



# USTC NEWS 2012

University of Science and Technology of China

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Spring Semester



# 2012

## USTC NEWS

University of Science and Technology of China

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「Spring Semester」

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• /Image by LIU Aihua

On March 21, Ms. LI Bin, Governor of Anhui Province paid a visit to USTC. Governor LI visited state key laboratories and Sci-tech Achievement Exhibitions, and expressed her full support to USTC's striving to be a world-level research-oriented university. This picture shows Governor LI (middle) visits USTC's Exhibition for Application Research and the Transformation of Sci-Tech Achievements, accompanied by USTC Party Secretary XU Wu (left) and President HOU Jianguo (right).

# HIGHLIGHTS

## USTC Tops in Chinese Universities in NPI 2011 China

On May 24, the British magazine Nature published a formal report entitled Nature Publishing Index 2011 China which provides a detailed assessment of the various research strengths of Chinese institutions and cities based on their output of research articles in Nature-branded primary research journals in 2011 (with 2010 and 2009 data included for comparison). The publication also addresses China's performance in a regional and global context. The top ten Chinese institutions sorted by contribution are: the Chinese Academy of Sciences (CAS), the University of Science and Technology of China (USTC), Peking University, Tsinghua University, Hong Kong University of Science and Technology (HKUST), Xiamen University, Shanghai Jiao Tong University (SJTU), the University of Hong Kong (HKU), Nanjing University and BGI Shenzhen. University of Science and Technology of China has published 17 articles in Nature-branded primary research journals in the past year, publishing index 8.58, jumping to the top position of Chinese universities from the second place in 2010, ranking 76th all over the world and 11th in the Asia-Pacific area. USTC is one of the two Chinese colleges stepping into world's top 100 universities.

### NATURE PUBLISHING INDEX 2011 CHINA — INSTITUTIONS

2011 RANK	INSTITUTION	CORRECTED COUNT	ARTICLES	ASIA-PACIFIC RANK
1	Chinese Academy of Sciences (CAS)	22.52	62	3
2	University of Science and Technology of China	8.58	17	11
3	Peking University	7.24	21	13
4	Tsinghua University	6.36	16	15
5	The Hong Kong University of Science and Technology (HKUST)	3.86	5	23
6	Xiamen University	3.77	6	25
7	Shanghai Jiao Tong University (SJTU)	3.73	21	28
8	The University of Hong Kong	3.58	12	29
9	Nanjing University	3.01	11	35
10	BGI Shenzhen	2.97	11	36

Nature China addressed: "CAS has an impressive lead, publishing 62 articles in Nature-branded primary research journals in 2011, which is perhaps not surprising given it has over 100 institutes and close to 50,000 researchers." The report also points out, "The USTC publishes articles mainly in the physical sciences. Overall, there are 15 (CC 8.08) articles in the physical sciences and two (CC 0.5) in the life sciences. The primary research strengths of the USTC are in the areas of quantum physics and condensed matter physics." Between 2009 and 2011, the USTC has accumulated a CC of 15.08, on comparison with Tsinghua University's CC of 15.83 and ahead of Peking University's CC of 13.51. If the USTC continues to perform strongly in Nature-branded primary research journals, we are confident that its role as a leading research institution will eventually receive recognition."

■ **Institution: University of Science and Technology of China**

Journal	Title	CC <sup>2</sup>
Nature	Observation of the antimatter helium-4 nucleus	0.03
Nature Biotechnology	Spatiotemporal manipulation of auxin biosynthesis in cotton ovule epidermal cells enhances fiber yield and quality	0.07
Nature Cell Biology	p53 regulates biosynthesis through direct inactivation of glucose-6-phosphate dehydrogenase	0.43
Nature Communications	Ionic polypeptides with unusual helical stability	0.14
Nature Communications	Multiple S-isotopic evidence for episodic shoaling of anoxic water during Late Permian mass extinction	0.33
Nature Communications	South China Sea hydrological changes and Pacific Walker Circulation variations over the last millennium	0.63
Nature Communications	Measurement of the inelastic proton – proton cross-section at $\sqrt{s}=7$ TeV with the ATLAS detector	0.00
Nature Communications	Superconductivity at 5 K in alkali-metal-doped	1.00
Nature Communications	Experimental generation of an eight-photon Greenberger – Home – Zeilinger state	1.00
Nature Communications	Observation of an anomalous decoherence effect in a quantum bath at room temperature	0.75
Nature Geoscience	A record of the Southern Oscillation Index for the past 2,000 years from precipitation proxies	0.75
Nature Materials	Nodeless superconducting gap in AFeSe (A=K,Cs) revealed by angle-resolved photoemission spectroscopy	0.19
Nature Photonics	Entanglement-enhanced measurement of a completely unknown optical phase	0.10
Nature Photonics	Experimental measurement-based quantum computing beyond the cluster-state model	0.85
Nature Photonics	Preparation and storage of frequency-uncorrelated entangled photons from cavity-enhanced spontaneous parametric downconversion	0.89
Nature Physics	Experimental investigation of the entanglement-assisted entropic uncertainty principle	0.80
Nature Physics	Experimental control of the transition from Markovian to non-Markovian dynamics of open quantum systems	0.63

## QS Ranks USTC 4th among Chinese Mainland Universities

On May 23, 2012, QS released its Asian University Rankings 2011, and USTC ranks 4th among Chinese mainland universities and 24th in Asia.

Quacquarelli Symonds (QS) started ranking universities worldwide in 2004, and in 2009 it started the ranking of over 500 Asian universities. The QS World University Rankings is one of the three major rankings in the world.

QS rates each university by analyzing its evaluation by the academic world, employer information, faculty-student ratio, citation rate of publications, international faculty number and international student number etc. On the QS Asian University Rankings 2011, USTC ranks 24th among its Asian counterparts with a comprehensive grade of 81.9, rising one place higher than 2010.

According to the QS Asian University Rankings 2011, the Hong Kong University of Science and Technology, the National University of Singapore and the University of Hong Kong are the top three. The top 50 include seven Chinese mainland universities: Peking University, Tsinghua University, Fudan University, University of Science and Technology of China, Zhejiang University, Nanjing University, Shanghai Jiao Tong University.

## Netbig Releases Chinese University Rankings 2012

On June 8, Netbig released Chinese University Rankings 2012. The rankings included "the Undergraduate Education Rankings", "the Reputation Rankings of Chinese Universities" and "the Freshmen Quality Rankings of Chinese Universities" in 2012.

USTC tops in "the Undergraduate Education Quality Rankings", while Nanjing University and Zhejiang University are placed second and third respectively. "The Undergraduate Education Rankings" is a newly-created single-aspect specialization, whose data are directly elicited from university students, a practice used by international ranking agencies. This ranking is intended to find out what services a university can provide to its students, including considerations on its capital investment, infrastructure, teaching resources, course design and student nurture quality. The primary indicators include reputation of undergraduate education, student quality, course quality and other supporting factors. Thanks to excellent reputation of undergraduate education and supporting factors, USTC tops the Rankings.

On the "Reputation Rankings" Tsinghua University, Peking University and USTC won the top three positions. Data for this ranking come from the annual "University Reputation Survey" conducted by Netbig.

"The Freshmen Quality Rankings" compare the overall quality of the newly-recruited freshmen students of universities mainly based on their entrance scores. The top three are Tsinghua University, Peking University and Fudan University, and USTC and Zhejiang University are parallels at number 6.

Being China's oldest portal site for education, Netbig's "Rankings of Chinese University", which was initiated in 1999, is renowned as "the most credible university rankings".



# The 31st Guo Moruo Scholarship Awarded to 27 Top USTCers

Twenty-seven senior USTC students were awarded the 31st GUO Moruo Scholarship. CAS Academician, President HOU Jianguo, attended the ceremony on April 28th, together with distinguished alumni, parents of the recipients and people who have influenced on them most.

HOU Jianguo, USTC President, MU Runchang, International futures company dealing department manager, LI Shipeng, Vice-President of Microsoft Asia Research Institute, and CHANG Jin, Director of the Laboratory of ZiJinShan Space Astronomy Observatory, gave inspiring speeches, sharing their experience at USTC and how it changed their life later.

The 27 recipients come from different schools and departments, including chemistry, management, nuclear science, the gifted youth class, physics etc. Most of their parents were invited to the ceremony to share their success. The principals of their senior high schools were also invited, for their excellence in teaching. Moreover, a special group of honored guests attended the ceremony. They were invited by the prize-winners as the most influential people in their lives.

WANG Yuyan, one of the winners, said she had invited her parents, and teachers both from USTC and her middle school. It was a pity that her high school teacher, who taught her when she was a teenager, failed to show up. With good foundation laid during high school and four years of quality education at USTC, she has accepted a scholarship by Princeton University, after declining an offer by Harvard.

The scholarship winners WU Yue and LIU HaiFeng both got offers from Microsoft Asia Research Institute (MARI). While talking about their college time, they both expressed heartfelt gratitude to USTC and confidence in their postgraduate life. It so happened that their advisor, Mr. LI ShiPeng, Vice-President of MARI, was also a GUO scholarship winner years ago. Li said he was lucky to be the first who has got this honor twice, both as an undergraduate and a postgraduate.

KONG Yue said the most important thing he had learned at USTC was not only studying, but what individuals can do to for our society, and explained



● Part of GUO Moruo Scholarship Recipients/Image by CHANG Jun

why he is always active in volunteering activities. He said he would try his best to serve our society and to contribute to China.

The 27 awarded senior students are all to further their studies in world-class universities abroad, and 20 of them will go to first-rate Ivy League universities such as Harvard, Yale and Princeton, accounting for 74.07% of the awardees. Statistics show that among the 127 GUO Moruo Scholarship recipients in the past five years, 89 have gone abroad for further research, making up over 70% of the total, while 32 have been enrolled in domestic universities and institute for further learning, accounting for over 25%, and 6 of them have located jobs the year they graduated, making up 4.72% of the whole. Since 1981, GUO Moruo Scholarships have been awarded to 713 students, including 618 undergraduates and 95 graduate students.

Over the past 31 years, over 100 among the GUO Moruo Scholarship recipients have excelled as renowned professors in universities at home and abroad. Among the 51 recipients during the first three years, at least 9 are honored titles by international prestigious institutions such as academicians of Chinese Academy of Sciences, IEEE Members, and APS Fellows etc. Among all the GUO Moruo Scholarship receivers so far, at least 17 of them own titles bestowed by 23 internationally authoritative institutes. For example, YANG Peidong and LUO Liqun have recently been named members of American Academy of Arts and Sciences. Some GUO Moruo Scholarship recipients, however, have become successful business people such as LI Yanxiu, who is widely recognized as the most outstanding Chinese financial expert.

The GUO Moruo Scholarship, the first scholarship of P.R.China, was set up in 1980, is the most highly regarded honor by USTC students and alumni.

# Condolence over Passing Away of Mathematician GU Chaohao

The renowned Chinese mathematician GU Chaohao passed away in Shanghai on June 24th. GU was born in 1926 in Wenzhou, Zhejiang province. He received his doctorate in physics and mathematics from Moscow State University in 1959 and is a former vice president of Fudan University and a former president of the University of Science and Technology of China. GU won the Nation's Top Science and Technology Award of 2009 for his contribution to the country's space development. He was honored for his "important contributions" to differential geometry, partial differential equations and mathematical physics, three sub-disciplines of modern mathematics.



