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EURAXESS LINKS CHINA

Dear colleagues,

Welcome to the October 2014 edition of the **EURAXESS Links China Newsletter**.

This edition's **EU Insight** focuses on the recently published Erasmus Impact Study: „**Weighing the Benefits of International Student Mobility on Future Employability"**, by the European Commission.

This month we met with Prof. Bai Yuhong, Director of Publication Department at the Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), the largest CAS institute. Prof. Bai tells us more about the Chinese scientific publication landscape, the newly launched *Light: Science & Applications* journal and her personal experience as a woman pursuing a successful research career in China.

The main announcement regarding EURAXESS Links China activities in this edition is the upcoming **EURAXESS Science Slam finals, which will take place on Thursday 6th November**. We have our 5 finalists coming from all over China, a great venue with the Steps Bar in Wudaokou, and the time has been fixed (6:30 pm). All we need now is a lively audience to decide who will be the most creative and captivating presenter and slammer of the year! Those of you in Beijing are most welcome to join this open event - make sure you and your friends have a seat and register now at scienceslamchinafinals.splashthat.com.

We also warmly invite you to a **EURAXESS Share event titled "Advancing Your Research through Mobility".** It will take place on 18th November at the CAS Shanghai in Xuhui District. The attendees will hear engaging **testimonials** from **Chinese researchers** who are beneficiaries of two prestigious EU funding programmes (European Research Council and Marie Skłodowska Curie) open to all nationalities, as well as introduction to **Chinese schemes open to international researchers** and practical tips about applying. Researchers or administrators based in and around Shanghai can register on:

http://euraxess-share-shanghai.splashthat.com/

About this newsletter

EURAXESS LINKS CHINA NEWSLETTER is a monthly electronic newsletter, edited by EURAXESS Links China, which provides information of specific interest to European researchers and non-European researchers in China who are interested in the European research landscape and in conducting research in Europe or with European partners.

The information contained in this publication is intended for personal use only. It should not be taken in any way to reflect the views of the European Commission nor of the Delegation of the European Union to China.

Please email china@euraxess.net for any comments on this newsletter, contributions you would like to make, or if you think any other colleagues would be interested in receiving this newsletter, or if you wish to unsubscribe.

Editors: Andrea Střelcová, Jacques de Soyres, EURAXESS Links China Country Representatives

Recent developments in EU-China research & innovation exchanges and cooperation are featured under the **News & Developments** section, while funding and career opportunities can be found under the **Grants & Fellowships** and the **Jobs** sections.

In the past few weeks, Chinese media highlighted several corruption and fraud cases in the academic and research sector, indicating that the general campaign launched by president Xi Jinping against corruption and embezzlement has now reached the shores of the Chinese research system. While featuring some of these denunciatory articles, this month's **Press Review** also covers further reform announcements aimed at increasing the supervision and the transparency of the management of the huge sums invested by the Chinese government in science, technology, research and innovation.

We wish you a pleasant read.

With best regards,

Jacques de Soyres

Andrea Střelcová

EURAXESS Links China Country Representatives

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EU Insight

Weighing the Benefits of International Student Mobility on Future Employability

Understanding the role of education and its influence on skills development and their ties to future job attainment and socioeconomic prosperity is an important question for Europe. Isolating the specific factors which contribute to this process is equally important. International student mobility is one such factor, and the main subject of the recently published report The Erasmus Impact Study: Effects of Mobility on the Skills and Employability of Students and the Internationalisation of Higher Education Institutions (EIS), commissioned by the European Commission. Conducted and written by a panel of independent researchers, the EIS yields interesting findings about the benefits of going abroad.

The Report

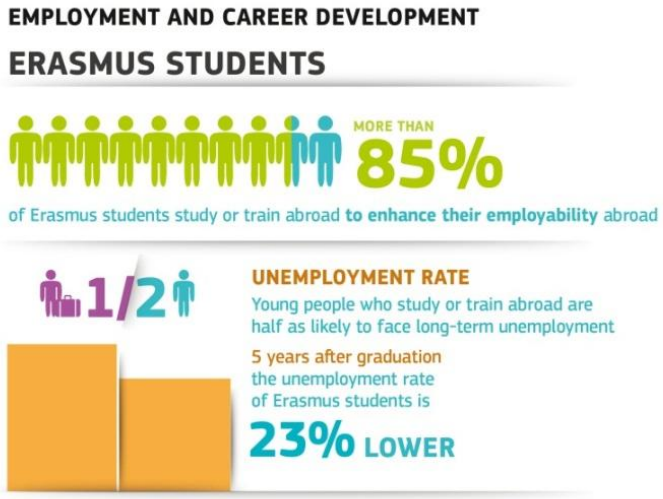
The EIS is the end result of the largest single study ever conducted on the effects of international mobility on students and higher education institutes (roughly 76,000 respondents). It is also in response to the European Commission's efforts to improve students' career options and combat high youth unemployment "through study or training abroad".[1] As the premier programme within Europe supporting international mobility amongst students and higher education employees, Erasmus serves as a perfect case study for exploring the question of mobility's effect on one's future job prospects and the impact of such mobility on one's place of work.

Designed to "go beyond perception studies…to measure real effects and outcomes",[2] the EIS used a mixed methods approach to "identify the effects of the Erasmus mobility programme on the employability, skills enhancement and institutional development on student's future employability", while also

[1] Erasmus Impact Study confirms EU student exchange scheme boosts employability and job mobility [Press release]. European Commission, (2014); http://europa.eu/rapid/press-release_IP-14-1025_en.htm

[2] *The Erasmus Impact Study: Effects of Mobility on the Skills and Employability of Students and the Internationalisation of Higher Education Institutions*. European Union (2014): 22.

"examin[ing] the impact of Erasmus staff and teaching mobility"[3] to reach the conclusion that **mobility is good for employment**.



Erasmus Impact Study confirms EU student exchange scheme boosts employability and job mobility [Press release]. European Commission, (2014); http://europa.eu/rapid/press-release_IP-14-1025_en.htm

Groups targeted by the study included: students and staff (academic and non-academic) of higher education institutions, programme alumni, higher education institutions and employers. The study included online surveys that covered 34 countries – EU member states as well as Macedonia, Iceland, Liechtenstein, Norway, Switzerland and Turkey.[4] The qualitative study focused on eight countries that are diverse in size and location – Bulgaria, Czech Republic, Finland, Germany, Lithuania, Portugal, Spain and the United Kingdom – and included site visits, interviews, focus groups and institutional workshops.[5]

Besides study abroad, work placements and trainings engaged in abroad were also factored into the study's scope. These international work experiences were also found to have a profound impact on an individual's future career options.

The Findings

Additional key findings of the report include:

[3] Lee, Petra. "Employment Prospects Rosier for Erasmus Graduates". *University World News*, 336, 24 September 2014.

[4] Ibid.

[5] Ibid.

- The Erasmus programme is as inclusive as other mobility programmes;
- **64% of employers consider an international experience important for recruitment** (up from 37% in 2006), with such hires given more responsibility earlier;
- **More than 1 in 3** Erasmus trainees were offered a position at their host company;
- Young people trained abroad are **50% less likely** to experience long-term unemployment;
- Almost **1 in 10 Erasmus trainees** who did work placements have started their own company, **3 out of 4** envisage doing so;
- Transversal (transferable) skills important to employers are also the skills improved during an Erasmus period abroad;
- **On average, 92% of employers are looking for transversal skills**, on top of knowledge in their field (91%) and relevant work experience (78%)

Room for Improvement

It is interesting to note that many of the positive outcomes listed above occur as a result of working, and not just studying, abroad. This distinction is something strongly emphasized in an article by Hans de Wit, one of the external advisors associated with the study, as receiving insufficient attention in the report.[6] Also questioned is the fact that the study does not provide much insight into the actual motivations respondents have for going abroad for work or study.

Understanding these factors, especially how international of a home life one has or how international of a curriculum one experiences prior to going abroad, and how these things influence motivation to be mobile or not, is noted as a necessary next step if the goal of mobility for all young people is truly to be achieved.

[6] de Wit, Hans. "Erasmus Report Fuels Internationalisation Debate". *University World News*, 336, 10 October 2014.

2 Feature – Meet the researcher

Prof. Bai Yuhong, Director of Publication Department of Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), CAS

Bai Yuhong was born in Changchun, China. She received a BSc degree in electronic engineering from Jilin University, a MSc degree in optical engineering from Chinese Academy of Sciences and a PhD in management science and engineering from Dalian University of Technology. She joined the Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Sciences (CAS), as an assistant professor in 1986, and was appointed full professor in 2005. She is the Director of Publication Department of CIOMP.

Dear Prof Bai, can you tell us a bit about your work?

I am in charge of five optics journals published by CIOMP, one of them being an English journal co-published with Nature Publishing Group (NPG) called *Light: Science & Applications* (LSA). In my work, I have been focusing on bridging a gap between strong Chinese academic literature and foreign science.

Why and where can you see a gap between Chinese and foreign academic literature?

A gap exists especially in certain fields where the country excels, such as optics and materials, etc., and where data from China have been so far overlooked. For example, CIOMP has done some great work in optical engineering, but we have never had many papers published in English. Now, because the journal is co-published with NPG, more and more overseas scientists notice us, pay a visit, and feel amazed by our work. This helps us pursue more international collaboration.

How does CIOMP contribute to world's research in optics?

In the different phases of China's development, CIOMP has always played a crucial role in meeting the needs of the nation, its social environment and research requirements. Currently, the R&D activities of CIOMP largely focus on applied research to solve the current problems in engineering and industry. This means that there is less forward-looking, pioneering and original work when compared to some other countries. Nevertheless, China continues to develop quickly, and there is a strong desire to reach out to the world and fully participate with colleagues from all countries in all aspects of optics and photonics research. Pursuing more international collaboration is also what has led to the launch of *Light: Science & Applications.*

What does your typical day as a Managing Director of an academic journal involve?

Half of my time is spent on the road travelling around the world and China to attend various international conferences and promote the LSA's internationalization strategy. The rest of the time I stay in my office. I have meetings with my staff, discussing what is hot and who is popular in the optics community. I also spend a lot of time reading manuscripts, especially comments from the reviewers. Of course, reading and writing e-mails is an essential part of my daily life, no matter where I am. I do a lot of coordination

The **Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP)** is the largest CAS institute in China. Founded in 1952, it boasts more than 2,000 full-time staff and nearly 1,000 graduate students. It offers a wide range of master, PhD and post-doc programmes in several disciplines related to optics, fine mechanics and also physics. Originally under the leadership of the first president of Chinese Optical Society Prof. Daheng Wang/Wang Daheng?, CIOMP has undertaken a series of pioneering works across many fields, including applied optics, precision mechanics, lasers and optoelectronics. That is why CIOMP and Changchun has been hailed as "the cradle of optics in China".

Light: Science & Applications (LSA)

Established in 2012, LSA is published by CIOMP in cooperation with Nature Publishing Group (NPG). LSA publishes high quality optics and photonics research from around the world. The journal covers fundamental research and important issues in applied science and engineering. You can learn more and subscribe on www.nature.com/lsa/

work, with our topical editors around the world, to control the quality of the journal. And although I don't have time to do research anymore, I still spare some time to teach. I give lectures on how to publish a scientific paper or on journalism and communication in science.

Where would you like to see your work develop?

I was behind the idea of initiating the LSA, and it has been a long way before we finally launched the journal in 2012. Now, I would like to see our work further develop and modernize. We already know that a bright future is waiting for us - not only in China but also around the world. As an open-access journal, it brings us into the 21st century through a model which is increasingly popular in Western journals. LSA provides a medium for the dissemination and exchange of knowledge and ideas with colleagues all over the world. In turn, this inspires future research.

What does the rise of international journals co-published in China such as LSA say about the change of Chinese research environment?

The share of international journals published or co-published in China on global research publications is rising rapidly. There are more than 120 such academic journals, mainly with Springer, Elsevier, Wiley, Oxford and NPG. Although to be honest, the research community and the government are thinking how to assess and evaluate research in a way that is not based only on publications. A few days ago, the International Symposium on Research Assessment and Evaluation was held in Shanghai. The Editor-In-Chief of Nature, Dr Philip Campbell, 2002 Nobel Chemistry Laureate Kurt Wüthrich and other high-profile personalities from the global and Chinese scene attended the symposium and discussed how to pay more attention to the impact of the research work, not the quantity of the publications. It is an important topic.

What is the impact of researchers' living and working abroad on global science and technology?

The exchange of scientific knowledge is most successful when such exchange is free and available to all, regardless of geography. My personal experience is that researchers living and working abroad have more opportunities for international scientific and technological exchange and cooperation. It always opens your mind when you work or study abroad, no matter who you are and where you live. The impact on global science and technology is that the processes and the outcomes of research are widely disseminated into the world. Such advancement should not, and cannot, be confined to a few intellectuals in a few areas or countries.

Do you have experience with research in Europe or with European scientists?

I have had too few chances to visit/collaborate with European institutes or universities. But in LSA we have a lot of collaboration with European researchers. Out of 40 editors, 11 come from Europe, and a third of published papers come from European researchers. CIOMP has awarded two honorary professorships to two excellent European researchers; one is Dr. Stefan Kaierle

from Laser Zentrum Hannover and the other is Dr. Hans Zappe from University of Freiburg.

How can society best encourage young women who want to pursue a research career?

In my opinion, successful female scientists serving as a role model are the best way to attract young women into science. Society has already done a lot for female scientists. In CIOMP, senior female scientists have equal opportunities and the same retirement regulations as male senior scientists.

Have you ever stumbled upon challenges? Has it been difficult to combine your career with family?

