 pages, *Biological Materials Science* provides a systematic presentation of the main achievements in this emerging field. Chen points out that in recent years many schools have begun to offer courses on bioinspired materials. Yet, the field is still in its infancy and there remains a dearth of reference materials, presenting considerable difficulties for neophytes wishing to gain a broad overview.

Five years ago when Chen and Meyers (Chen's former academic advisor) realized the need for such a book, and three years ago they began making preparations. As Chen relates, "We wanted to make a systematic presentation of both natural and bioinspired materials. . . . It's already become required reading at a number of schools overseas." They are now planning an updated edition which will include the latest findings in the field.

Chen is also actively promoting biological materials science in Taiwan and encouraging students to take an interest in bioinspired materials. In Professor Chen's own words, "I'd like to set up an information platform to help students in junior and senior high school developing an interest in this field." At present, however, it's still quite difficult to collect samples, prepare test pieces, and conduct experiments. Thus Chen has begun to work with teachers and science clubs at a number of high schools and junior high schools to organize activities in which students are encouraged to observe and explore the natural world. At the same time, Chen is encouraging his graduate students to conduct advanced research in the field.



JIEN-WEI YEH—THE FATHER OF HIGH-ENTROPY ALLOYS

a Jien-Wei Yeh's research in high-entropy alloys constitutes a major breakthrough in materials science.

b Co-authored with B.S. Murty and S. Ranganathan, two leading researchers in materials science, *High-Entropy Alloys* is the first comprehensive introduction to high-entropy alloys, and is sure to become a standard textbook and reference work in the field.

When Professor Jien-Wei Yeh of the Department of Materials Science and Engineering published his research findings on high-entropy alloys he garnered considerable interest and succeeded in dispelling one of the longest-standing myths in the field of materials science. That was ten years ago, and since then high-entropy alloys has become an established field within materials science, and Yeh has come to be regarded as "the father of high-entropy alloys." In recent years Yeh has co-authored a book on the same topic together with noted figures is the field, B.S. Murty and S. Ranganathan. Titled *High-Entropy Alloys*, the book was published by Elsevier this year and is destined to become a standard textbook and reference work.

Yeh explains that in the field of materials science it was previously believed that alloys could only be produced with one or two main elements (aluminum, copper, etc.). By contrast, high-entropy alloys consist of at least five main elements, none of which has an atomicity exceeding 35%, making it rather like a fruit cocktail. Moreover, the elements included in an alloy and their proportion can be modified during the manufacturing process to meet various requirements. For example, an alloy's composition can be adjusted so that it will have a high resistance to heat, warping, or scratches.

For a long time it was widely believed that an alloy consisting of a multitude of elements would be excessively brittle. But one day while Yeh was driving, it suddenly occurred to him that this may in fact not be the case. He quickly assembled a number of his students into a research team and they began to conduct research on high-entropy alloys. However, it turned out to be a long and difficult process, and it was only after eight years of meticulously gathering data that Yeh was finally ready to publish the results. In his own words, "This sort of research is lonely and toilsome. It requires a lot of perseverance and innovative thinking."

However, during the lengthy research process an interesting interlude occurred when they happened to discover a new wear-resistant copper alloy which is now being commercially produced for use in CNC modules. For Yeh this demonstrates the wide applicability of his research in high-entropy alloys.

In Yeh's view, research in high-entropy alloys is still in its infancy, and is destined to become a key area in material sciences in the next century. Yeh also points out that this groundbreaking research was entirely conducted in Taiwan with support from the Ministry of Science and Technology, the Ministry of Economic Affairs, and a host of local researchers, thereby earning Taiwan a prominent position in the field of material sciences.

Co-authored with B.S. Murty and S. Ranganathan, two leading researchers in materials science, *High-Entropy Alloys* consists of 10 chapters and 120 pages. In addition to presenting the most recent research in the field, they also envision some of the directions in which future research is likely to move. This book is the first comprehensive introduction to high-entropy alloys, and is sure to become a standard textbook and reference work in materials science.