• /Image by YANG Xiaoping

## Minor Planet Named After Scientist YAN Jici

On the afternoon of May 28, the naming ceremony for "Minor Planet YAN Jici" was held in Beijing. The minor planet, known as No. 10611 internationally, was bestowed the name in memory of YAN by the Small Bodies Nomenclature Committee of the International Astronomical Union.

YAN Jici was one of the founders of USTC. He was also a founding father of China's modern physical sciences. YAN was a CAS academician, a famous physicist and educator. He contributed to the foundation of China's research in optics and the development of optical instruments.



• A representative of YAN's relatives received the nomenclature certificate of "Minor Planet YAN Jici"/USTC





## Unveiling Ceremony for State Key Laboratory of Particle Detection and Electronics

The unveiling ceremony for State key Laboratory of Particle Detection and Electronics was held on March 12 in the academic hall of the Department of Modern Physics, USTC.

Prof.WANG Yifang, Director of IHEP CAS and the State Key Lab of Particle Detection and Electronics, along with his delegation attended the ceremony.They expressed congratulations on the founding of the state key laboratory and spoke highly of the many important achievements of the lab.

In the past 6 years, the lab has grown from a joint lab in 2005 to CAS Key Lab in 2008, and a State Key Lab in 2011.Experts attending the ceremony expressed their common hope to further cooperation between USTC and IHEP for common development on the platform of the key laboratory

## USTC RANKED TOP 1% IN ENVIRONMENT/ECOLOGY IN ESI

According to the data provided by Thomson Reuters from its Essential Science Indicators (ESI), January 2001 to February 2011, USTC ranked among the top 1% of worldwide institutions in the field of "Environment/Ecology".

Ten research scientific fields (chemistry, physics, materials science, engineering, geosciences, biology & biochemistry, mathematics, clinical medicine, environment/ecology and computer science) rate top 1% among world's institutions in each corresponding field.

Essential Science Indicators (ESI) is a data base published by Thomson Reuters. There are 11,000+ indexed journals in the data base and Essential Science Indicators categorizes these journals into 22 broad disciplines. ESI ranks worldwide institutions using the number of papers published (productivity) and cited papers (impact). It provides access to a unique and comprehensive compilation of essential science performance statistics and science trend data delivered from Thomson Reuters data.



紅專並進  
理實交融！  
鄭沫若

## International Standard Measurement of SPM Drift Rate Released

The International Standard ISO 11039:2012, measurement of scanning-probe microscopy (SPM) drift rate prepared by ISO/TC201/SC9/WG2, convened by USTC Professor HUANG Wenhao, is released on Feb. 29 by the ISO.

SPM is a branch of microscopy that scans the samples and form images of surfaces by a physical probe. The probe technique promotes the atomic resolution to a significant level, but the drifting phenomenon of SPM restricts its further development in nanoscale measurement.

HUANG Wenhao, a USTC Professor specialized in Engineering Science, proposed to normalize the application of SPM to the Surface Chemical Analysis Technology Committee (ISO/TC201) in 2006, and he was appointed as convener of the project in 2007. After a four-year research, this project was completed and the standards were passed by the ISO in 2011 and officially released in 2012. "This International Standard is not only suitable for evaluating the drift rate based on SPM images, but also offers an important reference value for the stability of other nanoscale measuring instruments." HUANG said.



• Prof. HUANG Wenhao (right side) in Meeting of ISO/Copyright by HUANG Wenhao

# New Discovery from Daya Bay Reactor Neutrino Experiment

On March 12, Prof. WANG Yifang, Director of IHEP CAS, was invited to present the recent findings of the Daya Bay reactor neutrino experiment in the academic hall of the Department of Modern Physics, USTC. The Daya Bay experiment found a new kind of neutrino oscillation, and relevant findings have been submitted to Journal PRL.

Except for the BES, the Daya Bay neutrino experiment is another international cooperation project established in China, aimed to determine the least-known neutrino mixing angle  $\theta_{13}$ . The observation of electron anti-neutrino disappearance and precise measurement will better the understanding of the neutrino oscillation and pave the way for future research on matter-antimatter asymmetry in the universe, and provide a more solid research foundation experimentally for the next generation neutrino experiments.

## SIST HOSTS FORUM ON MULTIMEDIA FUTURE RESEARCH

School of Information Science and Technology hosted the Forum on Multimedia Future Research on May 6th, experts from all over the country gathered together at USTC to discuss issues of future research directions in the multimedia field and possible ways of making world-leading achievements through collaborative innovations. Prof. CHEN Changwen chaired the forum, and President HOU Jianguo made a welcoming speech on the forum.

Prof. GAO Wen, CAE Academician from Beijing University, and Prof. LI Weiping, Dean of SIST, delivered two keynote speeches, entitled "The

Practice of AVS Collaborative Innovation" and "Exploring an Approach to Collaborative Innovation in Multimedia Field", respectively. Many other experts also made inspiring presentations on specific topics on the forum.

After the presentations, the participating experts held open discussions on exploring future research directions in the multimedia field and proposed many positive suggestions on how to gain world-leading achievements. The

insightful forward-looking opinions benefit the participants a lot.



• President HOU and Prof. CHEN Changwen / USTC

# Xinhua Taps Quantum Communication for Financial Information Security

On Feb 22 China's Xinhua News Agency launched a new global network dedicated to the secure and efficient transmission of financial information based on quantum communication technology. The network, jointly developed by Xinhua and University of Science and Technology of China (USTC), was inaugurated at the Beijing-based Financial Information Exchange, a financial service platform owned by Xinhua.

Quantum communication is a new type of communication based on the quantum properties of particles such as photons. It has become a new research field in quantum physics and information theory studies in recent years.

Experts say conventional technology, such as wireless networking, faces more difficulties in guaranteeing information security in the future.

Core financial information requires extremely high security during transmission, storage, and processing. Therefore, the application of secure and efficient quantum communication will prove of strategic importance and enormous economic value.

Xinhua and the USTC have been researching possible applications for quantum communication in financial information security since the first half of 2011, a statement from the Financial Information Exchange said.

As of the end of November 2011, the two sides successfully built the world's first network based on quantum communication technology for application in the financial information industry, the statement said.

It said that the network is capable of supporting confidential audio-visual communication, real-time text transfers and the rapid transmission of data files.

The network's data transfer bandwidth can reach several hundreds of megabits, meeting requirements for most forms of encrypted communication, according to the statement.

The launch of the network has proved the practicality of quantum communication technology, the statement said, adding that the network is also

significant for the demonstration, marketing and exploration of quantum communication standards, the statement said.

The Xinhua Financial Information Exchange, launched in late 2010, is an information-sharing platform supporting the financial and cultural sectors.

## First Workshop on MFE Development Strategy in China Held in Beijing

The first Workshop on MFE (Magnetic Confinement Fusion Energy) Development Strategy in China sponsored by the Ministry of Science and Technology of China (MOST) was held in Beijing on January 5-6, 2012, marking the launch of the workshop series.

Ten participants from Europe, USA, Japan, China and fifteen experts of the National Integration Design Group for Magnetic Confinement Fusion Reactor (CNMFRDG) attended this workshop. LUO Delong, Deputy Director of the China International Nuclear Fusion Energy Program Execution Center addressed the welcoming speech, and head of the CNMFRDG, and Academician WAN Yuanxi made a keynote speech as well.

26 presentations were made in the two-day workshop, focusing on the mission, type, and the physics and engineering basis of the China Fusion Engineering Testing Reactor (CFETR). Many foreign experts gave suggestions, opinions, comments and proposals for the further development of MFE in China, while Chinese experts also addressed issues while Chinese on all aspects of CFETR.



● Experts attending the meeting / USTC

# PAN Jianwei Wins 2012 International Quantum Communication Award

Prof. PAN Jianwei (CAS Academician) has received the 2012 International Quantum Communication Award for his pioneering and preeminent experimental work on quantum communication, according to the committee of the 11th International Conference on Quantum Communication, Measurement and Computing (QCMC). The bestowal ceremony will be held together on August 1st this year with the 11th QCMC conference. The Conference was established in 1990 to encourage and bring together scientists and engineers working in the interdisciplinary field of quantum information science and technology.

The International Quantum Communication Award has been granted separately to scientists who have been dedicated themselves to theoretical or experimental research in the field of quantum communication, measurement and computation biennially since 1996. The previous laurelled includes Charles Bennett, who has proposed quantum key distribution and quantum teleportation; Peter Shor, the inventor of quantum algorithm for integer factorization and the pioneer who originated the experimental quantum communication research, Anton Zeilinger, to name a few.

PAN is the first Chinese physicist honored with this prize. Winner of this award in the field of theoretic research is Prof. Seth Lloyd at MIT, who has made significant contribution in quantum computation and quantum communication systems.

# New Non-conventional Superconductor Project Starts

The launching meeting of the National Natural Science Foundation Project “Exploration and Mechanism Research of New Non-conventional Superconductor” was held in Beijing on March 12th. Prof. CHEN Xianhui, superconductor of the project and Academician Yu Lu, leader of the expert panel hosted the meeting.

Prof. CHEN Xianhui introduced the main scientific questions, research aim, research design and project management, and research group of the project on the

meeting. Both the research significance, research design and project management gained positive affirmation of the experts, who spoke highly of the research foundation and research content. The launching meeting promotes the academic communication and cooperation between the project members, deepen understanding of the project and research scheme, and clear the target of the project, making a firm foundation for the advancing of the project.



The project will be undertaken mainly by USTC with the joint efforts of the institute of physics of CAS, Zhejiang University, Renmin University of China, and Nanjing University. All related advanced research institutes will work together in this project. There are four sub projects: 1) the exploration and mechanism research of new Non-conventional superconductor; 2) the research of the crystal structure and electronic structure of superconductor; 3) the research of

synthesize of non-conventional superconductor, the transport property, and thermodynamics; 4) the research of spin dynamic of new non-conventional superconductor and micro mechanism of superconductor. The project was authorized in December 2011. It was started in March 2012 and will be finished by December 2016.

## TWO USTCERS HONORED WITH FIRST TAN KAH KEE YOUNG SCIENTIST AWARD



● PENG Chengzhi (first from left) and WANG Yuming(third from right) in the award ceremony/CAS

The awarding ceremony for the Tan Kah Kee Young Scientist Award 2012 was held on June 13, at the 16th General Assembly of Chinese Academy of Sciences (CAS) and the 11th General Assembly of Chinese Academy of Engineering (CAE). State Councilor LIU Yandong presents the ceremony and medals to the winners with CAS President BAI Chunli and CAE President ZHOU Ji.

Prof. PENG Chengzhi won Tan Kah Kee Young Scientist Awards in Mathematics and Physics for his systematic effort

in the field of long-distance quantum communication, which contributed significantly to the process of practical quantum communication. While Prof. WANG Yuming won the same award in Earth Sciences for his innovative work on "Geoeffectiveness of Solar Coronal Mass Ejections".

Awards also presented in this ceremony including the Tan Kah Kee Science Awards scored by 4 projects, and the ninth Guanghua Engineering Science and Technology Prize bestowed on 26 senior engineers totally.