Sure, I have stumbled upon challenges. This is why I changed my job from a full-time researcher gradually into a professional editor. The first time I hit my glass ceiling was back in 1999. During my project, I couldn't accomplish the results I wanted in the given time, and I felt very frustrated. I questioned my talent as a researcher. Also I had some difficulties in combining my career with my family- my son was young and I would leave for work out of town quite often and sometimes for a long time. I couldn't sleep well for about a year, and eventually I made up my mind to find a way out. I am satisfied with my career now. I am very happy as a full-time professional editor which is not only my job, but also my hobby.

Prof. Bai, thank you for your time!

I would like to take this opportunity to express my heartfelt thanks to our partners, academic colleagues, and all the staff for their tireless efforts and support to establish this journal. Further, I wish to thank current and future authors and readers for their support, and wish *Light: Science & Applications* all success!

3. EURAXESS Links Activities

EURAXESS Science Slam #2 – Attend the finals, choose this year's winner! – Thursday 6 Nov. 6:30 pm, STEPS Bar (Wudaokou, Beijing)

A science slam is a scientific talk where researchers compete to present their work in creative and entertaining ways in front of a non-expert audience.

The EURAXESS Science Slam 2014 will take place on 6 November 2014 (starting at 6:30 pm until around 9:30 pm) in the great setting of the STEPS Bar in Wudaokou, Beijing.

Five researchers from across China will compete for the main prize in an evening full of original presentations.

It will be **you** who decides whose slam performance is the best. You will have the power to judge the **creativity, originality and style** of the five slammers, and designate the winner of the 1st prize: a tour to Europe!

Come, bring your friends and see for yourself how to make science most accessible, creative and fun!

Free drinks and food will be provided.

It is an OPEN EVENT but we encourage you to register by clicking on the pink RSVP button at scienceslamchinafinals.splashthat.com, to secure a seat.

This event is organized by EURAXESS Links China with the support of thinkINchina and Understanding Science.

EURAXESS Share: Advance Your Research through Mobility – 2pm, 18th November, CAS Shanghai

Researchers of all fields are welcome to join us for an **afternoon workshop, presenting EU and Chinese funding schemes open to international applicants,** from a practical perspective.

Co-organised by **EURAXESS Links China, Science and Technology Talent Centre of MoST, Shanghai S&T Commission and CAS Shanghai**, the event is open to all researchers regardless of nationality, research stage or research field.

The event will introduce two prestigious funding schemes by the European Union, the **European Research Council (ERC)** grants and **Marie Skłodowska-Curie Fellowship.** The attendees will hear engaging **testimonials** from **two Chinese recipients** who are beneficiaries of the well-known funding programmes open to all nationalities.

We will also hear **introduction to Chinese schemes** open to international researchers from Shanghai S&T authorities as well as practical tips about Chinese funding schemes from the researcher's perspective.

Registration starts at **1.30 pm.** The event will be in English and Chinese (with simultaneous translation provided) and will be followed by **a networking reception**.

Register now at http://euraxess-share-shanghai.splashthat.com/

2014 edition of the EURAXESS Links conference in Singapore and Bangkok (11 & 13 Nov.)

EURAXESS Links ASEAN is the organiser of the 2014 edition of the EURAXESS Links conference, with two full-day events taking place in Singapore (11 November) and Bangkok, Thailand (13 November). With the aim of strengthening inter-regional scientific cooperation, the conferences also seeks to promote science as engine of growth.

EURAXESS Links hopes to further open up mobility between the EU and ASEAN by informing researchers on research opportunities which exist both in Europe and in European research-intensive industries established in ASEAN. Both conferences will include a number of workshops with hands-on expert advice on various themes including science communication, proposal writing, and industry collaboration. Dialogue sessions and roundtables with industry representatives, policy-makers, researchers and journalists will focus on identifying strategies to further increase EU-ASEAN researcher mobility.

Registration is now open.

Singapore, 11 November 2014 - Register here:

https://www.mci-registrations.com/euraxess/singapore2014.aspx

Bangkok, Thailand, 13 November 2014 - Register here:

https://www.mci-registrations.com/euraxess/bangkok2014.aspx

4. News & Developments

4.1 EU & Multilateral Cooperation

First report on the implementation of the European Commission's international cooperation strategy in research & innovation

In September 2012 the Commission adopted a Communication on 'Enhancing and focusing EU international cooperation in research and innovation: a strategic approach'. It underlined that both strengthening the EU's competitiveness and facing global challenges call for global responses and require a strategy encompassing all dimensions of international cooperation. The Commission committed to reporting on progress in the implementation of the strategy in 2014 and the initial «staff working paper» prepared was «upgraded» as a «report of the Commission», a testimony of its quality and importance.

The report reviews the different aspects oft he strategy's implementation, from the content oft he work programmes under Horizon 2020, to the work on the framework conditions for international cooperation in R&I and to tighter coordination between the activities of the Member States and Associated Countries and those of the EU.

The report also mentions the significant progress made in the identification of priorities for cooperation with partner countries and regions, such as for example with ASEAN, where priorities for future cooperation with the EC are food, agriculture and biotechnologies, in particular aquaculture, health, ICT and renewable energy. More information on this particular aspect of the stragy's implementation is provided in the Staff Working Document accompanying the report, which details the roadmaps for international cooperation with Brazil, Canada, China, Korea, Japan, India, Russia, South Africa, USA, Eastern Partnership countries and the Southern Mediterranean region.

Read a more complete summary of the report in source: International Research newsletter, October 2014

Photo: ERC President Prof. Jean-Pierre Bourguignon with Chinese Minister of Science and Technology Wan Gang

ERC debating innovation with young talents at «Summer Davos» in China

The European Research Council (ERC) took part in the «Annual Meeting of the New Champions» in Tianjin, China, from 10 to 12 September, to discuss how innovation can create better value for all and to bring in the science perspective. Dubbed 'Summer Davos', this World Economic Forum meeting provides a platform for the «New Champions», that is the next generation of social and

business front-runners, technology pioneers and promising scientists, to engage with global leaders from industry, politics and science.

The ERC delegation was led by ERC President Prof. Jean-Pierre Bourguignon, who was one of the eight mentors of this year's edition, and ERC Scientific Council member Prof. Sierd Cloetingh. In addition, ten ERC grantees were invited as part of the Young Scientists Programme, which gathers exceptional researchers from around the world who have produced ground-breaking work. The ERC participated in over ten sessions, including one with the ERC President and the Chinese Science Minister Wan Gang as well as two press conferences. In a dedicated ERC Ideas Lab session, grant winners discussed how breakthroughs in brain research are transforming the future of health.

At the event, the ERC President commented: «The overall theme [...] – «Creating Value through Innovation» – resonates with the ERC's mission to fund ambitious projects proposed by researchers with an open mind for long-term innovation. This is crucial, as innovation a decisive driver of economic growth - is boosted by high-risk, high-gain research at the frontier of knowledge».

Source: International Research newsletter, October 2014

5th Sino-EU Workshop on Engineering Education held in Xi'an from 18 to 21 September

Only one week after the important visit of European Commissioner for Education, Culture, Youth and Multilingualism, Androulla Vassiliou, to Xi'an Jiaotong University, the 5th Sino-EU Workshop on Engineering Education took place at this important Chinese university. Xi'an Jiaotong University is one of the key universities and top research as well as innovation hot spots in China.

The workshop was attended by more than 100 participants from 8 European and 17 Chinese universities mostly at University President or Vice-President level accompanied by key interlocutors from the international and academic offices. It proved an excellent opportunity to reach key stakeholders from Europe and China for the promotion of the EU framework programme Horizon 2020 and EU China collaboration in research, innovation and education in general. In his opening speech the University's President, Prof. Wang Shuguo, highlighted the importance of linking education and research, and the development of world class research for which international collaboration is a significant element.

The Sino-European Engineering Education Platform (SEEEP) was initiated by the European CLUSTER consortium (Consortium Linking Universities of Science and Technology for Science and Research). CLUSTER is a consortium of 12 elite European universities in science and engineering with associated members from all over the world.

A presentation on Horizon 2020 with a dedicated part on Marie Skłodowska-Curie Actions and EURAXESS Links China was given by the EU Delegation China's S&T Section. It raised great interest from the audience and it is hoped

that it encouraged the development of joint collaborative research projects and participation in European Programmes.

Source: International Research newsletter, October 2014

ICT and agriculture – a multidisciplinary approach to tackle societal challenges

From 16 to 19 September Beijing was host to the 8th International Conference on Computer and Computing Technologies in Agriculture (8th CCTA). In recent years, modern information technologies and intelligent equipment techniques rapidly find widespread use in agriculture. In addition, a multidisciplinary approach to modern agricultural research has already led to a number of ground-breaking new solutions to common challenges, such as resource efficient production, intelligent sensing methods, and many others. The Conference offered the ideal auditorium to present the EU's framework programme Horizon 2020 which, with its challenge-based approach, seeks to bring together resources and knowledge in a multidisciplinary way to tackle common societal challenges.

The EU Delegation Beijing S&T Section representative presented opportunities for EU China research and innovation collaboration in food, agriculture and biotechnologies. The audience of researchers from China, Europe, the US and other countries expressed great interest in the opportunities offered under Horizon 2020 and inquired about possibilities for multilateral activities. In addition to the general opening of Horizon 2020, the European Commission and the Chinese Academy of Agricultural Sciences launched the EU China Flagship on Food, Agriculture and Biotechnology Research and Innovation at the last EU China Summit in November 2013 which offers great opportunity for even closer collaboration between the EU and China in some of the most critical areas of global concern.

Source: International Research newsletter, October 2014

European Commission and data industry launch € 2.5 billion partnership to master big data

The European Commission and Europe's data industry have committed to investing € 2.5 billion in a public-private partnership (PPP) that aims to strengthen the data sector and put Europe at the forefront of the global data race.

Mastering big data could mean:

- up to 30% of the global data market for European suppliers;
- 100,000 new data-related jobs in Europe by 2020;
- 10% lower energy consumption, better health-care outcomes and more productive industrial machinery.

A Memorandum of Understanding to set up the PPP on big data will be signed today by European Commission Vice President Neelie Kroes and President of the Big Data Value Association, Jan Sundelin, who acts on behalf of companies including ATOS, Nokia Solutions and Networks, Orange, SAP, SIEMENS, and

research bodies such as Fraunhofer and the German Research Centre for Artificial Intelligence. The EU has earmarked over € 500 million of investment over 5 years (2016-2020) from Horizon 2020 which private partners are expected to match at least four times over (€ 2 billion).

The PPP will help focus public, private and academic research efforts to support research and innovation in game-changing big data ideas in fields such as energy, manufacturing and health to deliver services like personalised medicine, food logistics and predictive analytics. By implementing its Strategic Research & Innovation Agenda and concentrating Horizon 2020 support on common priorities, the PPP will strengthen Europe's big data community and help lay the foundations for the thriving data-driven economy of the future. The PPP will also support "Innovation Spaces" that will offer secure environments for experimenting with both private and open data. These will also act as business incubators and hubs for the development of skills and best practices.

The PPP, due to start on 1 January 2015, is one of the first outcomes of the European Commission's recent policy and action plan accelerate the development of Europe's data-driven economy (see IP/14/769 and MEMO/14/455).

More information in source: European Commission

EUROfusion launched in Brussels to help turn fusion energy into a reality

Fusion research institutes from around Europe gathered in Brussels to mark the signing of a grant between the EU and the EUROfusion consortium that will help keep Europe's lead in fusion energy research.

EUROfusion represents a major change in the way fusion research is funded in Europe. From 2014 to 2018, research will be funded through the Euratom Horizon 2020 fusion energy research programme, in line with Europe's fusion energy roadmap, which aims to deliver electricity generated by fusion to the grid by 2050.

Nuclear fusion uses the same energy that powers the sun – heating hydrogen atoms to millions of degrees Celsius so that they fuse together into helium, generating energy in the process.

'We are at the beginning of an exciting new journey with the launch of EUROfusion,' said Vice-President responsible for energy, Günther H. Oettinger during the launch event in Brussels on 9 October.

'Fusion has the potential to become a reliable, safe, non-CO2 emitting and sustainable energy source. Today's launching of our European Joint Programme on fusion shows how Europe benefits if we unite our research strength.'

At the moment, countries representing over half the world's population are working to build the International Thermonuclear Experimental Reactor (ITER) – in the south of France.

If they are successful Europe plans to go on and build a demonstration reactor, known for the moment as DEMO, which is expected to start contributing energy to the power grid around 2050.

'This is a very pivotal time for us to be in fusion,' Professor Steve Cowley, Chief Executive of the UK-based Culham Centre for Fusion Energy, told the meeting in Brussels. 'I believe that this (ITER) is the most important experiment of the twenty-first century.'

Read more in source: Horizon Magazine

ERC grantee Prof. Jean Tirole wins Nobel Prize in Economics

The 2014 Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel was today awarded to Prof. Jean Tirole, an European Research Council (ERC) Advanced grant holder, for his work on examining competition, and analysing how large companies should be regulated to prevent monopoly behaviour and protect consumers.

On this occasion, the President of the ERC, Prof. Jean-Pierre-Bourguignon, commented:"We send our warmest congratulations to Prof. Jean Tirole on today's award. After two ERC grantees won the Physiology/Medicine Nobel Prize last week, it is of course wonderful to see the 2014 Prize in Economic Sciences in memory of Alfred Nobel go to an ERC grant holder".

He added: "It is a remarkable week for the ERC and we feel encouraged in our work to identify prominent scientists and scholars and fund their pioneering ideas. The research of Prof. Jean Tirole demonstrates that the ERC is an outstanding opportunity not only for "natural sciences", but also in the areas of economics, and more broadly social sciences and humanities".