ⓐ Professor Horng-Tay Jeng's pioneering research has recently been published in *Nature Communications*.

ⓑ The one-dimensional dislocation strain field formed on the oxide interface functions as a charge reservoir on the two-dimensional interface. The key finding was the transformation of a two-dimensional interface into a one-dimensional interface.

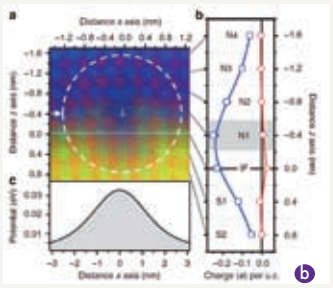
ⓒ Jeng discovered that the physical mechanism of the charge reservoir in the stress field comes about through the interaction between the lattice deformation and the orbit of the three-dimensional manganese electrons.

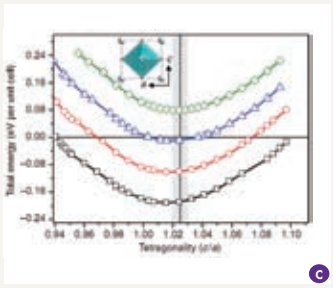
HORNG-TAY JENG'S PIONEERING RESEARCH PUBLISHED IN *NATURE COMMUNICATIONS*

In recent years Professor Horng-Tay Jeng of the Department of Physics has been conducting research on oxide-interfacial charges and one-dimensional electron chains. Amongst his groundbreaking discoveries is the importance of avoiding misfit dislocation in the design of electron devices.

According to Jeng, advances in our understanding of the physics of the semiconductor interface was undoubtedly one of the most important scientific and technological achievements in the twentieth century. In 2002 scientists accidentally discovered that the oxide interface can also produce a two-dimensional charge, resulting in the establishment of a new field in condensed matter science identified as "oxide interface physics."

Over the following decade researchers began to investigate the similarities and differences between the oxide interface and the semiconductor interface. In contrast to the relatively mature field of semiconductor electronics, oxide electronics is still an emerging field and has become a focus of recent research in the condensed matter sciences. One of the key areas of research has been on the effects of strain and defects on the two-dimensional





charge of the oxide interface.

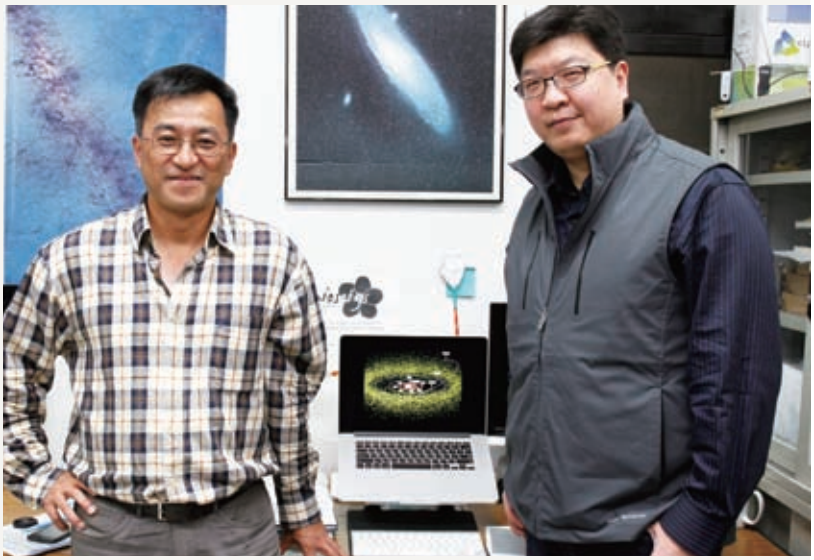
Using calculations based on the aggregate energy theory, Professor Jeng discovered the role of the charge-reservoir in the dislocation strain field. He also discovered that its physical mechanism in the stress field comes about through the interaction between the lattice deformation and the orbit of the three-dimensional manganese electrons. This not only makes the charge-reservoir more resilient, but also causes the energy distribution of the one-dimensional electrons to be relatively lower than that of the two-dimensional electrons. This led to the discovery of "electronic condensation," as well as the establishment of new directions for research in the field of oxide interface physics.