Tan Kah Kee Young Scientist Award were named after Mr. Tan Kah Kee(CHEN Jiageng), a renowned overseas Chinese enterpriser who had remarkably contributed to the development of science and education in China. It is aimed to award the living Chinese citizens who have made significant science and technology achievements which were recognized as innovative and original in recent years. The Awards are issued every two years and are presented at the General Assembly of Chinese Academy of Sciences by leaders from the State Council.





● /Image by YANG Xiaoping





# EDUCATION

## USTC Won First Prize of Chinese Final in Global Management Challenge

In the 16th Chinese Final competition of 32nd Global Management Challenge (GMC), MBA center of School of Management of USTC achieved great success; MBA center won the first prize, Best Organization Award and Active Participation Award.

More than 2000 teams from more than 130 Chinese universities participated in the GMC which is divided into five stages: 1st round, 2nd round, 3rd round, Chinese Final and the International Final.

The Global Management Challenge is the largest Strategy and Management Competition in the world. It's the largest international event based on business simulations, in which more than 480 000 university students and company managers participating in this event throughout the world. At this present time there are more than 40 countries participating in the contest, since the concept of the competition emerged in 1980 in Europe.

The competition simulated real-life situations where each team ran a company with the objective of getting the highest company share price on the stock exchange.



# FOUNDER OF LENOVO GROUP ATTENDS "REVIVAL FORUM"

LIU Chuanzhi, founder and chairman of Lenovo Group, paid a visit to the USTC and spent a nice evening with teachers and students on the Revival Forum on April 11th, More than eight hundred teachers and students as well as many USTC alumni attended the forum.

Mr.LIU shared his painstaking entrepreneurial experience and his viewpoints of employing talents



● LIU talks to the students face to face / Image by LIU Aihua

with the USTC students.To clear students' confusion about future career, Mr.Liu talked about many of his personal stories and explained the wisdom of career planning, which inspired the audience deeply.In the following section, Mr.LIU answered many questions proposed by students around employment and pioneering, career planning, and development of national enterprise as well.His wise and excellent answer won rounds of applause from the audience.

## Three National Engineering Practice Education Centers Approved at USTC

In March, the Ministry of Education announced the list of construction projects of the National Engineering Practice education centers. Three centers at USTC got approved, that were the USTC-Alibaba (China) Network Technology Center, the USTC-Microsoft Asia-Pacific R & D Group engineering practice Education Center and the USTC- China communications Services Corporation Limited Engineering Practice Education Center.

To promote the implementation and construction of the "Engineering Education Centers", a working conference was held in USTC on March 21st, chaired by the Deputy Dean of the Graduate School, TU Jing, and Vice President, ZhANG Shulin also attended. Three project Directors, Prof. CHEN Enhong from the School of Computer Science, Prof. WANG Yong and Prof. YU Nenghai from the School of Information Science, reported the construction plans of the engineering education centers on the meeting, representing the three approved centers respectively. The construction plan includes the overall construction project objectives, construction tasks, training programs, evaluation mechanisms, and system building etc.

# Two USTC Courses Named Excellent Open Courses by Ministry of Education

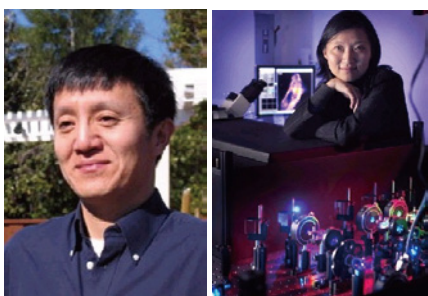
The Ministry of Education released the first batch of 43 Excellent Open Classes recently and two open classes lectured by USTC teachers were selected. They are “Knowing about the Universe” lectured by XIANG Shouping and “Appreciation and Manufacture of Pottery” taught by TANG Shukun and WANG Xiang.

The Excellent Open Classes Construction Project is an important part of the undergraduate teaching project of the Ministry of Education. It contains scientific and cultural network classes and lectures, serving mainly undergraduate students and accessible to the mass as well. USTC attaches importance to project and has gained many achievements. Besides the two courses, the lecture “A brief history of science—scientific revolution” taught by Shi Yunli was also opened to the mass recently. Moreover, many other candidate courses by USTC are also under construction.



● Prof. TANG Shukun, Prof. WANG Xiang and Prof. XIANG Shouping in the course/USTC





• LUO Liqun and ZHUANG Xiaowei/ Image from Internet

# USTC Alumni LUO and ZHUANG Elected Members of NAS

On May 1st, the National Academy of Sciences (NAS) of the US announced the list of the newly elected NAS members, which includes two USTC Alumni LUO Liqun and ZHUANG Xiaowei.

Both LUO and ZHUANG graduated from the Class of the Gifted Young of USTC. LUO Liqun is now investigator of the Howard Hughes Medical Institute and professor of the Department of Biology of Stanford University. Since 1987, many of his papers have been published in high-impact international academic journals such as PNAS, Neuron, Nature and so on. He was also elected as member of the American Academy of Arts and Sciences On April 17th, 2012.

ZHUANG Xiaowei is now investigator of Howard Hughes Medical Institute and professor of chemistry and chemical biology and of physics of Harvard

University. Her scientific achievements contributed a lot to the research in the field of monomolecular dynamics, interactions between nucleic acid and protein, mechanisms of the gene expression and other biological fields. Zhuang was awarded HHMI collaborative Innovation Award, TR World' s Top 100 Young Innovators Award, Max Delbruck Prize in Biological Physics, Raymond & Beverly Sackler International Prize in Biophysics. And in 2011, ZHUANG was offered Chair Professorship by USTC.

The NAS is a private, non-profit society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the public good. There have been a total of 8 scholars from China elected as members of NAS and USTC alumni take the largest proportion.

## Two USTC Alumni Named Fellows of American Academy of Arts and Sciences

On Apr. 18th, American Academy of Arts and Science released the new list of fellows, and two USTC alumni, YANG Peidong and LUO Liqun, were nominated.

YANG Peidong, the world's leading nano materials scientist and now a professor in Berkeley University, entered the Applied Chemistry Department of USTC in 1988. He was awarded the Alan Wortmann Award, known as Youth Nobel Prize in 2007. Based on paper impact factor, Thomson Reuters marked him the No.1 of 100 world leading materials scientists in 2011.

LUO Liqun, now an investigator of the Howard Hughes Medical Institute and professor of the Department of Biology of Stanford University, entered the class of Gifted Young of USTC in 1981. Since 1987, many of his papers have been published on high-impact international academic journals such as PNAS, Neuron, and Nature and so on. In February, he became a member of the Advancement of Science.

American Academy of Arts and Sciences is a world famous academic institution. In America science and engineering field, it is the highest honor to win its fellowship.

## Two Alumni Win 2012 Sloan Research Fellowships

On February 15th, Alfred P. Sloan Foundation announced the list of the winners of 2012 Sloan Research Fellowships. There are 11 ethnic Chinese among the 126 young prize-winners. Two USTC alumni XU Jinbo and WANG Dunwei, won the honor.

XU, Jinbo, winner of the Prize for Molecular Biology, was admitted to the School of Computer Science and Technology of USTC in 1991 and got his master degree in the Chinese Academy of Sciences in 1999. After finishing his PhD study in University of Waterloo of Canada, he worked as a research assistant professor and then went to MIT as a postdoctoral researcher. He is now assistant professor of Technological Institute at Chicago and professor of Department of Computer Science of University of Chicago.

WANG Dunwei, winner of the Prize for Chemistry, graduated from the School of Chemistry and Materials Science of USTC. He got his doctor's degree at Stanford University and then worked as a post-doctoral researcher. An expert in weaving the quadrilateral nanometer net, he is now assistant professor of Boston College. In 2010, his team successfully weaved the flat quadrilateral nanometer net by making use of two inexpensive chemical elements. The research result plays a critical role in the field of electronics and energy. His achievements were published in Applied Chemistry and Journal of American Chemical Society many times.

Sloan Research Fellowships were awarded by Alfred P. Sloan Foundation since 1955 to encourage and award those brilliant young scholars at the early stage of their career. Every prize-winner gets 50,000 U.S. dollars fellowship. The award covered 7 scientific fields: chemistry, molecular biology, computer science, economics, mathematics, neuroscience and physics and the marine sciences was added in 2012.



# Two USTC Alumni Named AAAS New Fellow

GUAN Junlin and LUO Liqun, two USTC Alumni were selected to Fellowship of American Association for the Advancement of Science (AAAS) together with other 537 scientists at the AAAS annual meeting in Vancouver, Canada, on February 18. GUAN and LUO are outstanding life scientists. They both graduated from Class of the Gifted Young of USTC and received the top honor for USTC undergraduates, the GUO Moruo Scholarship in the Department of Biology.

The American Association for the Advancement of Science, "Triple A-S" (AAAS), is an international non-profit organization dedicated to advancing science around the world by serving as an educator, leader, spokesperson and professional association. In addition to organizing membership activities, AAAS publishes the journal Science, as well as many scientific newsletters, books and reports, and spearheads programs that raise the bar of understanding for science worldwide.

## Alumna CUI Awarded Annual National Inventors of the Year



● CUI Jingrong (in the middle) with convalescent patients/ Image from Internet

On the 38th awarding ceremony of the Annual National Inventors of the Year, the team led by CUI Jingrong, a USTC alumna, was awarded the Annual National Inventors of the Year for their new findings in curing lung cancer—the invention of medicine Xalkori.

CUI Jingrong entered USTC in 1980, and gained both her Bachelor and Master Degree from USTC. With an experience of pharmaceutical development for more than 16 years, she has made many significant achievements like successfully

developing Crizotinib and participating in the development of anti-cancer SUTENT. The new medicine developed by Dr. CUI Jingrong made great break in the field treatment and brought new hope for the patients.

The Annual National Inventor of the Year Award was established by the American Intellectual Property Owners Association for awarding outstanding invention of the year and only one patent is selected for the honor every year.



• Robert Kejia / Image by FAN Qiong

# WRIGHT EAGLE WINS HONOR IN 16TH ROBOCUP

USTC's "Wright Eagle" team won first place in the "Open Challenge" competition and second place in the 2D stimulation league soccer competition the 16th RoboCup and Academic Meeting held in Mexico City from 6 to 18 of June. The upgraded intelligent service robot Kejia again was rated global top five. This is the first time Chinese teams have reached this height in international competitions.

RoboCup and Academic Meeting was initiated in Japan in 1997. It is an annual competition focusing on frontier aspects of the development of intelligent robots, and the difficulty level has been climbing to maintain challenging and updated with the latest development in this field.

The "Wright Eagle" team of USTC, consisting mainly of graduate students, has won many prizes in RoboCup, and RoboCup platform has become an important base for innovation cultivation of graduate students and an icon of mutual progress between scientific research and talent cultivation in the field of intelligent robots.

## USTCers Win Awards in the 2nd BrotherWin Cup International Originality Design Contest

The organizing committee of the 2nd BrotherWin Cup International Originality Design Contest released the winner list recently. Two works by USTC student ZHAI Zhengyang from the department of science and technology of communication and policy "Life" and "Traces" won the third and excellence award prizes respectively.

The BrotherWin Cup International Originality Design Contest for College Students is a desert service activity organized by Yunnan Provincial Committee of Education and Beijing BrotherWin culture communication Co. Ltd. Through competition such as crossing the desert and originality design contests, the organizers hope to strengthen the participants' environment-protecting awareness, and enhance their team-work ability and originality design ability. During the contest, the delegation of USTC created impressive photography and DV works, which won uniform affirmation and high evaluation of the judges.