Source: ERC

Nobel Prize in Medicine goes to two European Research Council grantees

The 2014 Nobel Prize Medicine has been awarded to Professor Edvard I. Moser and Professor May-Britt Moser, both ERC Advanced Grant holders, together with Professor John O´Keefe, "for their discoveries of cells that constitute a positioning system in the brain".

Full article: ERC

EU Research Highlight – Inexplicable signal from the unseen universe provides tantalising clue about one of astronomy's greatest secrets: Dark Matter

Space scientists at the University of Leicester have detected a curious signal in the X-ray sky – one that provides a tantalising insight into the nature of mysterious Dark Matter.

The Leicester team has found what appears to be a signature of 'axions', predicted 'Dark Matter' particle candidates – something that has been a puzzle to science for years.

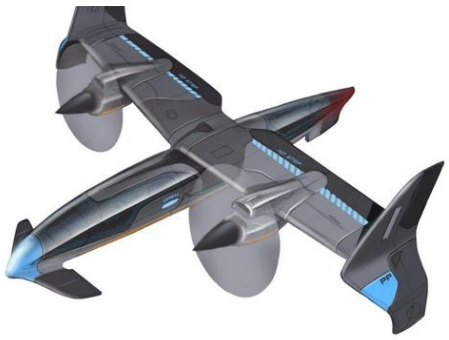
In a study being published on Monday 20 October in the *Monthly Notices of the Royal Astronomical Society*, the University of Leicester scientists describe their finding of a signal which has no conventional explanation.

As first author Professor George Fraser, who sadly died in March of this year, wrote: "The direct detection of dark matter has preoccupied Physics for over thirty years." Dark Matter, a kind of invisible mass of unknown origin, cannot be seen directly with telescopes, but is instead inferred from its gravitational effects on ordinary matter and on light. Dark Matter is believed to make up 85% of the matter of the Universe.

"The X-ray background - the sky, after the bright X-ray sources are removed - appears to be unchanged whenever you look at it," explained Dr. Andy Read, also from the University of Leicester Department of Physics and Astronomy and now leading the paper. "However, we have discovered a seasonal signal in this X-ray background, which has no conventional explanation, but is consistent with the discovery of axions."

This result was found through an extensive study of almost the entire archive of data from the European Space Agency's X-ray observatory, XMM-Newton, which will celebrate its 15th year in orbit this December. Previous searches for axions, notably at CERN, and with other spacecraft in Earth orbit, have so far proved unsuccessful.

Read more in source: University of Leicester



© PPlane Project

EU Research Highlights – Automating unmanned aircraft transportation

Today's personal transportation is mainly made up of ground vehicles, which are limited by low speed and high fuel consumption. To make travel quicker and more efficient, the European Union (EU)-funded project PPlane has taken the first steps to developing a Personal Air Transport System (PATS) that aims at providing additional links between remote locations and international hubs.

The project team developed a personal automated self-service concept aircraft, measuring 8 metres in length with a 12-metre wingspan. From the outset, the researchers emphasised an environmentally responsible design, including noise and gas emission reduction as well as energy efficiency. When implemented, the aircraft is expected to increase savings and sustainability while decreasing the overall impact of traffic on the environment.

The price to fly on PPlane would be close to that of a standard train ticket. Reservations would be available online by entering departure and destination points at existing regional airports. Once passengers have boarded, the plane would start automatically once authorised to do so by air traffic control.

"Travel could become far easier wherever people live. As the aircraft is electric with assisted take-off and landing infrastructures, noise pollution impact on the

local population would be minimal," says project coordinator Claude Le Tallec from ONERA, the French Aerospace Lab in Chatillon.

Involving 13 partners, PPlane was partially based on the findings of previous European research and development projects. This includes 'Out-of-the-Box', which aimed at identifying potential new concepts and technologies for future air transport.

The research partners set ambitious targets in order to deliver significant reductions of noise and emissions, substantial increases in fuel efficiency, a safety level comparable to that of conventional airliners and lower costs.

Lear more in source: European Commission

© pureshot - fotolia

EU Research Highlights – Nano-powered boost for stone conservation

Castles and cathedrals, statues and spires... Europe's built environment would not be the same without these witnesses of centuries past. But, eventually, even the hardest stone will crumble. EU-funded researchers have developed innovative nano-materials to improve the preservation of our architectural heritage.

"Our objective," says Professor Gerald Ziegenbalg of IBZ Salzchemie, "was to find new possibilities to consolidate stone and mortar, especially in historical buildings." The products available at the time, he adds, didn't meet the full range of requirements, and some could actually damage the artefacts they were meant to preserve. Alternatives compatible with the original materials were needed.

Ziegenbalg was the coordinator of the Stonecore project, which rose to this monumental challenge within a mere three years. It developed and commercialised a new type of material that penetrates right into the stone, protecting it without any risk of damage or harmful residues. The team also invented new ways to assess damage to stone and refined a number of existing techniques.

The concept behind the new material developed by the Stonecore partners is ingenious. It involves lime nanoparticles suspended in alcohol, a substance that evaporates completely upon exposure to air. The nanoparticles then react with carbon dioxide in the atmosphere to form limestone.

This innovation is on the market under the brand name CaLoSil. It is available in various consistencies – liquids and pastes – and in a number of formulations based on different types of alcohol, as well as with added filler materials such as marble. The product is applied by dipping, spraying or injection into the stone.

Beyond its use as a consolidant, CaLoSil can also be used to clean stone and mortar, as it helps to treat fungus and algae.

Learn more about this research project in source: European Commission

EU Research Highlights – Lighter and stronger materials for greener aircraft

© juanjo tugores - fotolia

EU-funded researchers have used carbon nanotubes to create exceptionally strong, lightweight and cost-effective materials for aircraft parts. They have demonstrated the potential of this material for making lighter aircraft that burn less fuel – a big boost to the competitiveness of Europe's transport industry.

Aiming to improve environmental performance and cost efficiency, the transport industry is moving away from materials based on metal and towards lightweight composites, such as reinforced polymers. Less weight results in lower fuel consumption – and greenhouse gas emissions.

Carbon-fibre-reinforced polymers are now the preferred composite materials as they provide low weight and high strength with cost savings – a particularly attractive combination for the airline industry.

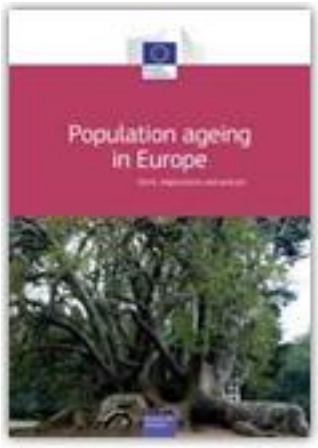
The EU-funded project IMS&CPS has contributed to this advance by developing a new closed-mould manufacturing technology that produces integrated components. This integration allows manufacturers to eliminate a number of metallic parts – with the aim of reducing aircraft weight and manufacturing costs.

The team also created a pure carbon nanotube fibre fabric and a pure carbon nanotube yarn. Numerical models developed by the team allow the integration of these materials within polymers.

The pure carbon nanotube fibre fabric is likely the first of its kind, says Emmanuel Detaille of project coordinator Coexpair in Belgium.

Read more about this project in source: European Commission

Publication – Population ageing in Europe



This publication focuses on the challenges and opportunities of population ageing in Europe. Reviewing the outcomes of EU-funded research in social sciences funded under the sixth and the seventh framework programmes, it aims to address the question of how the EU is preparing for advanced population ageing and what type of public policies it should pursue.

In order to set the stage, the document first gives the broader context with an analysis of the European approach to demographic change by presenting the main EU policy initiatives in this area.

In the second chapter, the book discusses the many dimensions of population ageing, presenting first the different theories and research approaches, then analysing the intergenerational aspects of ageing and finally considering the issue of well-being at older age.

The third chapter focuses on the impacts of population ageing on economic growth and the labour market. It presents the current situation and future trends regarding the labour force in the EU, considering also the challenges of reconciliation of work and family life as well as employability of the ageing workforce. The chapter then provides an analysis of the processes underlying the transition to retirement and closes by exploring the links between human capital in an ageing society, labour markets and economic growth.

The book concludes with an exploration of public policies supporting smart, sustainable and inclusive growth in the times of population ageing. This final chapter provides insights into how to transform ageing-related challenges into opportunities for the EU and how to manage the inter- and intra-generational balance in support of economic growth and well-being.

This publication can be downloaded from the European Commission website.

4.2 EU Member States*, China & Bilateral Cooperation

France – 'French Innovation in China' celebration, 30 Oct.-15 Nov., 2015

In the framework of the communication campaign „France Technologie – Si français, si innovant" (French Technologie – So French, so Innovative), the France China Committee (CFC) and its partners are organising the 1st edition of the 'French Innovation in China' celebration in 10 Chinese cities: Chengdu, Hong Kong, Macau, Beijing, Tianjin, Shanghai, Shenzhen, Suzhou, Wuhan and Zhuhai.

The initiative aims to foster exchanges between engineers, enterprises and economic and political leaders via the discovery of French technology, presented through conferences about innovation bringing together experts and scientists in Tianjin, Shanghai, Chengdu and Wuhan, more than 20 open days during which innovative French companies will introduce their industrial sites and R&D centres, as well as through various events organized with partners in Shenzhen (Digital IN-Pulse Forum), Zhuhai (Airshow), Wuhan (Sustainable city), Hong Kong (France Land of Innovation), Chengdu (Michelin Bibendum Challenge) etc.

More details and the calendar of events can be found on the French embassy website.

UK – Report on UK's activity to push carbon capture and storage (CCS) in China

The report from the British Consulate General in Guangdong Province outlines the cooperation between the UK and Guangdong on CCS and the two agreements signed by the Asian Development Bank and Guangdong and

* Including countries associated with Horizon 2020.

Shanghai to support and establish CCS centers arising from it. The aim of these centers is to push CCS development in China.

The brief report is available in html format on this UK.GOV webpage.

5. Grants & Fellowships

5.1 Calls announcements for international researchers

Austria – Institute of S&T Austria PhD programme

Highly qualified students from **all disciplines of the natural sciences, mathematics, computer sciences, and any related interdisciplinary areas**, who are committed to pursue their scientific career in an international research environment, are invited to apply to the IST Austria PhD programme at the IST Austria graduate school. All applicants must hold a Master's or Bachelor's degree (or equivalent), or anticipate the completion of the degree before September 2015. Participating students are expected to be proficient in written and oral English.

Established jointly by the federal government of Austria and the provincial government of Lower Austria, the Institute of Science and Technology Austria (IST Austria) is a PhD granting institution located in the city of Klosterneuburg, 18 km from the center of Vienna.

All PhD students admitted to the program will be offered employment contracts at IST Austria and will receive an internationally competitive salary with full social security coverage. Entering students holding a Master's degree will have four-year contracts, and students holding a Bachelor's degree, five-year contracts. The contracts will be extended by one additional year if satisfactory progress is made towards a PhD degree.

In addition, the PhD program will provide support for:

- Travel expenses to scientific conferences and workshops
- Research stays abroad at collaborating institutions
- German-language courses

Application deadline is **15 January, 2015** for a start of the programme in September 2015.

Find out more about this programme on the Austria IST website.

Belgium – New fellowship to do research in Belgium

"MOVE-IN Louvain" Incoming post-doc Fellowships is a new transnational fellowship programme developed by the Université catholique de Louvain (UCL) in partnership with the Université de Namur (UNamur) and the Université Saint-Louis (ULS-B) with the support of the European Commission (Marie Curie actions), to fund the mobility of post-doc researchers based outside of Belgium to one of these 3 universities.

The programme is based on a bottom-up approach as all research fields are eligible (**Sciences and Technology, Humanities and Social Sciences, and**

Health Sciences). The stay should cover 12 up to 24 months. The project will start maximum 12 months after the call deadline.

"MOVE-IN Louvain" Incoming post-doc Fellowships are addressed to:

- Experienced researchers holding a doctoral degree (PhD) or having at least 4 years of full-time equivalent research experience;

- Researchers with a maximum of 6 years of post-doc experience;

- Researchers in mobility condition: who have not resided or carried out their main activity (work, studies, etc.) in Belgium for more than 12 months in the 3 years immediately prior to the call deadline.

All nationalities are eligible.

The fellowship includes:

- A net monthly allowance, taking into account the experience of the fellow (average in 2014 with 2 years of working experience: EUR 2.311,36 /month);
- The personal liability insurance costs;

- The contribution to the National Office of Social Security (NOSS);

- A bench fee of EUR/year 5,000 for laboratory-based research or EUR 2,500/year for non-laboratory based research;

- Travel allowance: this amount will be calculated taken into account of the country of origin of the candidate (depending on the country, it could range from 250 EUR/year to EUR 2,000 /year).

The programme will last 5 years, issuing 3 calls for proposals. Depending on the duration of the stay of the candidates retained for funding, about 53 fellowships will be granted per call. **The first call for proposals, which is now open, will be closed on the 1st of January 2015**.

Find out more about his new mobility funding opportunity on the programme's website.

China – MPhil and PhD in Chinese Studies at The Chinese University of Hong Kong

The Centre for China Studies (CCS) of The Chinese University of Hong Kong (CUHK) invites applications for its MPhil and PhD programmes in Chinese Studies for 2015-2016. They welcome strong applicants with specialized research interests in a variety of areas, especially in religion, history, social-cultures, or politics and governance of China and Chinese societies.

CCS provides a platform within CUHK for interdisciplinary studies of China examined and written in English. In addition to the MPhil and PhD programmes, the CCS also hosts BA/BSSc in Contemporary China Studies and MA in Chinese Studies programmes.