Jeng's research was conducted in collaboration with research teams at National Taiwan University's Center for Condensed Matter Sciences led by Lin Zhaoyin and Zhu Mingwen.

This groundbreaking study in the highly competitive field of oxide interface physics was conducted entirely in Taiwan. Published in the March 2014 issue of *Nature Communications*, under the title of "*Condensation of two-dimensional oxide-interfacial charges into one-dimensional electron chains by the misfit-dislocation strain field,*" their discovering has received considerable international attention.

INTERNATIONAL RESEARCH TEAM LED BY NTHU'S CHANG HSIANG-KUANG BREAKS NEW GROUND IN ASTRONOMY

In a joint project with the Paris Observatory, a research group headed by Professor Chang Hsiang-Kuang of the Department of Physics has discovered 13 miniature trans-Neptunian objects (TNO). This is the first time such a large number of TNOs have been discovered; in fact, it is six times more than the number discovered by the only other research team working in this area. The team's findings has been published in the November issue of the *Monthly Notices of the Royal Astronomical* Society, released by the Oxford University Press.



Professor Chang Hsiang-Kuang (left) of NTHU's Institute of Astronomy with his Ph.D. student Liu Zhiyuan.

The origin and evolution of the solar system has always been one of the central topics of astronomy. Observations carried out from the Earth and outer space over a long period of time have provided a considerable amount of useful information about the solar system. Yet, due to the great distance involved, relatively little is known about the smaller celestial bodies on the periphery of the solar system. Most of these dark and cold celestial bodies were formed within the solar system itself; some have been on their present orbit for a very long time; others may have migrated from the inner part of the solar system to the periphery due to the gravitational pull of the planets; and still others may have migrated from some other solar system. For astronomers, these TNOs are like a history book of the solar system.

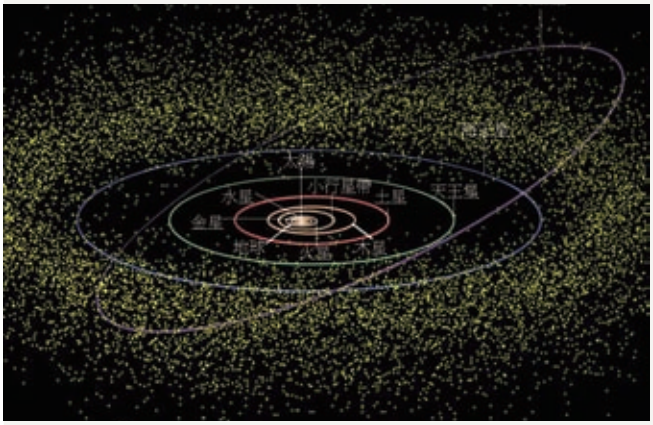
According to Professor Chang, his multinational research team succeeding in finding these small bodies on the periphery of the solar system by analyzing the asteroseismology observations gathered using the "Convection Rotation and Planetary Transit" (COROT) space telescope of the European Space Agency and the French National Center for Space Studies. This significant discovery allows astronomers to study the number of small bodies in the outer solar system and gain a more accurate understanding of their distribution, and can also be used to model the evolution of the solar system.

As Professor Chang puts it, "Because these TNOs are very small and dark, we can't directly see them. But when they pass in front of a planet, the planet suddenly darkens a bit, as if it were blinking." In other words, by using the occultation method they were able to infer the existence of these small celestial bodies.

The Taiwan research team used statistical methods to identify unusual decreases in luminosity which suggested the possibility of an occultation event. Afterwards, they collaborated with the astronomers working with the COROT project to test the validity of their preliminary findings. According to Liu zhi-yuan, a Ph.D. student at Institute of Astronomy and the first author of the research report, "Discovering these occultation events caused by such small celestial bodies was really a stroke of luck!" However, since such occultation events occur randomly, they cannot be replicated for verification, so the team has to carefully test every doubtful case and make sure that they weren't caused by the instrumentation.