USTC delegation created impressive award-winning photography and DV works, including LIFE, TRACE and DV works of FLOWERS IN THE DERSERT and stories of camera.



● All the players in the contest



● Deligation of USTC



## USTC Highlights in Changchun Invitational Competition of the 37th ACM/ICPC

USTC undergraduates won a gold and a silver in the Changchun Invitational Competition of the 37th ACM International Collegiate Programming Contest (ACM/ICPC) on April. 22.

The ACM/ICPC was launched by the American Association for Computing Machinery in 1970 with the purpose to display the college students' innovation, teamwork spirit and ability to program, analyze and solve problems under stress. It has become one of the most influential collegiate programming contests in the world and been honored as the Olympics in the Computer Field. 142 teams from more than 70 universities took part in this invitation contest.

Two USTC groups formed by five undergraduate students from the School of Computer Science and Technology, and one student from the School of Physics stood out from the many contestant teams and won the qualification to participate in Changchun Regional Contest of the 37th ACM/ICPC in October.



• USTC Participants in the contest/Copyright by USTC

## USTC Harvests in "Challenge Cup" Anhui Competition

From 1 to 3 of June, the Fifth "Challenge Cup"-Anhui Entrepreneurship Planning Competition for College Students concluded its final at Hefei University of Technology. All participating teams of USTC won five gold prizes and one silver prize, setting a new record for USTC's achievement in this competition.

45 colleges and universities from all over Anhui Province participated in this competition. Among the 234 entrepreneurship planning works submitted, 70 entered the final round and resulted in 22 gold prizes and 48 silver prizes.

The Entrepreneurship Planning Competition for College Students is an important part of the under the umbrella creativity program of "Challenge Cup". The Entrepreneurship Planning Competition is also called the business planning competition, and is popular in colleges and universities. It requires participant to work in groups to propose a technology, product or service with bright market prospects by using venture capital operation mode. A detailed, complete entrepreneurship plan intended to gain venture capital funding should be submitted.



DA Bo, a doctoral student at USTC, won the Best Poster Award at the 6th International Symposium on Surface Science (ISSS-6) held in Tokyo on December 11, 2011. His work, "A Reverse Monte Carlo Method for Extraction of Energy Loss Function Data from an Experimental REELS Spectrum", was highly acclaimed and received the third most votes for a prize.

ISSS, internationally influential for nano-, bio- and green innovation, is held by the Surface Science Society of Japan every three years. About 700 scholars from over 30 countries participated in the ISSS-6. Ten Best Poster Awards were granted by public vote to young scientists under the age of 35 who have done excellent work in the field of surface science. The awarding ceremony was held during a banquet on Dec.13, where DA Bo received his award, medal and prize money from Professor Seizo Morita, President of the Surface Science Society of Japan, Tomihiro Hashizume, Chair man of the Steering Committee of ISSS-6, and Satoshi Watanabe, Chair man of the Program Committee of ISSS-6.

## USTC Students Get Third Prize in International Universities Snow Sculpture Competition 2012



• /Image by ZHENG Wei

The fourth International Universities Snow Sculpture Competition was held in Harbin Engineering University from January 4 to 7 . The USTC team formed by four students on the USTC volunteer teachers program won third prize.

The theme of the snow sculpture competition this year is "Rhythm of youth". Contestants were asked to make snow sculpture on an artificial snow piece of 3 meters long, 3 meters wide and 3.5 meters high. With tacit cooperation, the four USTC students sculptured the "Willing Bull", which got unanimous appreciation from the judges and won a third prize on the competition.

The international universities snow sculpture competition is organized by China · Harbin International Ice and Snow Festival Committee and undertaken by Harbin Engineering University since 2009.

## USTC Excels in Anhui Science Popularization Creativity Competition for College Students

In the afternoon of February 16, the second session of Anhui Province, one hundred colleges and universities millions of college students science creativity and innovation Competition awards ceremony held in Tao Heung House Hotel.

ZHAO Yong, the HKUST Zhang Yanxiang teacher guidance and other students' grasp of science - enhanced reality virtual interactive science books "only works by the Competition Grand Prize school with excellent competition results, won the first prize (a total of five).

Competition 7187 Student Registration entry from the province's 94 colleges and universities, 2621 to submit entries. School a total of 61 individuals enrolled in 25 submissions.





• /Image by YANG Xiao Ping



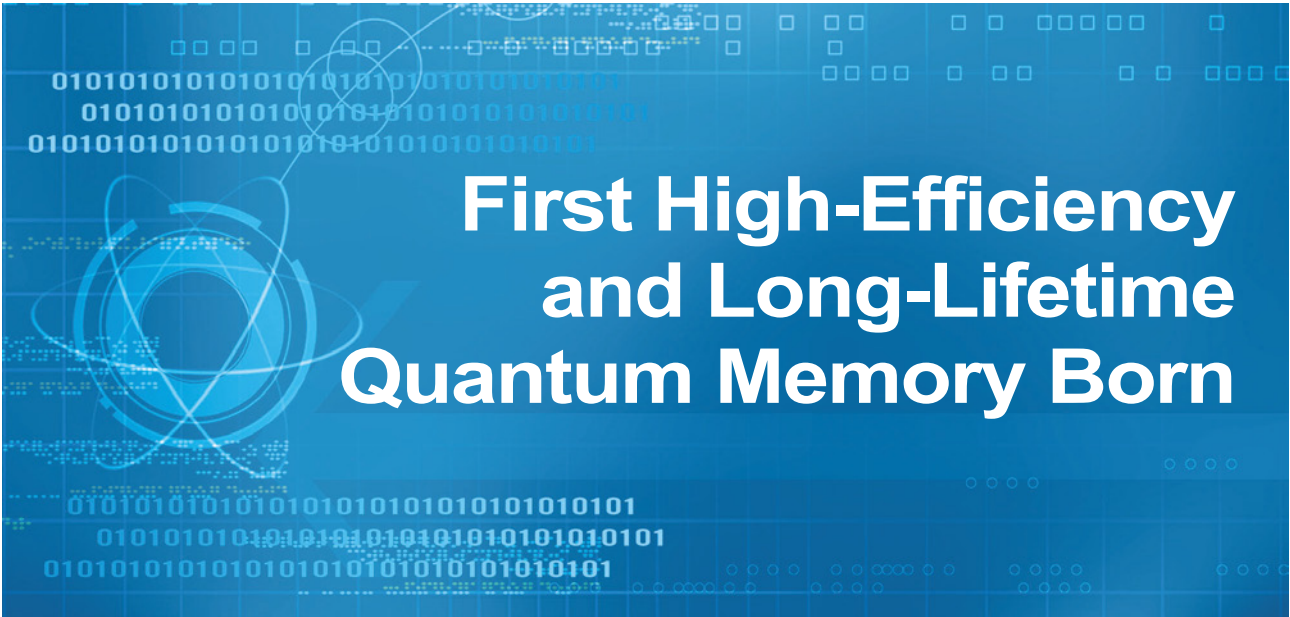
# RESEARCH

## First Experimental Review Published in RMP from Chinese Mainland

A review article entitled "Multiphoton Entanglement and Interferometry" authored by PAN Jianwei, CHEN Zengbing and LU Chaoyang from the USTC was published in *Reviews of Modern Physics* on May 12. This is so far the first experimental review paper published in *Reviews of Modern Physics* from Chinese Mainland authors.

*Reviews of Modern Physics* is a prestigious journal published by American Physical Society with an impact factor exceeding 50 in 2010. Its review articles, mostly invited, offer in-depth treatment of a research area, surveying recent work, and providing an introduction aimed at wide audiences.

PAN et al.'s 62-page-long invited paper reviewed the principles and experimental techniques for manipulation of multiphoton entanglement, with the emphasis given on the creation of photonic entanglement of various forms, tests of the completeness of quantum mechanics, quantum information protocols for quantum communication and quantum computation with linear optics. Many of the work described in the review are steps toward the ultimate goals: long-distance quantum communication and scalable optical quantum computing.



# First High-Efficiency and Long-Lifetime Quantum Memory Born

Through collaboration with German researchers, PAN Jianwei's group from Hefei National Laboratory for Physical Sciences at the Microscale (HFNL) has recently realized high-performance quantum memory in which long life time and high retrieval efficiency meet for the first time, taking a crucial step towards scalable long-distance quantum communication and scalable optical quantum computing. This work has been published on May 20 in the journal of Nature Physics.

The main purpose of quantum memory is to

coherently store single quantum state and convert it back on demand, so as to realize time synchronization between different quantum operations. Quantum memory is the key element of quantum repeater and large-scale optical quantum computing. It has been realized with different physical systems, such as cold atomic ensemble, hot atomic ensembles, single neutral atoms, cryogenic solid state systems, etc. Judging from the two most important parameters, storage lifetime and retrieval efficiency, cold atomic ensembles perform the best so far and show a nice



perspective towards scalable quantum communication and optical quantum computing.

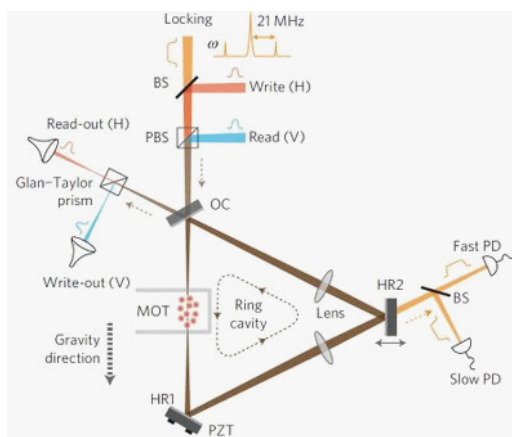
In the past experimental studies, efforts towards extension of memory lifetime and retrieval efficiency have been conducted separately, which results that long storage lifetime and high retrieval efficiency have never been met in a single experiment. Specifically, in the quantum memory experiments claiming long lifetime, even though millisecond regime storage time has been realized, the retrieval efficiency is merely ~20%; in the experiments claiming high retrieval efficiency, even though retrieval efficiency has been improved to ~70%, the storage lifetime is merely several microseconds. The incapability of accomplishing long lifetime and high retrieval efficiency in a single quantum memory strongly limits its applications in more advanced quantum information tasks.

In extending storage lifetime, PAN's group has found in 2008 that the random movement induced spin wave dephasing is the dominant decoherence mechanism limiting millisecond regime storage. In improving retrieval efficiency, according to related experimental studies, it is considered as an effective method to use an optical cavity to enhance the

retrieval efficiency. Therefore, how to incorporate the methods and techniques developed in these two lines of researches, is of key importance to realize long lifetime storage and high efficiency retrieval simultaneously in cold atomic ensembles.

To increase the spin wave wavelength in order to have long storage lifetime, it is required to configure the setup in a colinear configuration. To separate forward scattered photons from back scattered photons and enhance the retrieval efficiency, it is required to use a ring cavity. Combination of these techniques results in a difficulty to realize quadruple resonance between the cavity and the

optical modes. By making use of a delicate experimental design, the researchers alleviate the quadruple resonance problem into a double resonance problem, and relieve the experimental difficulty. Through overcoming a series of other technical difficulties, they finally achieved an excellent result of 3.2 ms storage lifetime and 73% retrieval efficiency. The referee thinks that this work "represents a very significant achievement towards scalable quantum information processing protocols", and "will most likely open the door to new demonstrations of more complex quantum protocols involving several atomic ensembles".