Successful applicants will be supported by a monthly studentship (fellowship) covering tuition and an additional annual amount of approximately HK$172,200. Funding for research activities is also available.

The admission exercise for 2015-16 has now started and the closing date for applications is **31 January, 2015**. Applicants for the PhD programme are strongly encouraged to take advantage of the Hong Kong PhD Fellowship Scheme of 2015-16 (see call announcement and link below on p. 34) and submit the applications by the fellowship deadline on **1 December 2014**.

For more information on the application process to The Chinese University of Hong Kong, please visit http://www.cuhk.edu.hk/gss.

For more information on specific requirements for the Centre for China Studies, please visit our website at http://www.cuhk.edu.hk/ccs.

Admission Advisor:

Professor Jan Kiely, Director of Research Postgraduate Programmes (jkiely@cuhk.edu.hk / (852)3943-1364)

EU – New call for ERC Starting Grants

ERC Starting Grants are designed to support excellent Principal Investigators at the career stage at which they are starting their own independent research team or programme. This action is open to researchers of any nationality. Researchers funded by the ERC under the Starting Grant programme, have to spend at least half of their time in Europe.

The ERC's frontier research grants operate on a 'bottom-up' basis without predetermined priorities. The call 'ERC-2015-STG' consists of one call with a single deadline applying to each of the three main research domains:

- Physical Sciences & Engineering
- Life Sciences
- Social Sciences & Humanities

The current call opened on 7 October 2014 and will close on **3 February 2015**.

France – Xu Guangqi programme

The goal of the Xu Guangqi programme is to develop collaborations between Chinese and French researchers working in laboratories of both countries by supporting them in their initial phase of start-up and development. Mobility of young researchers within the collaborations is particularly appreciated. The call for proposals is open to research laboratories attached to higher educational institutions, research organizations or companies.

All fields of research (including social sciences) are eligible.

Up to 5000 EUR per project is offered under this programme.

The deadline oft he 2015 call just published is **19 January, 2015**.

More details are available on the Campus France website.

France – Eiffel Excellence Scholarship Programme

The Eiffel Excellence Scholarship Programme was established by the French Ministry of Foreign Affairs and International Development to enable French higher education establishments to attract top foreign students to enrol in their master's and PhD courses.

The Eiffel Excellence Scholarship Programme has two branches:

- a master's branch, which funds master's courses lasting between 12 and 36 months;
- a PhD branch, which offers funding for PhD students to spend ten months in France, through joint supervision or dual enrolment (preferably in the second year of their PhD).

Eiffel scholarships are available in three main fields:

- engineering science at master's level, science in the broadest sense at PhD level (engineering science; exact sciences: mathematics, physics, chemistry and life sciences, nano- and biotechnology, earth sciences, sciences of the universe, environmental sciences, information and communication science and technology);
- economics and management;
- law and political sciences.

At the PhD level, the Eiffel scholarship is awarded for a maximum of ten months. For law students, the ten-month scholarship can, with the consent of the selection committee, be split into two or three stays in France, of three or four months each.

This programme is reserved for candidates of non-French nationality and candidates for the PhD branch should not be older than 35.

Candidates have to be nominated by French educational establishments, which then submit the application.

The application deadline for the 2015-2016 academic year is **9 January 2015**. Foreign students in French educational establishments should contact their administrative staff to be nominated.

More details availalble on ther Campus France website.

France – COOPOL Innovation: 2015 Call

The eighth edition of the COOPOL Innovation programme has been launched. This programme supports French companies teaming up with French academic partners, and then identifying Chinese research and innovation cooperation partners through an exploratory mission to China. The mission is organized and funded by the scientific section of the French Embassy to China. All technological fields are eligible.

Deadline to submit proposals is **31 December 2014**.

Further details available on the French Embassy website.

Germany – DAAD Research Stays for University Academics and Scientists

This programme is intended to provide foreign academics and scientists working in higher education or at research institutes with an opportunity to carry out a research project at a state (public) or state-recognised higher education institution or non-university research institute in Germany.

The programme supports short-term research stays and promotes the exchange of experience and networking amongst colleagues.

The funding is provided for a period of 1 to 3 months and includes monthly payments of 2,000 euros for assistant teachers, assistant professors and lecturers and 2,150 euros for professors as well as a travel allowance.

Applicants must work at a university or institute of higher education in their home country and the research project must be coordinated with an academic host institute in Germany. The applicant must be provided with a workplace.

The application is done online on the DAAD portal. The application deadline for Chinese applicants is **30 January 2015** for stays to begin between July and December 2015.

More details can be found on the DAAD website.

Germany – 17 PhD fellowships in East Asian Studies at the Graduate School of East Asian Studies, FU Berlin

The Graduate School of East Asian Studies invites applications for up to 17 PhD Fellowships for the 2015 cohort (starting October 1, 2015).

Twelve doctoral candidates will receive a grant funded through GEAS, up to two PhD candidates can be considered for special funding provided by the DAAD (GSSP Program), and up to three candidates may be admitted with funding from other sources, partners or institutions.

We seek candidates with strong academic abilities and a Master's degree in either East Asian Studies (Chinese Studies, Japanese Studies, Korean Studies) or a discipline at the GEAS (Political Science, History, Social and Cultural Anthropology, Business and Economics, Law, Sociology, Cultural Studies, Humanities, Environmental Policy, Theatre Studies) with a focus on East Asia.

Successful candidates will have language skills in at least one East Asian Language (Chinese, Japanese, or Korean) at a level of B2 or higher on the Common European Framework of Reference (CEFR) as well as English language skills at a level of C1 or higher, as the official language of the programme is English.

Applications are accepted until **January 16, 2015,** via the online application system.

Find out more on the GEAS website.

Germany – PhD Scholarships in Plant Sciences at Freie Universität Berlin

In cooperation with the Graduate School Scholarship Programme (GSSP) of the DAAD (Deutscher Akademischer Austauschdienst) the Doctoral Program 'Plant Sciences' at Freie Universität Berlin is offering two scholarships for interested and qualified international doctoral candidates in the area of **plant sciences** starting October 1st 2015.

In the framework of the GSSP two scholarships will be awarded to international PhD students, who will be financially supported for up to three years, in case of emerging or developing countries for up to four years, by the DAAD.

The deadline for application for the winter semester 2015/16 is **November 30, 2014.**

More details available on the FU Berlin website.

Germany – Berlin Mathematical School (BMS) Dirichlet Postdoc Fellowship

The Berlin Mathematical School (BMS) is a joint graduate school of the mathematics departments of the three major Berlin universities, TU Berlin, FU Berlin, and HU Berlin.

The Berlin Mathematical School (BMS) invites applications for the Dirichlet Postdoc Fellowship starting in the fall of 2015.

This two-year position is open to promising young mathematicians who will have completed their PhD degree by 30 September 2015 and want to pursue their own research in one of the seven research fields of **mathematics** offered by the Berlin Mathematical School. The competitive full-year salary includes health insurance.

Fellows are expected to teach one course per semester, typically in English at graduate level. Applications from well-qualified individuals, especially women, are highly encouraged.

Completed applications are due by **1 December 2014.** Further is information available here.

Ireland – Government of Ireland Postdoctoral Fellowship 2015

The Government of Ireland Postdoctoral Fellowship Scheme is intended to support suitably qualified applicants at an early stage of their postdoctoral career to associate with established research teams that have achieved international recognition for their work. These fellowships can be held for either one year, in order to preprare a doctoral dissertation, or for 2 years in order to develop a new research project or a research project that demonstrates a significant development of the subject of the doctorate through a variety of appropriate, feasible and clear published outputs.

Fellows from any country may hold a Government of Ireland Postdoctoral Fellowship. However, Fellows under this scheme must maintain their principal residence in Ireland (as defined) during the period of the Fellowship.

Researchers **from all disciplines** are eligible to apply. Funding up to 45,895 EUR per year, including salary, social insurance, pension contribution and direct research support expenses, is offered.

The application deadline is **27 November 2014**.

Find out more on the Irish Research Council website.

Israel – ISF-NSFC joint research programme

The Israel Science Foundation (ISF) and the National Natural Science Foundation of China (NSFC) published the guidelines for the 2015 round of calls for Sino-Israeli projects. The fields convered this time include:

- Mathematics
- Earth sciences
- Nanotechnologies
- Computer sciences

The selected projects will be funded for a 3-years period starting on 1 October 2015 until 30 September 2018.

The application deadline for both sides is **7 January 2015, 4 pm**.

Read more on the NSFC website.

UK – Royal Society of Edinburgh (RSE) – NSFC Joint Project scheme

The RSE – NSFC Joint Project scheme is designed to facilitate international collaboration between researchers based in Scotland and China.

The collaboration should be based on a single project, with two teams or individuals based in Scotland and China. A relationship must have already been established between the Scotland-based and China-based researchers. The collaboration should involve bilateral exchanges between Scotland and China (applications will only be considered for bilateral, not multi-lateral, projects).

This scheme is available for Scottish-based researchers only.

The subject area for the 2014 (for Spring 2015) Joint Project Scheme is **Marine Science with a focus on Biodiversity**.

Joint Projects are intended for researchers of proven ability, employed by research institutions in Scotland and China. The Project Leaders must be of at least postdoctoral status or equivalent. The Project Leader from China must be eligible to apply for an NSFC grant.

The Joint Project scheme runs for two years. The RSE grant provides a maximum of £ 6,000 per year. This funding is to be used for travel and subsistence, with the option of using up to £ 1,000 on research expenses. A

similar level of funding will be provided by the NSFC to the China-based applicant.

The next closing date for application will be **5 December 2014**.

Find out more on the RSE website.

UK – Wellcome Trust: Intermediate Fellowships in Public Health and Tropical Medicine

This scheme enables high-calibre, mid-career researchers from and based in low- and middle-income countries - including China, to establish an independent research programme.

Research should be aimed at understanding and improving public health and tropical medicine of local, national and global relevance. Public health and tropical medicine cover a wide range of health problems, including communicable and non-communicable diseases.

Topics include:

- **demographic, social science and health economic studies**
- **epidemiological, field and community based studies**
- **health care systems and policy research**
- **measurement of infectious and chronic disease burden**
- **population studies**
- **clinical trials and case control studies**
- **studies of disease mechanisms in the natural host**
- **determinants of disease susceptibility and resistance**
- **immunity or resistance in natural hosts or vectors**.

Applications are considered twice a year. Details of the next round:

- Preliminary application deadline: **31 October 2014 (5pm)**
- Full application deadline: **26 January 2015 (5pm)**
- Shortlisted candidate interviews: 17-19 June 2015

All details can be found on the Wellcome Trust website.

5.2 Calls still open

Calls first announced in previous editions of the newsletter

Denmark – Danish Council for Independent Research (DFF) – Sapere Aude

Deadlines depend on the research area. There are 5 research areas (4 for DFF-Advanced Grants as Humanities are not covered) with deadlines between **28 October and 7 November**. More information is available here.

EU – CERN Non-Member State Postdoc Fellowship Programme

The application deadline is **1 November 2014**. More information can be found on the CERN website.

EU – IIASA Postdoctoral Research programme

The next, and last for this year, review date is **1 of November 2014**.

Find out more details on the IIASA website.

Netherlands – KNAW Visiting Professors Programme

The deadline for submission is **1 November 2014**.
More details available on the KNAW website.

Belgium – Gustave Boël-Sofina Fellowships to China and India

The application deadline is **3 November 2014**.
Further details available here.

Ireland – SFI Targeted Research Professorship Programme 2014

Expressions of Interest may be submitted by universities at any time up until **7 November 2014**.

Find out more details on the Science Foundation Ireland website.

UK – BBSRC China Partnering Awards

The fields covered are biology and biotechnologies.
The application deadline is **13 November 2014**.
Find out more on the BBSRC website.

Germany – DAAD-K.C.Wong Fellowships

The next application deadline is **15 November 2014**.

Learn more about this programme and how to apply on the DAAD website.

UK – Applications for 2015-16 Chevening Scholarships now open in China

The deadline for applications this year is **15 November 2014**.

More details on the UK.GOV website.

France – ANR International Collaborative research projects 2015 with mainland China, Hong Kong and Taiwan

The closing date for pre-registration of "International – Collaborative research projects" is **18 November 2014.** The deadlines for the submission of the full proposals vary from one agreement to the other but are all in the first half of 2015.

Detailed information about this programme and the different agreements concluded for international collaborative projects can be found on the ANR website.

Germany – 2015 Sino-German (CSC-DAAD) Postdoc Scholarship Programm

Applications should be submitted from 20th October to **20t November 2014** to the DAAD office in Beijing and CSC.

Find out more on the DAAD Beijing office website.

Sweden – STINT Initiation Grants

Applications may be submitted continuously throughout the year. The last starting date in 2014 for assessment of received applications is **November 25**.

Read more on STINT website.

Netherlands – Rubicon programme

Next application deadline is **27 November 2014**.
Further details available on the NWO website.

China – Hong Kong PhD Fellowship Scheme 2015-2016

Deadline fort he initial application is **1 December 2014**.

Visit the UGC website for more details about the application procedure.

Germany – 6 PhD scholarships in History at the International Max Planck Research School

Application deadline is **1 December 1 2014**.

Further details can be found on the DAAD Beijing office website.

Croatia – International Fellowship Mobility Programme for Experienced Researchers in Croatia – NEWFELPRO

The call opens on 3 October and closes on **31 December 2014**.

Find out more on the NEWFELPRO website.

Luxembourg – ATTRACT 2015 programme

The deadlines for this call currenty open are as follows:

12 January 2015 (14:00 CET): Joint Submission by the candidate and the Luxembourg host research institution of a Pre-Proposal

1 April 2015 (14:00 CET): Full Proposal deadline.
Read more on the FNR website.

5.3 Open calls under Horizon 2020 and Euratom

Access all open calls on the Horizon 2020 Participants' portal.