This long-term research project is jointly sponsored by Taiwan's Ministry of Science and Technology and the French National Research Agency. According to Alain Doressoundiram, senior astronomer at the Paris Observatory, "We are only the second research team in the world to discover these small celestial bodies by using occultation events; in comparison to the first team, the number of celestial bodies we have discovered is six times greater. In addition to confirming the previous findings, these discoveries can be used by theoretical astronomers to correct discrepancies in their models of the development of the solar system."

At present, the joint research team is continuing to analyze the new data made available by the COROT project, and they expect to discover yet more miniature TNOs. Professor Chang points out, "We have recently developed a device for observing occultations called the 'Multi-object Instrument for Occultations in the So system and Transitor Y Systems' (MIOSOTYS). We've already used it several times at the Observatoire de Haute-Provence in France and the Centro Astronómico Hispano-Alemán in Spain."



The Kuiper Belt is a ring-shaped region outside the orbit of Neptune, extending to about 30-50 astronomical units from the sun. An astronomical unit is the average distance between the Earth and the sun. Pluto was the first celestial body to be discovered in the Kuiper Belt.

CIPHERLAB CEO STEVEN LIAU ON THE ENTREPRENEURIAL SPIRIT

Steven Liau graduated from NTHU's Department of Nuclear Engineering in 1984, and in 1988 he co-founded CipherLab with some of his classmates. Right from the start Liau set his sights on the global market. With its principle markets in Europe and North America, today CipherLab is a world leader in automated identification and data capture (AIDC) solutions for a wide range of industries. While some may see this as an indication of his farsightedness and perseverance, Liau, now the chairman and CEO of CipherLab, states that Taiwan is just too small, making internationalization all but inevitable.

CipherLab is an original brand manufacturer (OBM) with sales in over 70 countries. Amongst CipherLab's leading customers are the Bayer pharmaceutical company in Germany, the Fiat automobile in Italy, the Shiseido cosmetics in Japan, the Munich Airport in Germany, and the Bangkok Airport in Thailand. After struggling with the choice of operating as an OEM (original equipment manufacturer) or an OBM, relying on his entrepreneurial spirit and his solid experience, Liau decided to launch the CipherLab brand worldwide.

"Actually, many of my entrepreneurial skills were picked up unconsciously during my studies at NTHU," recalls Liau. Technology is the foundation of enterprise, and language skills are a passport to the world—these are some of the key skills NTHU students acquire from amongst NTHU's extensive learning resources. Liau smilingly continues, "We used to help our teacher with design cases he was working on, including a barcode reader. We had to read a lot of books in the original English; of course our English wasn't very good, but with perseverance we improved a lot." Liau is a shining example of how perseverance pays off.

Steven Liau is a 1984 graduate of the Department of Nuclear Engineering and CEO of CipherLab.

Liau acquired the remainder of his entrepreneurial skills after graduating from NTHU. When he returned to Taiwan after completing his master's degree in the United States, he had 14 job offers to choose from. Of these he chose the lowest paying one, simply because it provided him with the opportunity to learn something new. While working at his first

job he also gained a lot of valuable experience through becoming acquainted with business leaders and their respective management philosophies.

As for offering advice to those who are thinking to follow his footsteps, Liau points out that today the flow of information is highly developed and the conditions for starting an enterprise have improved; he also cautions that since things are changing so quickly, past experience is not necessarily applicable in the present.

Pointing out that Taiwan's entrepreneurial environment is much better than in the past, Liau encourages NTHU students to find something the world is lacking or something that can be improved, and then courageously find a way to realize their dream.

Liau also points out the importance of a global perspective and international competitiveness for students in Taiwan. Finally, Liau also emphasized the importance of physical fitness, adding with a smile, "For those running a successful enterprise, in the first 30 years of life you depend on your physical strength; after 30 you depend on your professional ability; and after 40 you depend on your experience."