# HIGHEST FIDELITY SOLID QUANTUM STORAGE CAME OUT

Recently in the Key Laboratory of Quantum Information, CAS, the group led by Prof. LI Chuanfeng obtained solid-state quantum memory with a second to none fidelity, which is as high as 99.9%. This reliable quantum memory is a crucial step toward quantum networks based on solid-state devices. Physical Review Letters issued on May 11th published this noteworthy result, and it was also reported by Physics Synopsis.

Faithfully storing an unknown quantum light state is essential to advanced quantum communication and distributed quantum computation applications, currently that role is well played by quantum memory, one of the core devices in quantum information, which is also indispensable in the processes of quantum teleportation, quantum encoding, and reducing information loss, to name a few.

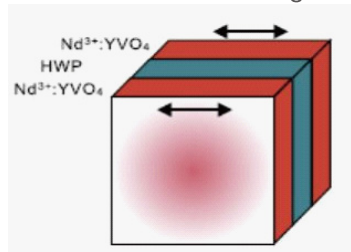
Despite there are some remarkable efforts based on cold atoms single atom in a cavity Bose-Einstein condensate, atomic vapors and trapped ions, they are suffering from several practical drawbacks, such as extra step of spatially splitting the input state, imperfect spatial mode matching and strong control or read light pulse during the memory sequence required.

This quantum memory is based on an atomic frequency comb(AFC) in rare-earth ion-doped crystals, for the crystals have shown several seldom equaled advantages, such as excellent capability to store light for extended periods with high efficiency and a large bandwidth. However, due to the strongly polarization dependent absorption of ions in crystal, all previous experiments have been conducted with a single

predefined polarization. To get rid of that limitation, LI's group uses an alternative approach to realize AFC quantum memory for polarization encoded single photons.

The hardware of this quantum memory is composed of two pieces of Nd<sup>3+</sup>:YVO<sub>4</sub> crystals (a kind of high performance laser crystal) sandwiching a half-wave plate, and this structure helps prevent a single piece of Nd<sup>3+</sup>:YVO<sub>4</sub> crystal from functioning as a polarization-qubit memory. Moreover, the experimental setup has been improved to achieve an optimum polarization storage performance. The group measured the process fidelity for a 200 ns storage time with single-photon-level input pulses at 99.9%±0.2%, which should make the quantum memory suitable for quantum error-correction applications in large-scale quantum computation. Additionally, the results shows bright prospect in producing solid-state devices that are capable of functioning as a quantum memory for light's polarization, temporal, and spatial information.

This research was supported by the National Basic Research Program and National Natural Science Foundation of China. Key Laboratory of Quantum Information is a laboratory under the guidance of CAS academician GUO Guangcan.



• Illustration of the sample used as the memory hardware for arbitrary polarizations. The arrows represent the c axis of the crystals.



## The Eye Limits the Brain's Learning Potential

The research groups led by ZHOU Yifeng from USTC and ZHANG Yudong's group from Chengdu Institute of Optics and Electronics, Chinese Academy of Sciences, have corrected the high-order aberrations (HOAs) normally present in the eye's optics using adaptive optics, and revealed a high degree of neuronal plasticity than previously appreciated. The findings were published online by Nature Scientific Reports on April 16.

ZHOU's and ZHANG'S groups have carried out a lot of innovative researches by combining of perceptual learning and the human eye adaptive optics technology. They designed a comparative test: a group of subjects for the correction of HOAs of the human eye (in this case compared to the ideal of human vision system), another group of subjects, not HOAs of the human eye the

correction (in this case is the common vision of school system). Comparing the difference in the improvement of contrast sensitivity and visual acuity of the two groups, it was found that there is a larger and more robust contrast sensitivity improvement when the HOAs were corrected than when they were left uncorrected. And this improvement effect can be maintained for at least 5 months; the HOAs-uncorrected group contrast sensitivity is only a small amount of improved visual acuity significantly improved.

Only when the HOAs are corrected, the visual system plasticity can work. The research results can be used to explore new treatments to improve the visual function of the low vision patients, adaptive optics correction technology and perceptual learning for the human eye to achieve "super vision" possible.

# NOVEL PROGRESS IN MECHANISM OF DNA DAMAGE REPAIRMENT

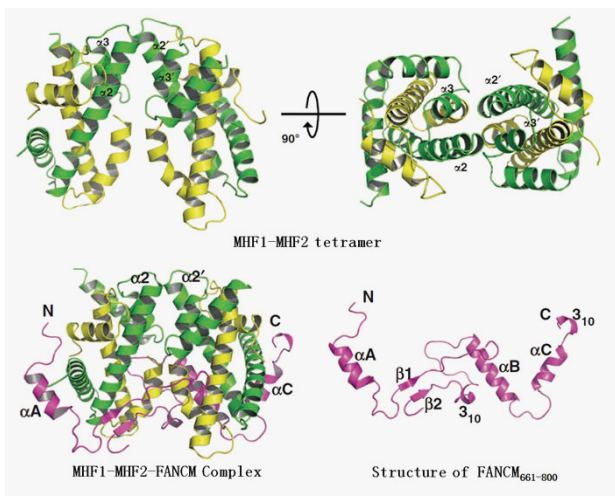
The research groups of Prof. TENG Maikun and YAO Xuebiao from School of Life Sciences in USTC reported the crystal structures and the DNA-binding mechanism of the MHF1–MHF2–FANCM complex. The work deepened our understanding of the mechanism of DNA interstrand cross-linking damage repairment, and suggested a potential mechanism underlying the pathogenesis of Fanconi anaemia.

Fanconi anaemia is a rare genetic disease

characterized by chromosomal instability and cancer susceptibility. Mutations in any of these 15 known FANCA genes can result in dysfunctions in DNA damage repair, leading to FA. FA cells are susceptible to agents that induce DNA interstrand crosslinks (ICLs), which block the progression of the replication fork. In response to DNA damage, FANCL in the FA core complex, composed of eight FA proteins (FANCA, -B, -C, -E, -F, -G, -L, and -M), monoubiquitinates the FANCD2–FANCI complex. Once ubiquitinated, this complex recruits the downstream FA proteins, and the pathway for homologous recombination-dependent DNA repair is activated. The recently identified FA-related protein, FAN1, may act as a direct effector, processing the ICL with its exonuclease activity on binding to ubiquitinated FANCD2–FANCI through its ubiquitin-binding zinc-finger domain. The Fanconi anaemia complementation group protein M (FANCM) forms an evolutionarily conserved DNA-processing complex with MHF1/MHF2 (histone-fold-containing proteins), which is essential for DNA repair in response to genotoxic stress.

Professor TENG's group solved the crystal structures of the MHF1–MHF2 complex alone and bound to a fragment of FANCM (FANCM661-800, designated FANCM-F). The structures show that MHF1 and MHF2 form a compact tetramer to which FANCM-F binds through a 'dual-V' shaped structure. FANCM-F and (MHF1–MHF2)<sub>2</sub> cooperate to constitute a new DNA-binding site that is coupled to the canonical L1L2 region. Perturbation of the MHF–FANCM-F structural plasticity changes the localization of FANCM *in vivo*. The MHF–FANCM interaction and its subcellular localization are altered by a disease-associated mutant of FANCM. These findings reveal the molecular basis of MHF–FANCM recognition and provide mechanistic insights into the pathway leading to Fanconi anaemia.

In this study, the group of Prof. TENG Maikun contributed in structure-function analysis and biochemistry measurement, and Prof. YAO Xuebiao provided the necessary cell biological evidence. This work is financially supported by Chinese Natural Science Foundation, Chinese Ministry of Science and Technology and Chinese Academy of Science. And the results of this work had been published in *Nat Commun* at Apr.17.



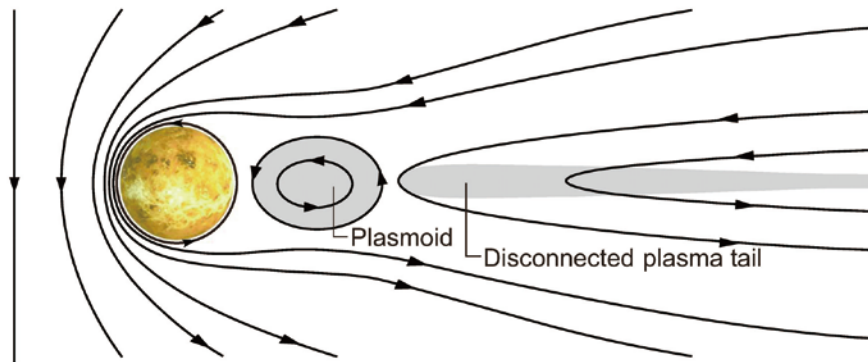
# USTC Researchers Find Irregular Topography at Earth's Inner Core Boundary

With direct seismic observations, USTC Prof. WEN Lianxing's research team demonstrated for the first time that the earth's inner core boundary (ICB) is irregular. Proceedings of the National Academy of Sciences (PNAS), the international authoritative academic journal, published this result achievement online on Apr. 30.

The ICB has always been thought to be flat, simple, and smooth so that the driving force for Earth's magnetic field, caused by solidification process of inner core, is horizontally uniform. However, according to WEN's findings, the earth's ICB is irregular.

Compressional seismic wave reflected off the Earth's inner core boundary from earthquakes occurring in the Banda Sea and recorded at the Hi-net stations in Japan exhibits significant variations in travel time (from -2 to 2.5 s) and amplitude (with a factor of more than 4) across the seismic array. Such variations indicate that Earth's ICB is irregular, with a combination of at least two scales of topography: a height variation of 14 km changing within a lateral distance of no more than 6 km, and a height variation of 4-8 km with a lateral length scale of 2-4 km. The characteristics of the ICB topography indicate that small-scale variations of temperature and/or core composition exist near the ICB, and/or the ICB topographic surface is being deformed by small-scale forces out of its thermocompositional equilibrium position and is metastable. The new findings require the science community to reevaluate the driving force of Earth's magnetic field.





## Scientists Find Magnetic Reconnection in Venusian magnetotail

Scientists from China, the United States and Austria have jointly found the magnetic reconnection in the near-Venus magnetotail.

The findings, issued in the latest *Science Magazine* released on April 6th, are likely to promote research into climate change on Venus and help find solutions to similar problems on Earth, said Professor ZHANG Tielong, the team leader of USTC.

Supported by China's national natural science foundation, the project was jointly conducted by USTC, the University of California at Los Angeles, and the Space Research Institute of the Austrian Academy of Science.

The findings were based on observations with the Venus Express magnetometer and a low-energy particle detector, said Zhang.

Venus Express is a spacecraft launched by the European Space Agency.

The magnetic reconnection may explain the auroras around Venus, and the atmosphere escape that led to the transformation of the planet rich in water 4 billion years ago to its current state, ZHANG said.

Similar to Earth in bulk, density and quality, Venus was once considered the planet which was most likely to have life. However, the temperature on the planet can reach 400 degrees Celsius and it has no water.