Excellent Science programme

9 open calls including:
European Research Council frontier research grants:
ERC Starting Grant – Deadline **4 February 2015**
Marie Skłodowska-Curie Actions:
Marie Skłodowska-Curie Innovative Training Networks (ITN) – Deadline **13 January 2015**

Industrial Leadership

Eighteen (18) open calls, including the following one particularly encouraging collaboration with China *(however, it should be kept in mind that ALL calls are open to Chinese participation!)*:
ICT 2014 - Information and Communications Technologies – Deadline **25 November 2014**
COMPET-06-2015: International Cooperation in space science – Deadline **8 April 2015**

Societal Challenges

Thirteen (13) open calls including the following ones particularly encouraging collaboration with China *(however, it should be kept in mind that ALL calls are open to Chinese participation!)*:
SFS-13-2015: Biological contamination of crops and the food chain – Deadline **24 February 2015**
WASTE-7-2015: Ensuring sustainable use of agricultural waste, co-products and by-products – Deadline **21 April 2015**
MG-5.5a-2015: Demonstrating and testing innovative solutions for cleaner and better urban transport and mobility – Deadline **23 April 2015**
MG-1.8-2015: International cooperation in aeronautics – Deadline **23 April 2015**
LCE-18-2015: Supporting Joint Actions on demonstration and validation of innovative energy solutions – Deadline **5 May 2015**

INT-11-2015: European cultural and science diplomacy: exploiting the potential of culture and science in the EU's external relations – Deadline **28 May 2015**

Science with and for society

Four (4) open calls including the following one including China in its scope:

ISSI .5.2015: Supporting structural change in research organisations to promote Responsible Research and Innovation – Deadline **16 September 2015 (will open on 22 April 2015)**

Euratom

1 open call: EURATOM FISSION – 2 – **Deadline 20 November 2014**

6. Jobs

Access thousands of jobs and fellowships announcements in Europe and worldwide on the EURAXESS Jobs portal!

China (Hong Kong) – The CEFC invites applications for the position of Director, starting 1 September 2015

The French Centre for Research on Contemporary China (UMIFRE 18, MAEE-CNRS) is seeking candidates for its Director position (two-year expatriation contract, renewable), with a start date on September 1st, 2015.

Requirements:

The CEFC is seeking:

- confirmed academics holding a PhD in the social sciences
- academics with a strong research track record on contemporary China
- preferably holding a tenured position in a university or research institution
- the position is restricted to citizens of member countries of the European Union.

Details and online application can be found on the website of the French ministry of Foreign Affairs:

Position No. 001516 - Please apply **before 15 November 2014**.

You can also download the detailed description of the position here: CEFC Director

Candidates must use the appropriate form accessible here: Formulaire-Directeur

For more information, please click here.

China – Recruitment of High Level Academics at Guangdong Pharmaceutical University (Guangzhou)

Guangdong Pharmaceutical University (GDPU) is one of China's three pharmaceutical universities.

GDPU is now running an ambitious plan to recruit high-caliber faculty members who are interested in teaching and research in **any field of biomedical sciences**. We especially welcome candidates with expertise in the following areas to apply for full/associate professorships: Pharmacy, Pharmaceutical Technology, Biopharmaceutical Sciences, Pharmacology, Traditional Chinese Medicine, Integrated Chinese and Western Medicine, Clinical Medicine, Public Health and Preventive Medicine, Nursing, Biochemistry, Cellular and Molecular Biology, Food Science, Information Technology, and Chemical Engineering.

Qualified applicants should have a doctoral degree and demonstrated expertise. In return, GDPU will provide a nationally competitive salary, a very generous start-up research funding, and benefits package (including housing subsidy).

The university is also seeking dynamic individuals to serve as deans for its School of Biosciences and Biopharmaceutics and School of Basic Courses.

The closing date of these positions is **10 December 2014**.

Acces the full announcement on Nature Jobs.

China – Professor and Associate Professor of Breast Surgery/Abdominal (gastric) Surgery/Gynecology positions at Fudan University Shanghai Cancer Center (FUSCC) (Shanghai)

Fudan University Shanghai Cancer Center (FUSCC) was established in 1931, making it the first hospital specializing in cancer in China.

In order to promote clinical and translational research in breast/gynecology/gastric cancer, to strengthen department teamwork ability, breast surgery/abdominal surgery/gynecology department now decides to conduct an open recruitment for a “Professor” position and an “Associate Professor” position.

Physician and Physicist positions are also offered in the Department of Radiation Oncology at Fudan University Shanghai Cancer Center.

The application deadline is 19 December 2014.
Access the full announcement on Nature Jobs.

The Netherlands – 2 PhD researchers positions on ‘Iron dynamics in marine sediments’ at Utrecht University (Utrecht)

The Department of Earth Sciences currently seeks two highly-motivated, high-potential applicants for a position as a PhD researcher working on ‘Iron dynamics in marine sediments’. Iron is a key nutrient for marine phytoplankton. Because iron is a redox-sensitive element, its chemical form, bioavailability and behaviour in seawater respond rapidly to changes in oxygen concentrations. This research will focus on obtaining more insight in the processes leading to release of iron from sediments along bottom water redox gradients in the Baltic Sea and Black Sea. The research includes seagoing field work in 2015 and 2016 and is part of a larger project involving a total of five junior researchers. The position is financed through the Vici scheme of the Netherlands Organisation for Scientific Research (NWO). Up to 10% of your time will be devoted to teaching assistance of courses in the Earth Sciences curriculum.

As a succesful candidate you should have a MSc degree in **Geosciences, Oceanography, Environmental Sciences or a related field**. In particular, you should have experience or a strong interest in experimental (bio-)geochemistry and fieldwork. A broad interest in geosciences, and the willingness and capacity to work indepently as well as to interact in a multidisciplinary team is essential.

Candidates should be fluent in oral and written English, since the host group is highly international in composition and publication aims.

Application deadline is **14 December 2014**.

Access the full announcement on EURAXESS Jobs.

Finland – Senior Research Fellow / Postdoctoral Researcher / Project Manager (Laboratory for Future Electronics) at Tampere University of Technology (Tampere)

Tampere University of Technology (TUT) is an active scientific community of 2,000 employees and more than 10,000 students. The University operates in the form of a foundation and has a long-standing tradition of collaboration with other research institutions and business life.

The Organic and Nanoelectronics Group within the Laboratory for Future Electronics carries out research work in the areas of printed and organic electronic devices and circuits, applications of nanocarbon in electronics and new electronic circuit paradigms based on quantum dots and aims to provide the technology for the electronics of the future.

The Finland Distinguished Professor Program (FiDiPro) research project “Printed, energy Autonomous UniversaL platform for multifunctional wireless sensors and devices (PAUL)” is funded by The Finnish Funding Agency for Technology and Innovation (TEKES). The challenging research goals of the project include advanced systems for scavenging of energy from sources such as light, RF radiation, heat and motion and interim energy storage in printed supercapacitors, as well as hybrid flexible organic/inorganic devices and circuits for wireless communication.

The successful candidate will be responsible for carrying out own research on the project work plan, involved in day to day management of the project and interfacing both with the FiDiPro Professor (Prof. Paul Berger, Ohio State University) and internal staff and the companies participating in the project.

The application deadline is **12 November 2014**. Access the full announcement on EURAXESS Jobs.

7. Events

7.1 EURAXESS Links China recommends

Shanghai Social Studies Colloquium on 'Recent Trends in China Business'

The SSSC is a platform for international and Chinese scholars and researchers in social sciences, based in and around Shanghai who are at all stages of their career. The 7th SSSC is going to be devoted to recent trends in business, especially in relation to Multinational Companies (MNCs) in China. It is scheduled for **Thursday 13th November 2014 at the ESSCA School of Management** in Shanghai. The STTC welcomes researchers and writers who wish to present their work, as well as regular participants; the research topics may be related to the broad range of social sciences. If you want to participate, contact max.rech@essca.fr

7.2 Upcoming scientific events in China

Field	Date	Location	**Title** (click for more details)
Physics	2-6 November 2014	Hefei	12th International Conference on Quantum Communication, Measurement and Computing
Zoology	3-6 november 2014	Shanghai	Animal Health Asia
Physiology	3-7 November 2014	Suzhou	CSHA Bone and Cartilage: from Development to Human Diseases
Medicine	7-9 November 2014	Shenzhen	International Rare Disease Research Consortium Shenzhen Conference
Cancer research	9-11 November 2014	Beijing	Cell Symposium - Hallmarks of Cancer: Asia
Plant biology	10-12 November 2014	Beijing	Agricultural Genomics — From Variation to Crops
Molecular biology	10-14 November	Suzhou	CSHA RNA Biology

	2014		
Diabetes research	13-16 November 2014	Haikou	BIT's 7th Annual World Congress of Regenerative Medicine & Stem Cells-2014 (RMSC2014)
Diabetes research	13-16 November 2014	Haikou	BIT's 4th Annual World Congress of Endobolism-2014 (WCE2014)
Hypertension research	13-16 November 2014	Haikou	BIT's 6th International Congress of Cardiology (ICC2014)
Emergency medicine	13-16 November 2014	Haikou	BIT's 4th Annual World Congress of MolMed-2014 (MolMed2014)
High-technology	16-21 November 2014	Shenzhen	China High-Tech Fair
Cell biology	17-21 November 2014	Suzhou	CSHA Dynamics of Cellular Behavior During Development and Disease
Drug discovery	21-23 November 2014	Suzhou	BIT's 12th Annual Congress of International Drug Discovery Science & Technology
Engineering	28-30 November 2014	Beijing	The 3rd Conference on Computational Mechanics (CCM 2014)
Bacteriology	28-30 November 2014	Beijing	The 2nd Conference on Bacteriology (CBA 2014)
Medicine	28-30 November 2014	Beijing	The 2nd Conference on Rehabilitation Medicine and Health Care (CRHC 2014)
Heatlh	28-30 November 2014	Beijing	The 2nd Conference on Psychology and Health (PHC 2014)
Physics	28-30 November 2014	Beijing	The 2nd Electronics and Circuits Conference (ECC 2014)
Physics	28-30 November 2014	Beijing	2014 Laser and Optoelectronics Conference (LOC 2014)
Synthetic biology	1-5 December 2014	Suzhou	CSHA Synthetic Biology
Physics	7-10 December 2014	Hangzhou	AES 2014, the 3rd Advanced Electromagnetics Symposium
Cell biology	8-12 December 2014	Suzhou	CSHA Single Cells

Environmental Chemistry	24-26 December 2014	Suzhou	2014 Conference on Environmental Chemistry (CEC 2014)
Engineering	24-26 December 2014	Suzhou	The 2nd Water Pollution and Treatment Conference (WPT2014)
Oceanography	24-26 December 2014	Suzhou	Water Resources and Engineering Conference (WRE 2014)
Oceanography	26-28 December 2014	Suzhou	The 3rd Hydrology, Ocean and Atmosphere Conference (HOAC 2014)
Environment	26-28 December 2014	Suzhou	The 4th Conf. on New Energy and Sustainable Development (NESD 2014)
Chemistry	26-28 December 2014	Suzhou	The 2nd Conf. on Catalysis (ICC 2014)
Genomics	26-28 December 2014	Suzhou	The 3rd Genetics and Genomics Conference (GC 2014)
Biochemistry	26-28 December 2014	Suzhou	The 2nd Conf. on Enzyme (ICE 2014)
Planetary Geology	26-28 December 2014	Suzhou	The 4th Conf. on Geology and Geophysics (ICGG 2014)
Applied Mathematics	29-31 January 2015	Shanghai	The 2nd Computational Mathematics and Applications Conference(CMA 2015)
Applied Mathematics	29-31 January 2015	Shanghai	2015 Conference on Operations Research and Fuzziology (ORF2015)
Mathematics	29-31 January 2015	Shanghai	2015 Combinatorics and Graph Theory Conference (CGT2015)
Applied Mathematics	29-31 January 2015	Shanghai	2015 Conference on Geometry, Topology and Applications (GTA2015)
Nanomaterials	29-31 January 2015	Shanghai	The 4th Conference on Nanomaterials (CN 2015)
Materials Science	29-31 January 2015	Shanghai	2015 International Conference on Thin Film Technology and Applications(TFTA2015)
Materials Science	29-31 January 2015	Shanghai	2015 International Conference on Polymer Materials Science

			(PMS2015)
Physics	31 Jan. - 2 Feb. 2015	Shanghai	The 2nd Conference on New Advances in Condensed Matter Physics (NACMP 2015)
Physics	31 Jan. - 2 Feb. 2015	Shanghai	2015 Spectroscopy and Spectral Analysis Conference (SSA2015)
Physics	31 Jan. - 2 Feb. 2015	Shanghai	2015 Conference on New Advances in Acoustics (NAA2015)
Physics	31 Jan. - 2 Feb. 2015	Shanghai	2015 Conference on Magnetism and Its Applications (MIA2015)
Astrophysics	31 Jan. - 2 Feb. 2015	Shanghai	2015 Conference on Astrophysics and Space Science (APSS2015)
Education	31 Jan. - 2 Feb. 2015	Shanghai	The 6th International Conference on Information Technology in Education (CITE2015)
Education	31 Jan. - 2 Feb. 2015	Shanghai	2015 Conference on Advances in Chemistry Education (ACE2015)
Education	31 Jan. - 2 Feb. 2015	Shanghai	2015 Mathematics Education Conference (MEC2015)
Psychology	31 Jan. - 2 Feb. 2015	Shanghai	2015 Conference on Cognitive Psychology (CCP2015)
Education	31 Jan. - 2 Feb. 2015	Shanghai	2015 Conference on Preschool Education and Child Psychology (PECP2015)
Chemistry	18-20 March 2015	Suzhou	2015 Conference on Advances in Biochemistry and Molecular Biology (CABMB 2015)
Biological Physics	18-20 March 2015	Suzhou	2015 International Conference on Advances in Biophysics (ICAB 2015)
Microbiology	18-20 March 2015	Suzhou	2015 Microbiology and Immunology Conference (MIC 2015)
Plant biology	18-20 March 2015	Suzhou	The 2nd Conference on Botany (CB 2015)
Reproductive Endocrinology	18-20 March 2015	Suzhou	2015 Conference on Tissue Engineering and Regenerative Medicine (CTERM 2015)
Cancer research	18-20 March 2015	Suzhou	2015 Conference on Advances in