As a student at NTHU, Liau began accumulating the intellectual capital required for an entrepreneur. After establishing CipherLab, instead of settling into his position as an engineer, he actively developed the company's operations with the result that CipherLab is now a well-known brand throughout the world. With his determination and courage, Liau is an excellent role model for today's NTHU students.

Steven Liau with CipherLab employees.

PROFESSOR HUANG YI-LONG ON THE CUTTING EDGE OF HUMANITIES RESEARCH IN THE DIGITAL AGE

Huang Yi-Long, the director of NTHU's Research Center for Humanities and Social Sciences and Academician at Academia Sinica.

The large-scale digitalization of ancient Chinese texts began around the turn of the century, and the number of Chinese characters digitized to date amounts to six to seven billion. To put that into perspective, if you were able to read so fast that you could read the entire text of the *Dream of the Red Chamber* (around 730,000 characters) every day, then it would still take you around 30 years to read seven billion characters! Yet, you would still have read only a fraction of the extent corpus of ancient Chinese texts.

"This is something the scholars of the previous generations had never encountered," sighs Huang Yi-Long, the director of NTHU's Research Center for Humanities and Social Sciences. Having previous worked in radio astronomy, it was quite some time ago that Huang became aware of the great impact technology was going to have on research in the humanities.

It was some ten years ago that Huang developed what he calls the "electronic textual research" (ETR) method, basically a system for using digitalized databases and internet resources to conduct humanities research. Over the past four years Huang has been applying the ETR method to an experimental research on the *Dream of the Red Chamber* as a way of demonstrating that the digital age is here to stay, and has much to an offer scholars working in all areas of textual research. In today's humanities research a monopoly on data is no longer a real advantage. What really makes a difference is being able to conduct research in a systematic and precise fashion, beginning with the formulation of a problem, and then proceeding to collect all the necessary data, analyzing it, and presenting one's conclusions.

Recently NTHU teamed up with the Chiang Ching-kuo Foundation for International Scholarly Exchange, the Beijing Palace Museum, and Zhejiang University to hold the 2014 Workshop on Digital Research in the Humanities at Zhejiang University. Together with Xue Long-chun and a number of other scholars, Huang presented the participants with a number of interesting cases demonstrating how ETR is conducted. As with traditional research methods, ETR requires making an exhaustive search for all the related material, and in the hands of a seasoned humanities scholar ETR is a highly effective research tool. The general consensus is that ETR and traditional research approaches are complementary rather than

contradictory. As Huang puts it, "Ultimately, there is no difference between ETR and the traditional approach to humanities."

In the past, researchers had to use various types of printed indexes to search for relevant information. By comparison, making use of digital resources puts a vast array of data at ones fingertips. The most essential skill is to know what keywords to search for. As a result, ETR raises the standards for academic research. According to Huang, "You may be a great scholar in the traditional sense, but if you're not making good use of the latest technology, then you aren't reaching your highest potential."

In his ongoing efforts to establish a new paradigm for humanities research in the era of "big data," in 2010 Huang began to make an in-depth study of the *Dream of the Red Chamber*, a field known as "redology." Huang presents the results of his recent investigations in his book *Duet: A Dialogue between Redology and the History of the Qing Dynasty*. Published by the NTHU Press, the book is widely expected to have a significant impact in the fields of redology and ETR.

6 文匯学人

专题

当乾嘉学派遇上互联网

Huang Yi-Long's ETR methodology has been well received in greater China, as explained in this article recently published in the Shanghai newspaper *Wen Hui Bao*.

NTHU TEAM WON THE BEST THERMAL PERFORMANCE AWARD IN A 2014 DARPA INTERNATIONAL COMPETITION

ⓐ Team members trying out one of their designs, supervised by Professors of the Hosting University, MU.

ⓑ Team members Hsu, Chen, and Chang (from left to right) flanked by Professors C.L. Chen and S. Chen of Hosting University, MU.