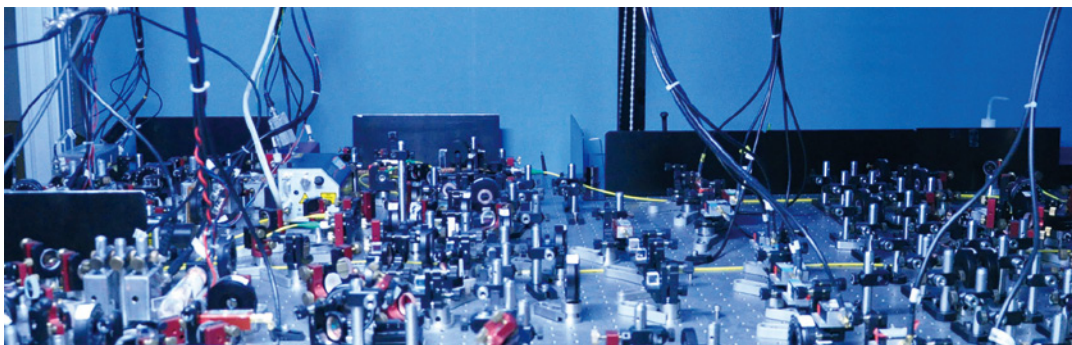
# A Step toward Scalable Fault-tolerant Quantum Computing

## Chinese Scientists Perform Topological Quantum Error Correction

Prof. PAN Jianwei and his colleagues CHEN Yuao and LIU Naile from the Hefei National Laboratory of Physics at the Microscale, working together with scientists in Australia and Canada, have successfully demonstrated a topological quantum error correction code for the first time. This marked a significant breakthrough in scalable fault-tolerant quantum computing. The paper was published in Nature as an article on Feb. 23, the issue commemorating the 100th anniversary of the birth of Alan Mathison Turing, the "Father of Computer".

Quantum computer has been a dream for many scientists due to its powerful computing ability over classical ones. However, a key obstacle to its realization – decoherence effect – has long baffled the scientists. Funded by Chinese Academy of Sciences, Ministry of Education and National Natural Science Foundation of China, PAN Jianwei and his team increased the brightness of two-photon states by 4-5 times, and that of eight photon entangling by 200 times at least through innovative experimental techniques, making what had been impossible a reality in mere 80 days. Moreover, researchers have also designed a special eight-photon interferometer to filter out noise and successfully created a topological eight-photon cluster state, which was used as a core resource in quantum computing to realize topological quantum error correction.

This research has marked a milestone in quantum computing by taking the first step in experimenting scalable fault-tolerant quantum computing. It will boost the development of quantum computing by laying a solid foundation for quantum computing in real meaning.



• / Image by FAN Qiong

# Earliest Extant Astronomical Measuring Instruments Discovered in China

Some lacquerware pieces unearthed 35 years ago are found to be China's earliest astronomical measuring instruments and are among the few extant oldest astronomical measurements in the world.

These Lacquerware pieces were excavated from a tomb of the Western Han Dynasty in Fuyang City, Anhui Province. As no one was able to identify its functions, it was named "lacquerware of unknown names".

In the spring of 2012, however, this mystery was uncovered. SHI Yunli, professor from the Department of the History of Science and Scientific Archaeology of USTC, together with experts from the Anhui Museum and the Fuyang Municipal Museum, discovered that the lacquerware was a special gnomon with templates, while the other pair of overlapping lacquered disks were parts of an equatorial device for the positional observation of celestial bodies. They were among the very few existing oldest astronomical measuring instruments with definite date information in the world.



• The Replicas of the Equatorial Device and Gnomon with Template from the Tomb of XIAHOU Zao/Image by SHI Yunli



# Observation of an Anomalous Decoherence Effect in a Quantum Bath at Room Temperature

Physicists from Hefei National Laboratory for Physical Sciences at the Microscale in USTC, and their colleagues from the Chinese University of Hong Kong has recently reported an observation of an anomalous decoherence effect (ADE) of single electron spin in diamond. ADE is a decisive evidence of the controllability of the environment and therefore the research takes an important step towards the exploring the quantum bath as a resource for the quantum information processing.

The study observed the decoherence behaviors of a three-level single electronic spin in ultra-pure diamond. In such a system, the central electron spin is coupled to hundreds of  $^{13}\text{C}$  nuclear spins and the coupling strength of coherence between  $|1\rangle$  and  $|-1\rangle$  (double transition coherence) is twice stronger than that of  $|1\rangle$  and  $|0\rangle$  (single transition coherence). At room temperature, the random orientation of the nuclear spins brings a large thermal fluctuation which causes a very strong decoherence and such

decoherence is totally classical. In order to see the non-classical behavior of the nuclear spin bath, the physicists use dynamical decoupling(DD) pulses to remove these classical noises. The observation is striking: as the orders of DD increase, the coherence time of the double transition coherence increases faster than that of the single coherence and finally becomes longer. In order to understand the observation, numerical calculation is performed, without using any assumed fitting parameters, both the experimental and the theoretical data agree very well.

The observed ADE demonstrates the quantumness of the  $^{13}\text{C}$  nuclear spin bath. By flipping the central electron spin by DD, the nuclear spins are coherently controlled via the system-bath interactions. The research shows that, instead of source of noises, a mesoscopic quantum bath can be potentially used for quantum information tasks. The work was published in Nature Communications in December 2011.



# Eight-Photon Schrödinger's Cat Born in USTC

The group led by Prof. PAN Jianwei and his colleagues, CHEN Yuao and LU Chaoyang, has managed to entangle eight photons in the so-called Schrödinger's cat state for the very first time, breaking the previous six-photon world record set up by the same group in 2007.

This finding was published in Nature Photonics on February 12 and attracted widespread attention in the academic community. Phys.Org reported this work: "In a game of one-upmanship, a Chinese team of physicists has figured out how to entangle eight photons simultaneously and to observe them in action; the previous record was six."

Developing practical quantum computation heavily depends on the coherent manipulation of multiple quantum states. The full entangled multipartite Schrödinger's cat state is an important benchmark of quantum control. With

the long-term support from the China Academy of Sciences, Ministry of Science and Technology and National Natural Science Foundation of China, PAN Jianwei's team has been devoted to the research of this field for more than seven years. In 2004 and 2007 respectively, the team succeeded in manipulating the entanglement of five and six photons respectively, with the relevant papers published in Nature and Nature Physics. After four years of hard work, the team brought the manipulation of photons to another level, and created world's best entanglement photon source in terms of brightness and purity. In early 2011, the team was the first to realize the eight-photon Schrödinger's cat state. According to the authors, the eight-photon state should allow them to demonstrate a powerful way of correcting quantum errors called topological error correction.



• /Image by YANG Xiaoping

# USTC BUILT WORLD'S **FIRST** PHOTONIC TELEPHONE NETWORK IN HEFEI

In March, Prof. Pan Jianwei and his research group of USTC has made significant progress on practical quantum communication, and built the world's first photonic telephone network in Hefei, capital city of Anhui province, thus the absolutely secure quantum communication has been applied in daily life. Through commercial optical fiber network, multiple users can communicate absolutely securely by quantum telephone. The successful research on quantum telephone network has demonstrated its practical value for the first time. In April 2009, this result was published in *Optics Express*, one of the internationally renowned journals in the field of optics, then was quickly reported by *Science* titled "Quantum Phone Calls".

Quantum communication possesses the feature of absolute security which the traditional means of communication do not have. And this provides great prospects and application value in information security field such as national security as well as finance. To turn quantum communication from theory to reality, and the absolute security of theoretical predictions to a real new means of secure communication, from 1990s, scientists both domestic and worldwide have done a lot of research. At the early stage of research, although the quantum communication was the only known secure means of communication, due to the imperfect nature of real systems and the lack of true quantum single-photon sources, the secure communication rate of quantum communication systems has declined

sharply with increasing distance, and the secure communication distance was only at the order of 10 km. Due to the poor speed of quantum communication, scientists have to simulate the real-time communication only by repeatedly using the same set of secure keys, which has limited the quantum communication systems only in the laboratory.

The group members including PAN Jianwei, CHEN Zengbing and PENG Chengzhi have carried out practical research on quantum communication, and successfully developed quantum phone prototype. They also constructed photonic telephone network which can be freely expanded based on the commercial fiber network. This research is in the leading position worldwide in the field of practical quantum communication. Just as *Science* comment on it: With such presentation, "quantum privacy" will not be a very distant future in your own home.

The experiments carried out by Prof. PAN Jianwei and his group on the basis of the standard general-purpose optical fiber mostly use the devices that have been developed in classical optical communication. The main performance of some key devices has reached or exceeded the similar products in the world. Successive breakthroughs in practical quantum communication and its core technologies of network made by Prof. Pan Jianwei and his group indicate the time to realize the industrialization of quantum communication technology has already come in China.



# INNER RING





## President HOU Leads Delegation to US

From 5 to 15 of March, President HOU Jianguo led a delegation to the United States for academic exchange and talent recruiting. LI WeiPing, Dean of the School of Information Science and Technology, relevant HR personnel accompanied HOU's visit.

At the invitation by Brown University, President HOU Jianguo attended "the Year of China" Activities and made a "Distinguished Lecture in Nanoscience". During his visits, HOU and the USTC delegation had talks with the head of teaching administration, heads of the Departments of Chemistry and Physics, and both sides reached agreements on establishing joint education programs and research cooperation.

During his stay in the US, President HOU also visited Harvard University, Massachusetts Institute of Technology, Rensselaer Polytechnic Institute, Columbia University, SUNY-Stony Brook University and some laboratories and discussed cooperation and exchanges with these US partners. In addition, President HOU called on Chen Gang, MIT Professor, and member of National Academy of Engineering, XIE Xiaoliang, Harvard Professor, and academician of United States National Academy of Sciences, Harvard Professor ZHUANG Xiaowei and Rensselaer Polytechnic Institute Professor XU Xie and exchanged ideas about how to promote cooperation with USTC. The delegation gave many recruitment lectures, attended by over 300 Chinese scholars. Dean of the School of Information Science and Technology, Li Weiping, Executive Chair of the Department of Material Science and Engineering, LU Yalin, Professors ZHANG Zhenyu, HU Sen, ZHANG Haijiang currently visiting the US, SUNY Stony Brook Professor, USTC "Thousand Talent Program" Professor CHEN Xiuxiong and USTC Alumnus, MIT professor WEN Xiaogang also attended the recruitment lectures.

President HOU also met USTC alumni during his visit. This visit was supported by USTC Initiation Foundation, USTC Alumni Associations and some Chinese professors in the US.



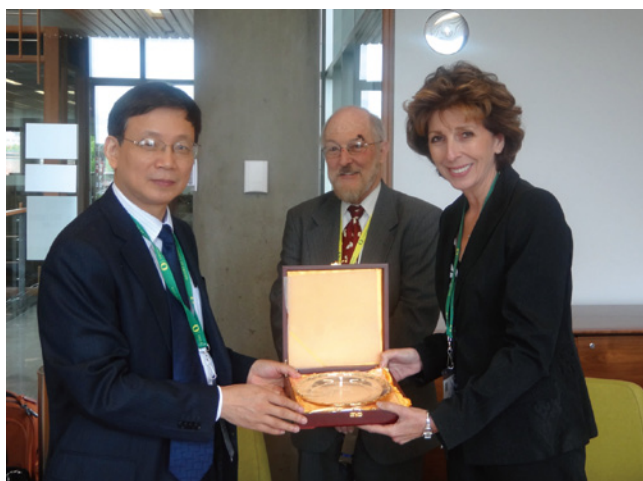
# APRU 16th Annual Presidents Meeting Held

The 16th Annual Presidents Meeting (APM) was hosted by the University of Oregon from June 28 to 30 in the University of Oregon with the theme, "Shaping Asia-Pacific Higher Education in the 21st Century". USTC President HOU Jianguo attended the meeting and chaired theme discussion on "the Future Development of Research Universities".