			Prevention and Treatment of Cancer (CAPTC 2015)
Medicine	18-20 March 2015	Suzhou	2015 Conference on Laboratory Medicine and Clinical Research (CLMCR 2015)
Pathology and Pathobiology	18-20 March 2015	Suzhou	2015 International Conference on Pathology (ICP 2015)
Medicine	18-20 March 2015	Suzhou	2015 Conference on Advances in Evidence-Based Medicine (CAEBM 2015)
Occupational Medicine	18-20 March 2015	Suzhou	2015 Conference on Occupational Medicine and Endemiology (COME 2015)
Computer science	18-20 March 2015	Suzhou	The 4th International Conference on Signal and Image Processing (CSIP 2015)
Engineering	18-20 March 2015	Suzhou	2015 Conference on Radio Science and Antenna Technology (RSAT 2015)

8. Press Review*

Policy & Papers

Greenbook ranks China's sustainable cities

To give a more precise indication about sustainability of Chinese cities, the Annual Greenbook for Sustainability of 35 big cities in China and 16 cities in Yangtze River Delta was released on Oct 26. Beijing sits at the top of sustainability development efficiency, along with capital city of Shangdong province, Qingdao. Fuzhou, the capital city of Fujiang province, ranks third. Shanghai and Guangzhou rank 24th and 25th respectively. "Most of manufacturing bases moved out of Beijing, which makes it a more sustainable city. Other large cities, such as Shanghai and Guangzhou, still have large manufacturing facilities in the city, which lower their sustainability," said He Fang, one of authors of the book and also a professor from Tongji University. The book also extends its data collection to eight cities from the BRICS countries - Brasilia, Sao Pailo, Rio, Calcutta, Mumbai, New Delhi, Cape Town and Durban. They are compared to four cities in China, Beijing, Shanghai, Guangzhou and Shenzhen. Calcutta, Beijing and Mumbai are the most sustainable cities among the 16 cities. (source: China Daily)

Zhongguancun hosts talks on integrated innovation

More than 200 entrepreneurs, scholars, and government officials from Zhongguancun, China's Silicon Valley, took part in a conference on Monday [20 October] to discuss the development of Beijing, Tianjin and Hebei province through integrated innovation. The conference was held at the Zhongguancun Exhibition Center in Beijing by the Z-Park Technology Entrepreneurs Association. Guo Hong, director of the Administrative Committee of Zhongguancun Science Park, one of the event's sponsors, said Beijing, Tianjin and Hebei should work together to build a joint framework for innovation and enterprise. Zhongguancun has already worked with the other two regions in a number of fields. Around 476 enterprises based in Zhongguancun have set up 1,029 branches in Hebei, while 393 enterprises have established 503 branches in Tianjin. Guo proposed a joint Beijing-Tiajin-Hebei digital strategy that would

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see Zhongguancun focusing on research, Zhangjiakou and Chengde on storage, and Tianjin on manufacturing. This would provide strong support for industrial development in the three regions, he said. (source: China Daily)

Third-party agency to manage research fund

In a reform to be announced soon to curb academic corruption and encourage research innovation, the government will step back from managing the State research fund and hand over that power to a third-party agency. The reform is being led by the Ministry of Science and Technology and the Ministry of Finance. A third-party agency supervised by the government, such as the National Natural Science Foundation, will take over the power. At present, the government has the power to both distribute state research funds and supervise their use, which easily leads to corruption. In addition, more than one ministry may be involved and, due to the lack of a communication mechanism, some corrupt researchers use one project to apply for multiple funds from different sources, which leads to the abuse of government funds. The reform will set up a joint council and invite decision-makers from the government to discuss research fields to avoid inefficient use of funds. The council will make all decisions, including selecting appropriate professional institutes, listing evaluation scholars and terminating frozen projects. (source: China Daily)

Science authorities to curb R&D fund-related corruption

China's Ministry of Science and Technology (MOST) will launch a yearly internal inspection, targeting the embezzlement of scientific research funds. The inspection will focus on scientific institutes with a high volume of scientific projects that apply for large amounts of funding from the government, according to a circular issued by the ministry on Tuesday. The ministry will establish a credit database based on the inspection results, and those with serious credit violations will be banned from applying for scientific funds. The Chinese government spent 1 trillion yuan (about 162 billion US dollars) on research and development in 2012, about 1.97 percent of its gross domestic product (GDP). It surpassed 2 percent for the first time to reach 2.05 percent in 2013. However, much of the money has been misused, according to the MOST. The ministry ask inspectors to uncover 11 violations including obtaining funds with false projects or fake invoices, misappropriating the funds, applying for excessive funds and use of funds to cover personal consumption. Those found with violations will have their projects halted or funds taken back, the ministry said. In most serious cases, they will be banned from gaining such funds forever and may face judicial punishment. (source: China Daily)

China's first ocean science innovation index launched

China published its first ocean science and technology innovation index on Wednesday, which evaluates the ocean science and technology development level of Chinese cities. According to the first evaluation, Qingdao, Shanghai, Guangzhou, Tianjin and Dalian cities topped the index's ranking. Organizers said the ranking was based on data of innovation investment, output, application and environment. The index also provides detailed readings on

ocean industry distribution in the cities, pointing out advantages and weakness. The Xinhua Ocean Science and Technology Innovation Index was jointly released by the Xinhua (Qingdao) International Ocean Information Center and the State Financial Information Center Index Research Institute. The index was launched at the Qingdao International Ocean Summit Forum in Qingdao City, east China's Shandong Province, on Wednesday [15 October]. The two-day meeting has attracted 500 officials and representatives from 13 countries and international organizations. (source: Global Times)

Voices & Opinions

China companies raising standards in innovation

Mainland products are gradually gaining global respect for their quality but companies must spend more resources on research and development. Analysts say the strategy rolled out by Beijing to promote "Innovated in China" - as opposed to merely "Made in China" - is crucial to boosting productivity, although mainland-wide transformation has a long way to go. The world's second-largest economy has suffered from a property slump, excess capacity and rising labour costs, with the gross domestic product expanding at a five-year low of 7.3 per cent in the third quarter of the year, rapidly losing steam from the double-digit expansion rates seen in the past decade. "We … see increasing numbers of entrepreneurs, angel investors and venture capitalists establishing a presence in China and seeking out new innovative ideas and projects," said Egidio Zarrella, a clients and innovation partner at KPMG China. "They are helping to create an ecosystem similar to Silicon Valley, with Chinese characteristics." Shenzhen-based Huawei, China's largest telecommunications equipment manufacturer, spent 12.8 per cent of its annual sales revenue on research and development last year. By comparison, Apple spent 2.7 per cent of net sales on R&D in the first six month of the past fiscal year. However, a KPMG survey found that average spending on R&D by mainland companies remains low. About 83 per cent of mainland manufacturers said they spent less than 1 per cent of revenue on R&D in the past two years, although an equal share of respondents indicated they planned to double or triple that level of spending over the next two years. Premier Li Keqiang has said bolstering innovation is the "golden key" to generating fresh momentum for growth, but how to bolster it has yet to be detailed. "To boost innovation, a nation has to do the usual things like allocating more resources to R&D, create an efficient system of patents and copyrights, as both Japan and Korea have done," World Bank chief economist and senior vice-president Kaushik Basu said. "But over and above this, it is important to create space in universities and institutes for individuals to pursue creativity in all fields, from engineering and mathematics to art and poetry." (source: SCMP)

Elusive Nobel for science should inspire research, not frustration

Japanese scientists Isamu Akasaki, Hiroshi Amano and Shuji Nakamura won the 2014 Nobel Prize in Physics for their invention of blue light-emitting diodes. Despite the national frenzy in 2012 over China's first winner of the Nobel literature prize, Mo Yan, a sense of frustration is apparent among many mainlanders after four Chinese-American candidates were unsuccessful in this year's three Nobel science prizes. The winners' achievements have been little discussed but their nationality has sparked a familiar rivalry between the records of Chinese academics and their Japanese counterparts - even though the Chinese-American scientists - Shoucheng Zhang, Peidong Yang and Hong Kong-born Robert Tijan and Ching Tan - are US citizens. The Japanese trio - Isamu Akasaki, Hiroshi Amano and Shuji Nakamura - deserved respect and congratulations for their Nobel prize in physics in honour of their pioneering work on energy-efficient blue light-emitting diodes (LEDs), but Chinese people seemed to care more about the nationality of winners, the Hunan Daily's voc.com.cn news portal said in a comment piece. It seems the China's long "Nobel anxiety" would only ease when a mainland scientist was finally recognised, the Beijing Times said in a comment piece. "From Li Zhengdao to Yang Zhenning and Gao Kun, the eight Nobel winners of Chinese ancestry in science have not generated pride, but the self-reflection of a nation," it said. "Why were they educated either before the People's Republic was established or outside the country? What is wrong with our education?" The Hunan Daily's news portal criticised the education system for being tainted with plagiarism and abuse of funds intended for research and development. "A system without creativity will certainly not create a Nobel winner or even a nominee," it said. "To pin hopes on those with Chinese ancestry is just pandering to Chinese people's vanity." (source: SCMP)

'One Pen' System Leads to Many Cases of Misspent Research Funding

In recent decades, the country has invested heavily in research projects. How to effectively use these funds has become a prominent issue. Government departments and state organizations, such as the Ministry of Education, Ministry of Science and Technology, the National Natural Science Foundation of China and the National Social Science Foundation of China, get billions of yuan from the central government's budget to support their research. The leadership of the country has repeatedly tried to crack down on research-related graft in recent years, but the problem remains. This is mainly due to a lack of an effective system of oversight. A sound system for approving projects exists. The problems involve how the funds are used and supervised. Money is wasted in a variety of ways, from spending on food and drink and ordinary items to the keeping of mistresses. No mechanism for supervising the use of funds has ever been devised. Each university and research institution views the money as a means to accomplishing great feats. They take an overindulgent attitude, which creates a huge opening for corruption. The more senior that scientists, academics, college presidents, secretaries and institute heads and deans are,

the more funding they control. Under the current “one pen” system, spending depends on one senior person in authority. Consequently, financial employees become redundant. It is crucial to build a strong and effective system of oversight. Administrators should set up a special mechanism for overseeing the use of funds. When projects are completed, these mechanisms should strictly examine how the money was spent. If we cannot effectively restrict those with power – and continue to rely on that “one pen” – halting corruption related to research will be impossible. *(Yang Yusheng is a professor at the China University of Political Science and Law and member of the Ministry of Education’s Academic Morality Committee)* (source: Caixin)

Chinese Premier Li Keqiang addresses the opening ceremony of Open Innovations Forum in Moscow, capital of Russia, 14 Oct 2014. [Photo/Xinhua]

Premier Li Keqiang promotes innovation in Moscow speech

Premier Li Keqiang focused on innovation in his speech at the opening ceremony of an international forum in Moscow. Noting that innovation is the key to advancing development, Li said China will further eliminate restraints on innovation, create an environment that protects innovation, devise a mechanism that inspires innovation and develops an innovation-driven economy. (source: China Daily)

Thematic Activities

Health

Novel Nanocarrier Ideal for Efficient Anti-tumor Drug Delivery Discovered

Chemotherapy, though with significant side effect, is still the main treatment chosen for cancer patients. How to improve drug efficacy and reduce side effect has long been a challenge in cancer drug research. During recent years, nanotechnology has been applied to develop nanocarriers of drugs so that they can precisely target at and kill tumor cells, reducing damages to normal tissue. An ideal nanocarrier for drug delivery should be able to carry high doses of therapeutic drugs, to target at tumor cells simultaneously, and have favorable physicochemical properties and biocompatibility. However, integrating all above characteristics into one carrier is engineering complicated and difficult. So far, no targeted nanoparticle system has yet been approved by the US Food and Drug Administration, reflecting in part the complexity of designing particles that meet all of the criteria required for accurate drug delivery. Professor YAN Xiyun and her colleagues at the Institute of Biophysics, Chinese Academy of Science recently discovered a nanocarrier ideal for efficient anti-tumor drug delivery. They published this breakthrough in a paper entitled “H-ferritin–nanocaged doxorubicin nanoparticles specifically target and kill tumors with a single-dose injection” in The Proceedings of the National Academy of Sciences. Their recent

work demonstrated for the first time that a natural H-ferritin nanocage, without requiring any surface functionalization or property modulation, can be employed as a nanocarrier of tumor drugs. (source: CAS)

Experts Call for Strict Standards to Internationalize TCM

Traditional Chinese medicines need to have strict standards that will be recognized internationally, experts said at the International Symposium on the Chemistry of Natural Products in Shanghai yesterday, World Traditional Medicine Day. No TCM medicine is recognized in either the United States or Europe because of the complexity, uncertainty of effective ingredients, unknown mechanism and lack of a mature quality control system, experts said. They added it is important to transfer TCM from an experience-based medicine to an evidence-based medicine. There are 12,807 TCM species recognized in China, including 11,146 herbs, 1,581 animal-derived items and 80 minerals. (source: CAS, with Shanghai Daily)