NTHU Team won the Best Thermal Performance Award in the 2014 International Field-Reversible Thermal Connector (RevCon) Challenge sponsored by United States Defense Advanced Research Projects Agency (DARPA) on November 1st, 2014 in University of Missouri, U.S.A. As the advanced commercial off-the-shelf (COTS) thermal connectors have relatively low thermal performance, DARPA and Office of Naval Research (ONR) have hosted RevCon competitions in the past three years to encourage college students to explore thermal connector innovation. The new connector needs to be designed in such a way that it allows for easy installation and removal of the electronic card modules from the side of an electronic enclosure. And above all, it must exhibit low thermal resistance in a vibration environment.

The NTHU Team, consisting of 4 NTHU students (Yung-Feng Chang, Wei-Yuang Hsu, Jerry Wang, and Sanket Jog) and 1 NCKU student (Jin-Fu Chen) under the supervision of Professors Shwin-Chung Wong and Jen-Yuan (James) Chang of NTHU Power Mechanical Engineering Department, is one of the 7 universities that were qualified in the final round. Other final-round competitors include: Georgia Institute of Technology, University of Illinois at Urbana-Champaign, University of Maryland, Mississippi State University, University of Missouri, and Donghua University (China). After ten-month efforts, NTHU Team created a novel design concept for a field-reversible thermal connector featuring simple structure, easy installation and low thermal resistance. The students demonstrated and explained engineering details to judges, senior R&D engineers and engineering managers from Lockheed Martin and Boeing Company about their prototype device. Tested on-site in front of the judges, NTHU's prototype device out-performed the other six teams. NTHU Team was appraised by all judges as the recipient of the Best Thermal Performance Award!

CHENG CHAO-MIN INVENTS TEABAG WHICH TESTS FOR AGRICULTURAL CHEMICALS RESIDUES

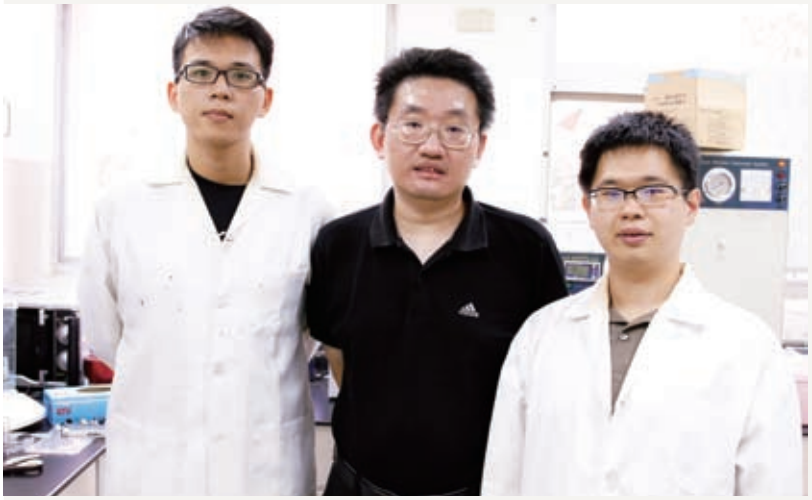
Drinking tea is a long tradition in Chinese society. Yet the adverse side-effects of agricultural chemicals commonly used in tea plantations is becoming a serious concern for an increasing number of tea drinkers. With this in mind, Cheng Chao-Min, Assistant Professor in the Department of Power and Mechanical Engineering, has developed a tea label capable of testing for excessive levels of chemical residues. Cheng has already applied for a patent for his invention, and he expects that it can be very affordable when mass produced.

"Science should improve our health and be a part of our everyday lives!" exclaims Cheng.