The meeting focused on the proposed APRU strategic framework, with plenary sessions and group discussions based on three proposed thematic priorities within the framework: "Shaping Asia-Pacific Higher Education and Research", "Partnering on Solutions to Asia-Pacific Challenges", and "Creating Asia-Pacific Global Leaders". The APM also featured a Presidents' Open Forum on "Leading Universities in Times of Change and Crisis".

During the meeting, HOU signed agreements on inter-university cooperation student exchange with University of California, Santa Barbara (represented by President Henry Yang) and UCD (represented by President Linda Katehi), which means USTC will send exchange students to these two divisions of the University of California next year.

APRU is formed by 42 top research universities on the Pacific Rim with the mission to promote the cooperation in and development of sci-tech, education and culture between economies of the region. The Annual Presidents Meeting (APM) is an important activity of APRU, which calls for university presidents to discuss the development and cooperation of Pacific Rim Universities.



# Founder of ITER: Evgeny Velikhov visits USTC

International Thermonuclear Experimental Reactor (ITER) Training Forum & Second Workshop on Magnetic Fusion Energy (MFE) Development Strategy in China was held on May 30- June 1 in USTC. It was hosted by Ministry of Science and Technology of China (MOST), USTC and ITER Organization (ITER IO), and organized by National Integration Design Group for Magnetic Confinement Fusion Reactor (CNMFRDG) and School of Nuclear Science and Technology (SNST).

In response to the enthusiastic invitation from WAN Yuanxi, director of CNMFRDG, Russian academician Evgeny Velikhov, founder of ITER, attended the forum and workshop. Academician HOU Jianguo, president of USTC made the opening speech; LIU Minghua, director of Bureau of Basic Science, CAS (Chinese Academy of Sciences), LUO Delong, deputy director of the China International Nuclear Fusion Energy Program Execution Center, and ZHANG Guocheng, director of Department of Basic Research, MOST gave welcoming speech respectively.



● Evgeny Velikhov gives speech/ USTC

Fusion is a kind of inexhaustible clean energy which is deemed as the most promising way to solve the energy crisis and the environment problems at present all over the world. Evgeny Velikhov is one of the most famous experts in the field of fusion and he is long engaged in the research of plasma physics and confinement fusion. He currently holds the post of

president of the Kurchatov Institute (named after Igor Kurchatov) and first secretary of the Public Chamber of Russia. He is also a member of the Russian Academy of Sciences and has been the vice-president of the Soviet Academy of Sciences. Academician Evgeny Velikhov was educated in the same college as the former Soviet Union general secretary Mikhail Gorbachev. Based on their consensus that researches into fusion need worldwide cooperation, Evgeny Velikhov promoted successfully the formation of ITER, largest scientific research cooperation in the world. Owing to his contribution, he was appointed as Chair of the ITER Council. Evgeny Velikhov made a report Russian Strategy for Controlled Fusion and introduced current development situation of fusion in Russia at the ITER Training Forum. In the 2nd Workshop on MFE Development Strategy in China, Evgeny Velikhov listened to scientific goal and preliminary design report related to CFETR from experts of CNMFRDG. Then he expressed his affirmation of the scientific goal of CFETR and discussed with Chinese fusion experts and gave guiding suggestions about specific design .

Academician Evgeny Velikhov's visit to USTC has profound meaning in promoting the development of Chinese nuclear fusion and strengthening extensive cooperation and thorough exchange between China and Russia.



● The Training Forum / USTC

# NAS Member Gregg Semenza

## Awarded Einstein Professorship of CAS

On June 12th, Doctor Gregg Semenza, Michael Armstrong Professor of Johns Hopkins University, gave a lecture on relationship between oxygen homeostasis and human diseases at School of Life Sciences TIAN Zhigang, dean of the School of Life Sciences, awarded Gregg Semenza Einstein Professorship of Chinese Academy of Sciences.

Doctor Gregg Semenza is a member of National Academy of Sciences(us) he the founding father of modern hypoxia research. His lab's main interest is molecular mechanisms of oxygen homeostasis. They have cloned and characterized hypoxia-inducible factor1(HIF-1), a basic helix-loop-helix transcription factor. His work contributes a lot to the research field of cardiovascular disease. He published 270 papers which were cited more than 40,000 times. The topic of the lecture focused on the function of HIF-1 in various pathways. HIF-1 expression increases exponentially as cellular O<sub>2</sub> concentration declines. HIF-1 activates transcription of genes that are essential for adaptive responses to hypoxia such as glycolysis, erythropoiesis, angiogenesis, and vascular remodeling. His lab is investigating the role of HIF-1 in the pathophysiology of cancer, cerebral and myocardial ischemia, and chronic lung disease, which are the most common causes of mortality in the U.S. population.

The Einstein Professorship Program is a key initiative of the Chinese Academy of Sciences (CAS). Einstein Professorships will be awarded each year to 20 distinguished international scientists actively working at the frontiers of science and technology, for conducting lecture-tours to China. The goals of the program are to strengthen science and technology links, cooperation and exchange between CAS scientists and respective Einstein Professors and their laboratories, and enhance the training of future generations of scientists in China.



• /Image by FAN Qiong

# Science Delegation Visits USTC

Delegation of Science, one of the world's best known scientific magazines gave a one-day-visit to USTC on April 26th.

The delegation first visited the Hefei National Laboratory of Physical Sciences at the Microscale. Then they attended a seminar where Vice President of USTC, Prof. CHEN Chusheng gave a brief introduction of USTC. Several distinguished professors from different faculties of USTC introduced their research to the delegation on the seminar. In the end, science reporter Shawna Williams asked the professors some questions regarding the education program of USTC and its international cooperation.

Science was founded by the famous T. Edison in 1880. In 1894, it became the official publication of the AAAS (American Association for the Advancement of Science). Since then, Science has always been one of the best scientific publications in the world.



• /Image by FAN Qiong

## David Devoss: China's Changed A Lot

On April 12th, David Devoss, a senior American journalist made a lecture with the topic of "Changes of China in a Senior Western Journalist's Eyes" in USTC. David came to China in 1977 for the first time, and since then, he came to China for many times and witnessed the many huge changes taking place here.

David began his lecture with the introduction of the high reputation of USTC in his hometown, California America. Then he talked about his experience in visiting China since 1977 and the huge changes he witnessed. David also discussed the Sino-American relationship. At the end of the report, he answered some questions proposed by the students on the culture differences between China and America, the South China Sea problem and some Chinese social problems and so on.

David Devoss is a senior American journalist. He used to work in the Times, Los Angeles Times and Asia Times and published 9 books and won lots of journalistic awards. He visited China for many times and reported his experience and witness in China and shared the many changes happened and happening in China with people around the world.



# HOW TO GET PAPER PUBLISHED IN NATURE?

Dr. Felix Cheung, editor of Nature China, delivered a speech entitled "How to Get Paper Published in Nature?" on Feb 27 at USTC.

Dr. Felix Cheung first reviewed the fast increase of high-impact articles published in Nature in the 20th century and spoke highly of the achievements made in Hefei. "In terms of economy, Hefei may not be among the A-list cities in China. But in terms of scientific research, it is definitely one of the strongest cities in China, following Beijing, Shanghai and Nanjing." he said.

Dr. Felix introduced the possible problems students may meet in publishing papers and shared his experience as an editor on relevant

issues such as how to develop the title, organize the content, describe the results and adjust the typesetting et, al. He also encouraged the students to keep on polishing their papers even when rejected.

Nature is a weekly international journal publishing the finest peer-reviewed research in all fields of science and technology. Nature China publishes the best researches and provides a summary of the results. By organizing different researches into a comprehensive, regularly updated, one-stop web portal, Nature China succeeds in keeping the journal up-to-date with the most significant researches in Chinese mainland and Hong Kong.

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## Famous Sinologist Talks about International Chinese Class

Prof. Peter Kupfer, famous sinologist and translator from Mainz University, Germany, paid a three-day-visit to USTC on May 13th.

Prof. Kupfer first held a discussion with professors and teachers from the School of Humanities and Social sciences around teaching and studying Chinese as a foreign language and study of wine culture as well. After hearing about the introduction of the international classes of Chinese teaching in USTC, Prof. Kupfer gave many instructive suggestions for the plan of the international Chinese class in USTC.

Prof. Kupfer also visited several exhibitions held in USTC—"Oil Painting Exhibition—Ode of Russian Spirit", and "Revival of national treasure—Official Kiln Porcelain in Nansong Dynasty" and special exhibition "Combining science and education, Exploration and innovation----Qian Xuesen and the Development of USTC" and he spoke highly of them.

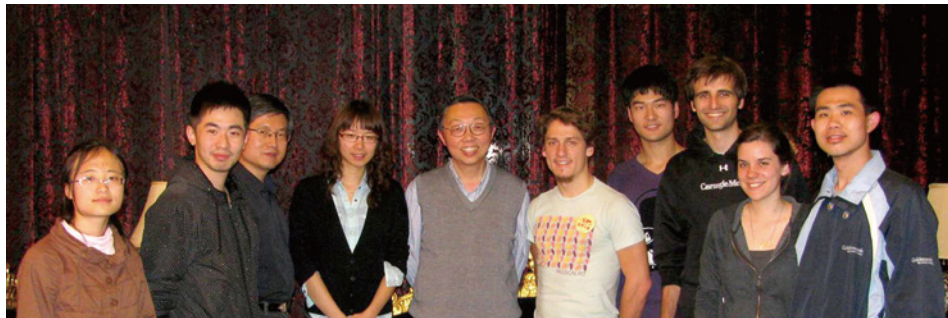
In the later days, Prof. Kupfer made two academic reports with the title "To Rebuild the Bridge Connecting Europe and Asia: the Silk Route and Its Inspiration" and "Internationalization of Teaching Chinese as a Foreign Language and Strategies for Chinese Culture Going Out " respectively, which attracted hundreds of students and teachers.

# Students of USTC and Stanford Collaborate in ME310 Project

On Mar. 17, a group of Stanford students from the "Microsoft Team" and "SAP Team" came to USTC for a two-week visit for ME310 project.

During their stay, the Stanford students participated in many activities, including visiting the Microsoft Research Asia and SAP, touring around the campus and discussing the ME310 project with the USTC students and so on. The USTC "Microsoft Team" and "SAP Team" will go to the Stanford University to participate in the final presentation of ME310 Course in June.

The ME310 Design Innovation Course is one of the most famous and influential courses in Stanford University. USTC became the first university in Chinese mainland to join the collaboration course and established the corresponding "Design Innovation" course with Stanford in 2011.



• Dean LI Weiping of SIST and Director LI Bin of the Teaching Center for Information Science meeting with the SAP Team / USTC

# Vice President of University of Birmingham Visits USTC

Vice president of University of Birmingham and Dean of Engineering and Physics Science School, Prof. Richard Williams visited USTC on Jan. 12 with the hope to strengthen cooperation between the two universities.