Newly identified stem cell may revolutionize breast cancer treatment

Chinese scientists recently identified a stem cell that could lead to important treatments for the type of breast cancer that to date have no targeted treatment. Breast cancer is the leading form of cancer among women in China, where like most of the world, tumors are normally treated with hormone inhibitory therapy and growth factor inhibitory medicines to suppress tumor progression. Clinically, 20 percent of all breast cancer patients are not responsive to current treatments. Most often, their tumors do not express the corresponding receptor genes necessary for current treatments to work. However, researchers at the Shanghai Institute for Biological Sciences, Chinese Academy of Sciences, have discovered new populations of multipotent stem cells in the mammary glands that not only behave similarly to cancer cells, but may hold the key to new treatments. Their study, published in the Journal Nature on Sunday [19 October], revealed the stem cells also express Protein C receptor at their surface that may be possible targets for medicines. (source: Global Times)

Scientists Discover New Roadblocks for Somatic Cell Reprogramming

Professor Miguel A. Esteban and his team from Guangzhou Institutes of Biomedicine and Health (GIBH) of Chinese Academy of Sciences discovered a new roadblock of somatic cell reprogramming. Their work was published online by the prestigious scientific journal Cell Stem Cell entitled “Transcriptional Pause Release Is a Rate-Limiting Step in Somatic Cell Reprogramming”. In this work, researchers discovered that in the late phase of reprogramming, RNA polymerase II was paused on the promoter of pluripotency genes and modulating the pause release of RNA polymerase II at the molecular level could accelerate this process. Somatic cell reprogramming technology has potentiated development of regenerative medicine. It also provides an excellent model to investigate the mechanism of cell fate conversions in vitro. (source: CAS)

Silent disease targets the elderly

A silent disease is stalking the elderly and will claim more victims as society gets ever grayer, a medical official warned recently in Beijing. Osteoporosis is a

progressive disease that results in a decline in bone density leading to an increased risk of fractures. A three-year program to boost public awareness of its dangers was launched on World Osteoporosis Day on Oct 20 by the National Center for Chronic and Non-communicable Disease Control and Prevention. Although there are no reliable statistics on the prevalence of osteoporosis in China, the medical community believes it is one of the most prevalent chronic diseases in the country, said center director Wang Linhong. The center plans to conduct a national epidemiological survey in the next three years and then issue prevention guidelines based on the results, Wang said. (source: China Daily)

Virus might kill cancer cells without harming other cells

A virus known as M1 could kill cancer cells without harming normal cells, a study by Professor Yan Guangmei of Zhongshan School of Medicine under the Sun Yat-Sen University in Guangzhou, Guangdong province, has found. The virus could curb cancer cells' growth without affecting normal cells, and animal tests in the lab showed it worked well on cancer cells of the liver, bladder, colon and rectum, according to a report by Chinanews.com on Tuesday [14 October]. The findings show promise for future research and development of new, targeted cancer therapies, said the report. (source: China Daily)

Infant gets transplanted heart from 3-year-old girl

A ten-month-old boy has survived heart transplant surgery at a hospital in central China's Wuhan city. The heart came from a three-year-old girl, and the baby boy is the youngest ever recipient of a heart transplant in China, a local newspaper said. The boy's condition was stable when he was moved to a normal ward from the ICU on Tuesday [14 October] after more than 20 days of struggle. Born last November, the boy was diagnosed with critical heart disease in August and his only chance of survival was a heart transplant. The operation was performed on September 23, the same day his donor passed away in Jiangxi province. Experts said it's very difficult to perform a transplant operation on an infant, as the blood vessels are very soft and the heart is no larger than an egg. (source: China Daily)

'Virological Penicillin' Found In Chinese Traditional Medicine

Professor Zhang Chen-Yu's group at Nanjing University isolated the first compound that can directly act on viral infectious agents, a miRNA found in honeysuckle used in traditional Chinese medicine. "The study is the first demonstration that a natural product can directly target a virus. Since Alexander Fleming discovered penicillin nearly a century ago, antibiotics have been developed to target various bacterial infections and have saved the lives of millions of people. However, no natural product that is effective against viral infection had been identified up till now." (Asian Scientist)

Edvard and May-Britt Moser on Maps of the Mind

Among this year's Nobel prize winners, Norwegian neuroscientists Edvard and May-Britt Moser have drawn broad interest for their work in brain science. Together with American-British scientist John O'Keefe, the husband-and-wife team won the prize in medicine for their research on "grid cells," brain cells that

help mammals know where they are and how to navigate through the world. In a recent interview with Caixin, Edvard and May-Britt Moser discussed their work and said they were driven by the desire to learn more about consciousness and intentionality. “The more you discover, the more you find out what remains to be discovered too. So you dig and dig, and see more and more questions. So there’s never an end.” (source: Caixin)

Dengue fever cases top 21,000 in Guangdong

More than 21,000 people now infected with the mosquito-borne disease in Guangdong province.The number of cases of dengue fever in Guangdong has doubled in just over a week. Twenty cities in the province had reported 21,527 cases by midnight on Sunday, according to figures released by the provincial health department. The authorities had reported 10,743 cases on September 27. Six people have died of the disease. Dengue fever can cause a skin rash similar to measles, headaches, and muscle and joint pain. A small number of sufferers develop a life-threatening haemorrhagic fever, or dengue shock syndrome, in which blood pressure drops dangerously low. The number of dengue fever cases reported so far this year is about five times higher than in the same period last year. (source: SCMP)

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Food, agriculture & fisheries, biotechnology

Novel Molecular Details of a Complex Mediating RNA-guided Immune Surveillance

The immune system protects an organism against a wide variety of pathogens. A unique system exists in prokaryotes and plays an important role in defending against invasive bacteriophages and plasmids. It is the CRISPR/Cas system which is formed by clustered regularly interspaced short palindromic repeats (CRISPR) together with CRISPR-associated (Cas) proteins. Functions of biomolecules are intensively influenced by their structure. High resolution crystal structure reveals critical insight for understanding complex biological mechanisms. Many studies had been conducted to determine the structure of CRISPR/Cas system. But due to its complexity, previous effort only obtained low-resolution cryo-electron microscopy structures, which provided limited information to explain the system’s function and mechanism. Professor WANG Yanli at the Institute of Biophysics and her colleagues recently reported a breakthrough in this field in the top-tier scientific journal *Nature*. (source: CAS)

China completes jujube tree genome sequencing

Chinese scientists have finished the genome sequencing of the Chinese jujube tree, providing an insight to develop better quality jujube fruits. Jujube trees are indigenous to China with 99 percent of the world’s jujube plantations in China. The plant is the source of income for more than 20 million Chinese farmers. The genetic research was carried out by professor Liu Mengjun and his research team in the Hebei Agricultural University since 2010. It has led to finding special

genes that enable the plant to resist drought, high salt in the soil and give it high sugar content in its fruit. (source: Global Times)

Institute of Hydrobiology (IHB) signs MoU with University of Ottawa

The Institute of Hydrobiology (IHB) of the Chinese Academy of Sciences signed a memorandum of understanding (MoU) with the University of Ottawa (uOttawa), Canada on 13 October 2014, to promote excellence through multidisciplinary and multi-institutional collaborations and build a partnership consistent with the strategic goals and values of both institutions. The MoU mainly focuses on the mobility of professors and research personnel, generation of external research funding, production and dissemination of knowledge. The joint symposia on fish/aquatic physiology, exchange programs for staff, doctoral students and post-doctoral fellows, joint research projects and joint research centers are specified in the MoU. It is hoped that both sides can complment each other in aquatic biology and establish a stable cooperative partnership. (source: CAS)

Boeing, China cooperate to turn "gutter oil" into biofuel

Boeing and Commercial Aircraft Corp. of China (COMAC) opened a demonstration facility that will turn waste cooking oil, or "gutter oil," into sustainable aviation biofuel on Wednesday [22 October]. Boeing and COMAC are sponsoring the China-US Aviation Biofuel Pilot Project, using technology developed by Hangzhou Energy & Engineering Technology Co., Ltd. to clean contaminants from waste oils and convert it into jet fuel at a rate of 650 liters (160 gallons) per day, according to a statement from Boeing. The two companies estimate that 1.8 billion liters of biofuel could be made annually from used cooking oil in China. (source: China Daily)

Research uncovers gene enhancing longevity

A research team at Nanjing University has found a new gene named daf-31 in caenorhabditis elegans (C elegans) that can enhance longevity of the species, local Modern Express reported. Gene daf-31 encodes a protein that regulates C elegans larval development, metabolism and adult lifespan. Increase of the gene can prolong elegans lifespan, while its mutation or disappearance would lead the worm to accumulate fat and die, according to deputy professor Chen Di, who led the study. Research also found daf-31 encodes an ortholog of the arrest-defective-1 protein (ARD1). It shares a 75 percent identity with human ARD1 and a 77 percent identity with mouse ARD1. This indicates the possibility that ARD1 is multiplied in body to expand human lifespan. (source: China Daily)

Functional Amino Acids Improve Intestinal Tract Health in Early Weaned Pigs

Early weaned piglets often grow slowly and even have the possibility of death resulting from intestinal distress. In that case, it will bring huge losses to farmers and even endanger the economy of a country. Therefore, a wide range of people from the scientists, government and enterprises have paid high attention to the intestinal health of early weaned piglets. They have made great efforts in their own aspects to improve intestinal health and promote growth performance of piglets. Proline is one of the most abundant amino acid in sow's colostrum and milk. Previous studies have shown that proline is an indispensable amino

acid in the diets of 2.5-kg pigs and young chicks. Young pigs have a limited ability to synthesize proline from arginine, glutamine or glutamate in the small intestine, thus, dietary supplementation with proline could play an important role for the weaned piglets. Using lipopolysaccharide (LPS) as a tool to induce sickness behavior in the pigs, a team of researchers from Wuhan Polytechnic University, Institute of Subtropical Agriculture, and Texas A & M University conduct a trail to study the effect of L-proline on the growth performance, and blood parameter in the weaned LPS-challenged pigs. They hypothesized that proline could improve growth performance and relieve LPS challenge by reducing intestinal oxidative stress, stimulating some growth factors or hormones secretion, and improving the digestibility in piglets. The researchers found that proline supplementation could improve growth performance, increase SOD activities, and has a positive effect on the gastrointestinal tract digestibility in early weaned pigs. (source: CAS)

Chinese scientists achieve breakthrough in stem cells study

Chinese scientists have succeeded in the world's first trial of converting monkey primed-induced pluripotent stem cells (iPSCs) into a naive state, a breakthrough in the stem cells field, the People's Daily reported. The research report, titled "Generation of Naive Induced Pluripotent Stem Cells from Rhesus Monkey Fibroblasts," has been published in the academic journal Cell Stem Cell. The study was led by a research team at the College of Life Science at Peking University. Deng Hongkui, a professor at the university, and his team members made the breakthrough based on traditional rhesus monkey iPSCs, which were also pioneered by the team. The research provides insight into how to achieve naive pluripotency in primates in vitro, and how naive pluripotency can be acquired in other species. iPSCs hold great promise in the field of medicine, as they can proliferate infinitely and be induced to give rise to every other cell type, such as neurons, heart, and liver cells. (source: China Daily)

China announces breakthrough in zebrafish gene study

All 1,333 genes on Chromosome 1 of the zebrafish, which has 85 percent genetic similarity to human beings, have been knocked out by a team of Chinese scientists. The project by the Chinese Academy of Sciences (CAS), Peking and Tsinghua universities and 38 laboratories nationwide, started in February last year. The project knocked out the 1,333 genes one by one, then explained their function, building different kinds of growth and disease models, said Meng Anming, a member of CAS and professor at Tsinghua University. The progress lays a scientific foundation for the study of human diseases and treatment, said Meng, also board chairman of the China zebrafish resource center, at a meeting to mark the end of the project. Zebrafish fin, squama and parts of the heart can replace themselves, which is of significance for the regeneration treatment of human amputatees, according to Meng. Zebrafish reproduce and grow quickly, making it a good choice for life science studies, said Meng. The materials and data of the project will be freely available through the center's website. (source: China Daily)

Researchers Identify R-spondin1 as Novel Hormone Mediator for Mammary Stem Cell Self-renewal

Signals from the niche play pivotal roles in regulating adult stem cell self-renewal. Mammary gland development is governed by the concerted action of hormones. Steroid hormones can expand mammary stem cells (MaSCs) in vivo, yet the facilitating local niche factors that directly contribute to the MaSC expansion remain unclear. A research team led by Prof. ZENG Yi of Shanghai Institute of Biochemistry and Cell Biology (SIBCB), Shanghai Institutes for Biological Sciences of Chinese Academy of Sciences (CAS), identified R-spondin1 (Rspo1) as a novel hormonal mediator in the mammary gland. Hormones control the synchronized expression of Rspo1 and Wnt4 in distinct types of luminal cells, and thereby regulate self-renewal of MaSC. This unveils the intriguing concept that hormones induce a collaborative local niche environment for stem cells. Differentiated mammary luminal cells are descendants of the MaSC. Thus, in the mammary gland, the critical self-renewal niche signaling events take place between the stem cells and their own progeny cells. (source: CAS)

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Information & communication technologies