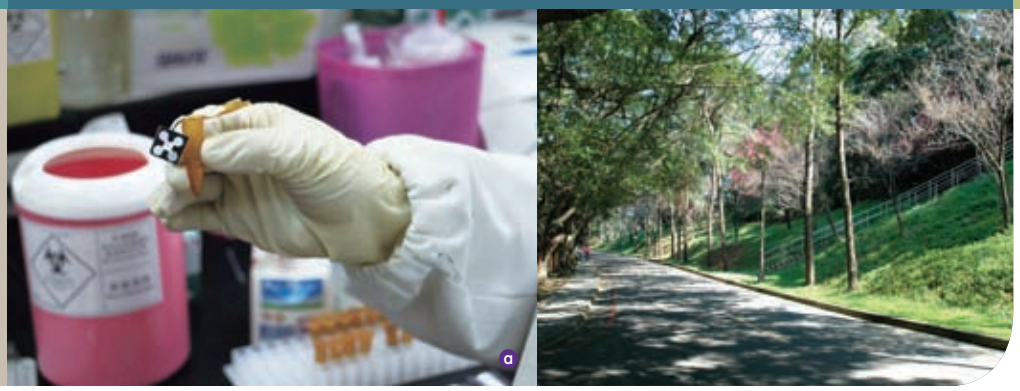
Spurred on by increasing public concern about food safety, Cheng and his research team set out to develop a convenient and affordable way to test chemical residues in tea. The result is a test paper which is attached to the same cotton string used with conventional tea bags. While the tea is being steeped, the string transmits a minute sample of the tea to the test paper. Within three minutes the test paper indicates whether the tea contains any significant traces of such substances as paraquat or glyphosate, two of the main ingredients of the agricultural chemicals commonly used in tea production.

According to Mr. Chen Guan-hong, the research team is currently working with Yan Zong-hai, a physician at the Changgeng Hospital in Linkou, to develop a test paper which can quickly identify various types of pesticides and insecticides for use in the emergency treatment of people poisoned by agricultural chemicals. As Chen smilingly puts it, "Do-it-yourself testing is the best approach." Himself an avid tea drinker, Chen is pleased that he is contributing to the development of a simple way to assure consumers that their delicious cup of tea is safe to drink.

Cheng's research team is also developing a similar product for testing the nitrate levels in a hotpot. Cheng explains that when people

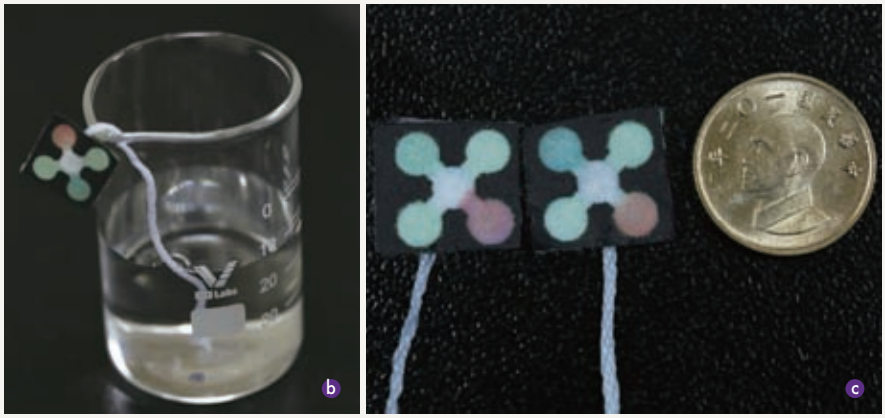


The research team (left to right): Lin Shang-Chi, Cheng Chao-Min, and Chen Guan Hong.



enjoy hotpots in the winter they tend to repeatedly add their favorite herbal concoction. Yet, this can result in the production of carcinogenic nitrates. Similar in design and function to the test-paper tea label, the nitrate test paper is also attached to a cotton string that indicates whether the broth in a hotpot is still safe for consumption.

Cheng is also considering developing a similar product for testing cosmetics. Emphasizing that research should have practical benefits for society, Cheng states, "By using inexpensive materials and innovative thinking, this kind of cutting-edge science can make life better for all of us!"



a The tea sample reaches the test paper by passing through the same kind of cotton string used in ordinary tea bags.

b The test paper can detect harmful levels of agricultural chemicals.

c Test paper before and after use.

NTHU

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