HOU Jianguo, President of USTC, and CHEN Chusheng, Vice President of USTC and many other professors of USTC welcomed Prof. Williams warmly. The two parties exchanged information about the two universities and expressed their hope to carry out further cooperation. A consensus was reached on the undergraduate students exchange program.

Prof. Williams also visited the Hefei National Laboratory for Physical Sciences at Microscale and Key Laboratory of Crust-Mantle Materials and Environment, Chinese Academy of Sciences, which impressed him deeply.

The University of Birmingham is a British Redbrick university. Much cooperation has been carried out between Birmingham and USTC in recent years. A joint laboratory of smart calculation and application was founded in USTC in 2010. Since May, 2011, a "3+3" joint cultivation program of double degrees has been launched by the two universities.

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# Microsoft Research Asia VP GUO Baining Visits USTC

On April 18th, Deputy Dean of Microsoft Research Asia, Dr. GUO Baining, together with Dr. WU Feng, chief researcher, Dr. Yang Tianshun, Manager of academic cooperation of China, and MA Xin, Senior Manager for academic cooperation, paid a visit to USTC.

Vice President of USTC, ZHANG Shulin welcomed their visits and she spoke highly of the cooperation carried out between Microsoft Research Asia and USTC. Both sides reviewed the fruitful achievements made in the USTC-Microsoft Engineering Practice Education Center in the past three years and

discussed possible ways of further cooperation on the novel platform for talent cultivation.

After the meeting, Dr GUO Baining gave a lecture on "Computer science and Mathematics", which attracted more than 300 participants, including teachers and students. In addition, both sides exchanged views on the construction of the USTC Microsoft combined experimental class, a joint postgraduate training program, looking forward to carry out more long-term and in-depth cooperation in the future.

# USTC jointly organized **2011** ASEAN-China Symposium

The 2011 ASEAN-China Symposium jointly organized by the School of Public Affairs (SPA) of USTC and School of Business of Monash University Sunway Campus was held in Kuala Lumpur on December 5th, 2011 with a grand opening. The attendants included experts and scholars from China, Malaysia, Australia, Japan, Britain, India, Vietnam and South Africa. Professor Nair, Vice President of Monash University Sunway Campus (MUSC) and Professor SONG Wei, Dean of SPA in USTC co-chaired the conference.

USTC and Monash University subscribed Memorandum of Understanding (MOU) in June 2010, mainly about research project cooperation, academic deliberation, communication and exchanges. The conduct of 2011 China-ASEAN Symposium was a specific measure of this cooperative agreement. Both sides hope to take turn to hold this symposium each year in future, making it a communication platform with richer topics, greater academic influence and clear regional characteristics.

Many honored guests attended the opening ceremony, including Mr. CHEN Dehai, counselor of China Embassy in Malaysia; Prof. ZHANG Shulin, Vice President of USTC, Prof. Robin Pollard, President of MUSC, Prof. Chris Messom, Vice President of MUSC, dean of each school and representatives of teacher and student of MUSC.

During the symposium, experts from different nations discussed on hot topics of economic development, financial investment, environment protection, education management, technical innovation, intellectual property protection and public policy. Seven teachers from USTC made academic reports and answered relative questions, which was widely acclaimed by attendance.



# *Science* Senior Editor Phillip Szuromi Talks about Science Paper Writing

Dr. Phillip Szuromi, senior editor from *Science* magazine, gave a two-hour-lecture on science paper writing in USTC on May 23rd. Along with him was WU Ruolei, Associate Director of International Cooperation & Operations of Science.

The lecture was divided into two parts with ten minutes' QA section at each end. The first one part was focused on the introduction of *Science* magazine and its development as well as the details of the process at *Science*. In the second part, Phillip discussed the Dos and Don'ts when reviewing and preparing a paper and how to write a paper while research ongoing. With keen and humorous words, he also shared some insights into what can make a paper more suitable and successful.



By answering the questions from the audience, Phillip talked about the importance of broad interest and novelty in publishing papers. He also mentioned the severe consequence caused by multiple submissions. When asked about the judgement and bias in editing a paper, Phillip said that as editors they evaluate papers, not evaluate people.

Around 200 people taking part in the lecture and all showed great interest and enthusiasm to make the research

published and known in the world level magazine.

WU Ruolei gave a brief introduction about *Science* at the beginning.

At the end of the lecture, Professor GONG Liuzhu presented a silver plate with a USTC logo on it as a gift to Phillip to make a memory of his first USTC visit. WU Ruolei presented the first issue of *Science* to USTC in return.

Before the lecture, Phillip visited the Hefei National Laboratory of Physical Sciences at the Microscale.



Phillip Szuromi received his PhD in chemistry from Cal Tech in 1985. He came to *Science* in 1986, where he currently handles papers in chemistry, physics, and materials science, but over the years he has had much experience in covering atmospheric science, biochemistry, and structural biology. He also works in the Commentary section of the magazine, where he solicits and edits "perspective" pieces.

*Image by DING Xing and YAO Qiong*

# Kai-Ming Ho Awarded APS 2012 Aneesur Rahman Prize

Kai-Ming Ho "Thousand Talents Professor of USTC" wins the APS 2012 Aneesur Rahman Prize for Computational Physics. Ho was selected for this prize for "his pioneering work in the development of computational physics for photonic crystal and atomic cluster structures

calculations."

The Rahman prize was established in 1992 with support from IBM with the purpose to recognize outstanding work and disseminating information in computation physics.



• /Image by YANG Xiaoping





# CULTURE



• /Image by YANG Xiaoping





• /Image by FAN Qiong

## "May Wind" Kicks off

On April 6, the opening ceremony of the 22nd "May Wind" Sci-tech Culture Festival was held in the student center of USTC. The theme this year is "Enriching Colorful Campus with Sci-tech Culture". The opening ceremony included Q & As, popular science exhibitions attended by more than 1000 students.

Many activities were held on the opening ceremony of the festival: the robots show of the school of Computer Science and Technology displayed robot dancing and robot-student dialogues, which was full of fun and surprise; the "Chinese Puzzle Ring" game given by the School of Information Science and Technology was warmly welcomed by the students, many of whom tried to take the challenge; the lunar globe and magic squares also attracted lots of students to see and try.

The 22nd "May Wind" Sci-tech Culture Festival is aimed to display sci-tech culture to USTC students and inheriting scientific spirit with a series of activities to be launched successively.

## "Pocket USTC" Gets its Debut in the "Smart Campus" Innovation Practice Forum

The "Smart Campus" innovation practice forum held its first report and published the first campus mobile application platform of China— "Pocket USTC" on May 9th. LI Jing, Director of the Network information Center of USTC, chaired the forum.

"Pocket USTC" is a campus mobile phone application platform developed to serve USTCers. The system is one part of the campus informatization construction program and co-developed by the Network Information Center of USTC, the students management department, and the School of computer Science and Technology. It covers Android, IOS and Windows smart phone systems. "iUSTC", one important project of Pocket USTC, got its debut on the conference. "iUSTC provides campus bus information, campus map guide and test inquiry, etc", said FU Hao, a member of Pocket USTC research team. Their creative ideas and funny designs won warm applause.

"USTC puts much emphasize on building public platform and encourages innovation and entrepreneurship", said GU Jibao, vice president of the graduate school. "Supports offered to students range from places, software and hardware to funding and promotion of products", said by XU Bing, vice president of Network Information Center.

# Experience Science 2012 Starts

Experience Science 2012 starts, USTC welcomes thousands of visitors from all over the country. Most of them are children, Primary and secondary students, with their teachers and parents.

Every year at the 3rd weekend in May, USTC opens to the public to science popularization as a kind of social services. The open points often includes National Synchrotron Radiation Laboratory, State Key Laboratory of Fire Science, Hefei National Laboratory of Physical Sciences at the Microscale, School of Life Sciences Department of Science and Technology of Potting and Communication and Multi-Agent Systems Lab etc.



• /Image by FAN Qiong

## Service Robot Kejia Changes Appearance

The service robot "Kejia", which was honored Top 5 at the 16th RoboCup in June, will have a uniquely Chinese appearance after being upgraded, said its creator "Wright Eagle" team at USTC on Tuesday.

"Kejia", named after the Conch Fairy, or Conchus, will be a 1.65-meter-tall female, with modern or ethnic style clothes, an enchanting voice, and long hair fit for doing various hairstyles. She will make her debut by the end of the year, said Professor CHEN Xiaoping from the School of Computer Science and Technology.

The goal of the "Wright Eagle" team is to create a service robot capable of reading simple things in the real world and acting according to human commands. Kejia seized international attention at its first public appearance in 2009 and is considered one of the most intelligent robots in the world.

The upgraded second generation Kejia is bilingual, capable of talking with people in simple English and Chinese. The image design for Kejia helps to widen her application in environment modeling and man-machine conversation.

# "Forever USTCer" Graduation Party Shines



• Belly Dance of Hot Summer/ USTC

On the night of June 9, USTC presented a fantastic "Forever USTCer" graduation party to graduates. Perfect performance and funny shows kept thousands of students active and excited.

A short video clip, looking back at the four-year typical student life in USTC, opened the party and infected the audience. Hip-Hop "Pendant Youth" wonderfully played by Students Hip-hop Society soon turned onlookers on.

"Hot summer", bellydance presented by hot girls from Automation Department activated the night further and higher.

"I will be on 'See You Party'", cross talk from Crosstalk Association, made the auditorium burst into laughters for their interesting campus topics and amusing talks.

Students Music Association, whose work named "Much Happiness in USTC" was known to the youth all over the nation in 2011, brought their second song 'Much Happiness in USTC graduation' and entertained the night to the most. The creative "T-shirt Stage Show" continued to heighten the enthusiasm of audience. Wearing T-shirt is an important culture in USTC but tonight is special because students demonstrated them in a creative way. Short funny stories in this

show surprised audiences and won thunderous applause.

"Life in USTC is rich and funny. Thanks to great support from USTC, various societies developed well, such as Exploration Association, Cycling Association, Dancing Society and the likes. I do not want to leave USTC," said by LIN Yue, a PHD graduates and dance amateur who has won five Champions in Invitation Meet of International Standard Dance of Hefei colleges. It was his first try in belly dance tonight.

Another highlight of this evening was the part of interaction with audience simultaneously. Students can develop their voices on Microblog which opened to everyone. Many people sent their deep love to USTC while others took advantage of the moment to express their hidden love to the beloved one. Wishes and hopes from home and abroad USTCers were also sent to graduates with videos. Song sang by uniformed national defense students, popular Chinese classic dance, ballet and stage play also welcomed by students. The party ended with a chorus of The Eternal East.

"Forever USTCer", is a part of "See You" graduation series activities.



• Cross Talk Show of I will be on See You/ USTC





# Undergraduate Commencement 2012 Held

USTC's undergraduate commencement ceremony was held on Jun 20, at which diplomas were awarded to more than 1,600 students.

The on show video 2008 student college life review present the deep hopes from the teachers and our university, Songs Love of Motherland and Farewell opened the Ceremony.

Before the ceremony, President HOU Jianguo take photos with each graduate class.

*Image by YANG Xiaoping, YAO Qiong and XIA Rui*







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