Beidou system poised to spread wings

China's Beidou navigation satellite system, whose positioning accuracy will reach 2.5 meters by 2020, will soon provide services to more countries. The National Administration of Surveying, Mapping and Geoinformation said China will cooperate with several countries, including Mexico, Israel and Sweden, to improve establishment of the Beidou system and geoinformation database. International cooperation and establishing monitoring stations in foreign countries are essential for improving the accuracy of the system, said Li Pengde, the administration's deputy director. "The system now covers the Asia-Pacific region, but by 2020 it will cover the whole world," Li said at the third United Nations global geo-spatial information management forum, being held in Beijing from Wednesday [22 October] to Friday [24 October]. "Beidou system equipment has been sold to more than 30 countries," said a deputy director of the Navigation Satellite System and Location-Based Service Association of China, who asked not to be named. "Compared with some other systems, Beidou hasn't been put into commercial use for a long time," he said. "It needs time to develop and promote itself." Beidou, the United States' GPS, the European Union's Galileo and Russia's Glonass are the navigation system suppliers authorized by the UN. The system now has 16 satellites and plans to establish a global coverage network through 36 geostationary orbit and non-geostationary orbit satellites by 2020. (source: China Daily)

Cooperating robots developed in China-US project

An award-winning collaboration between Chinese and American researchers has pointed the way forward for the use of cloud computing to link different robots and make them more efficient. Using Internet-based computing in which

remote servers are networked to share information, the University of Science and Technology of China (USTC) in Hefei and Pittsburgh's Carnegie Mellon University have been testing how robots with very different specifications can communicate with each other and work together. Hefei-based "KeJia" can understand human language and has reasoning abilities, while Pittsburgh-based "CoBot" is good at analyzing large and complex sets of data. "Kejia" can work as a tour guide and house keeper, according to the researchers. Earlier this month [of October], the project won an award in the RoboCup China Open in Hefei, capital of east China's Anhui Province. (source: Global Times)

Einstein-Podolsky-Rosen Steering Realizes in Experiment

In 1935, Einstein, Podolsky and Rosen published their famous paper proposing a well-known paradox (the EPR paradox) that cast doubt on the completeness of quantum mechanics. To investigate the EPR paradox, Schrödinger introduced the concept of Steer, now known as the EPR steering. As an asymmetric concept, EPR steering, describing the ability of one system to non-locally affect another system's states through local measurements, is logically intermediate between Bell non-locality and entanglement. EPR steerable states form a superset of the states that have Bell non-locality and form a subset of entangled states. Professor Li Chuanfeng from Key Laboratory of Quantum Information, University of Science and Technology of China of Chinese Academy of Sciences, together with collaborators from Nankai University, have made breakthrough in the field of quantum non-locality. Based on the all-versus-nothing (AVN) proof proposed recently. They experimentally realize the Einstein-Podolsky-Rosen (EPR) steering game which presents a new form of quantum non-locality. The result is published online in ***Physical Review Letters*** on Sept. 30 2014. (source: CAS)

Dolphin-inspired Sonar Overcomes Size-wavelength Limitation

In a typical man-made sonar system, pulses of sound emitted by the projector bounce off hidden objects underwater. The echoes are then detected by the receiver to infer the location and size of the hidden objects. A highly focused or "directional" acoustic source offers the advantages of reducing noise interference, increasing the detection resolution, and enhancing sound intensity in the direction of interest. However, high directivity also requires an acoustic projector of large size in comparison with the wavelength, or high-frequency sound beams. Most sonar sources consist of large arrays, and the total size of the arrays is much larger than the wavelength. This problem is known as the size-wavelength limitation. While this problem plagues man-made sonar, Yangtze finless porpoises don't seem to have the same limitation. Through millions of years of evolution and natural selection, the animal has developed a relatively small head (compared to man-made sonar) that can manipulate acoustic waves into a beam with high directivity. Porpoises and dolphins use these highly efficient biosonars for foraging, avoiding predators, and group coordination. Studies have shown that, despite serious vision degradation in water, dolphins can locate centimeter-sized objects 100 meters away using echolocation. Now a team of researchers from Xiamen University and the Institute of Hydrobiology of the Chinese Academy of Sciences in China, as well as The Pennsylvania State University in the USA, has designed and

constructed a biomimetic sonar projector based on dolphin biosonar that achieves high directivity with a subwavelength sound source, overcoming the size-wavelength limitation. (source: CAS)

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Nanosciences, nanotechnologies, materials & new production technologies

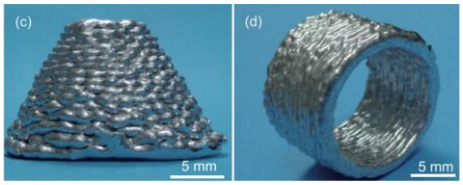
Over 30 robot factories under construction in China

China is now the world's largest industrial robot market with over 30 robot factories under construction, authorities said. Qu Daokui, deputy director of the State Engineering Research Center for Robotics, said during a forum in Shanghai on Sunday that robotics and the Internet will transform global manufacturing, and China is entering a golden decade for the development of domestically produced robots. Before 2008, there was no robot industry in China, he said. However, with the disappearance of the demographic dividend and a growing labor shortage, the country became the world's largest industrial robot market in 2013, he said. In the past ten years, the cost of robot production has decreased by 5 percent annually, while the labor cost has been growing by 10 percent year on year, according to Qu. "Only a quarter of the robots in the Chinese market are domestically made and the three core parts and components of domestic robots have long relied on imports." he said. However, domestic robots have developed at a rapid speed. There were about 420 robot enterprises in China as of September and more than 30 factories under construction, Qu said. (source: China Daily)

World's first wearable air purifier to meet public

A tech team in China's Chongqing municipality has claimed it has invented the world's first wearable air purifier, a tech blog said. The new equipment looks like a headset, with an attached air outlet below the nose. The team leader Xu Zongyan said smog masks make people breathe hard and may pose risks of secondary pollution, let alone its inaesthetic aspect. The device can remove as much as 99.9 percent of PM 2.5, the main pollutant in the air and 90 percent of formaldehyde, according to the team. Its filter cartridge needn't to be replaced, as it is washable. The constant air volume offered by the device reaches three cubic meters per hour, twice the amount of air inhaled by an average breath. While its battery enables the euipment to work for six hours, the team said it is trying to prolong this time to ten hours. (source: China Daily)

Chinese Scientists Use New Liquid Phase 3D Metal Printing Method To Print Quickly and Reliably



The technology of 3D printing in metal has so far been thought of as rather arduous and limiting because it takes a long time, can only be performed using metal with high melting points, uses a lot of energy, and can be cost-prohibitive.

Innovators and scientists have been hard-pressed to backtrack on this technology though, because of the potential they know lies in metal 3D printing in areas such as construction innovation, electronics, and breakthroughs in the medical industry. The current methods being applied are that of laser sintering, laser melting, and laser metal deposition. So, how can we 3D print in metal, and how can we do it faster, better, and more affordably? Beijing engineers Lei Wang (Chinese Academy of Sciences) and Jing Liu (Tsinghua University) may have our answer, as they came to the obvious conclusion that if we want to reap the benefits of 3D printing with metal, we need to look beyond conventional methods. What if we could instead use metal for 3D printing that melts at a lower temperature? What if we could cool the product off faster—and we could 3D print everything in a more energy-efficient way which also offers the possibility of greater diversity in product? Wang and Liu's research paper, Liquid Phase 3D Printing for Quickly Manufacturing Conductive Metal Objects with Low Melting Point Alloy Ink (Wang, L. and Liu, J., Science China Technological Sciences, 2014, Volume 57) is a concise, clear view of how we can fix the current issues with liquid phase 3D printing, while offering greater affordability and more options. While they haven't nailed it down to a completely streamlined, perfect process, major progress is obviously being made. (source: CAS)

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Environment (including climate change)

Professor says smog in East China related to melting glaciers

A professor has said that frequent smoggy days in East China are related to the melting of the Qinghai-Tibet Plateau glaciers, the modern Express reported. Zhao Tianliang, a professor at the Nanjing University of Information and Technology, released the research results at an APEC symposium on climate change in the capital of Jiangsu province on Monday [27 October]. Zhao said that as the plateau warms, the temperature difference is reduced between the land in the region and the ocean off east China, which directly weakens wind and makes air pollutants harder to disperse. Even if polluting emissions remain unchanged, air quality would be worse if the plateau continues to warm, his research revealed. (source: China Daily)

Improving air quality seen as 'priority of priorities'

The discharge of pollutants in Beijing and bordering Hebei province and Tianjin is expected to be cut by a third during next month's Asia-Pacific Economic Cooperation meetings, thanks to a series of air pollution control measures.

"China will take the highest-level measures to guarantee air quality during the APEC meetings," said Chai Fahe, vice-president of the Chinese Research Academy of Environmental Sciences, on Saturday [25 October]. "It is expected that the pollutants discharge in the Beijing-Tianjin-Hebei region will be reduced by 30 to 40 percent, and the air quality will hopefully be further improved," he

said. Chai said that since June, Beijing has shut down some of its power plants, eliminated old vehicles and boilers, used clean energy, closed more than 300 polluting factories, and upgraded technologies to cut emissions. (source: China Daily)

Researchers Cast Doubt on State Council Goals to Cut Air Pollution

It has been more than a year since the State Council, the country's cabinet, approved a plan to fight air pollution in September last year. The plan, which contains measures in 10 major areas, was seen as the country's strongest-ever effort to fight air pollution. It set targets to improve air quality in major regions around the country within five years. The 2013 plan declared an ambitious war against the country's worsening air quality. However, recent research says that China is likely to fail to meet most of its targets by 2017. On September 25, Tsinghua University and the Clean Air Alliance of China, an air quality research group, published an evaluation of the policies proposed in the 2013 plan. He Kebin, the director of the School of Environment at Tsinghua University and the leader of the research, said that "if the measures are fully implemented, it would effectively improve the air quality in the Beijing, Tianjin and Hebei region." But He and his team concluded that even if all the measures are put into practice, PM2.5 levels would fall by 25.6 percent in Beijing, 18.7 percent in Tianjin and 14.7 percent in Hebei by 2017. That means that both the province surrounding Beijing and the eastern port city will fall short of the government's targets. (source: Caixin)

China's first submerged buoys installed in west Pacific

China has completed a large scale installation of submerged buoys in the west Pacific ocean for the first time, a move essential to continuous observation of the ocean environment. China's most sophisticated research vessel Kexue, or Science, returned to the eastern port city of Qingdao on Tuesday [21 October] after wrapping up an 82-day ocean expedition, during which it put 17 sets of submerged buoys in the key marine areas of the west Pacific and retrieved three, according to the Institute of Oceanology, under the Chinese Academy of Sciences (CAS). It marks the first time that China has put an array of submerged buoys on such a big scale, said Hu Dunxin, a CAS academician. "The buoys will provide important scientific statistics about ocean circulation and climate," Hu said, adding that the research will help scientists better understand the relation between warm ocean in the Western Pacific and climate change. The expedition will also improve knowledge about the water and climate conditions of the west Pacific, said Yu Fei, chief scientist of the trip. (source: Global Times)

No quick solutions for smog problem

Abroad and at home, there is a rising chorus questioning the effectiveness of air pollution control in China, most recently from the thousands of runners who finished the Beijing Marathon in smog on Sunday [19 October]. Still, officials and experts alike voiced their confidence about reining in air pollution, although they concede it will take time. "It will take China about 20 to 30 years to tackle the problem of air pollution fundamentally, based on the experiences of developed countries like Japan, the United States and the UK in reining in air

pollution," said Song Guangsheng, head of the National Indoor Environment Monitoring Center, at a forum on ecological cities on Monday, China National Radio reported on Tuesday [21 October]. If the country uses the toughest restrictions and advanced technology to reduce emissions of air pollutants, it will take at least 15 to 20 years to see a thorough improvement in air quality, he said, citing statistics from an annual report in May on a low-carbon economy. (source: China Daily)

Water demands of future can be met if steps taken now, experts say

Water resource experts in China said that the country's water needs can be met in the future if necessary steps are taken and examples learned from other countries. Lu Mai, secretary-general of the China Development Research Foundation, said that if the country reduces water leakage and improves water-use efficiency, there will be enough water for China's agriculture, industry and people's daily lives. According to Lu, two-thirds of Chinese cities lack enough water, and the country's per-capita quantity of water resources is only one-fourth of the world average. "China's rapid urbanization and industrialization have made the situation even worse," said Lu. "Many factories pouring untreated sewage choose to relocate to remote areas to avoid monitoring, and they usually locate in the upstream stretches of the rivers. Over-exploitation of the water resources in the country for years also contributed greatly to the current situation." Lu spoke on Thursday [16 October] at a symposium on Sino-Danish Urban Water Efficiency and Sustainable Development. The event in Wuxi, Jiangsu province, was offered by the China Development Research Foundation and the Danish Ministry of the Environment. According to Jiang Bin, deputy chief economist of the development research center under the Ministry of Water Resources, by 2020, the quantity of water needed in China will have reached 670 billion cubic meters, and by 2030 the amount will have increased to 700 billion cubic meters. "China now lacks more than 50 billion cubic meters of water every year," said Jiang. "More than 300 million people living in rural areas have no access to safe drinking water." "During China's 12th and 13th Five-Year Plans (2011-20), the government will invest a total of 4 trillion yuan ($653 billion) to solve water pollution and improve water efficiency," Jiang said. (source: China Daily)

Technologies pave way to energy-efficient buildings

Seven Chinese construction projects have been selected as energy-efficient examples by news site China Economic Net in Beijing on Oct 16 as the nation seeks ways to keep economic growth while spending fewer natural resources. Technology has played a crucial role in the design and the construction process of the award-wining programs which focus on saving the energy and water as well as improving the environment. Organizers hope the event could set examples in different fields and inspire others. The extension project of Net Zero Energy Building was one of the seven models chosen by the website. The office building of Institute of Building Environment and Energy showcased 28 technology methods aiming to take down emission and control key attributors inside the building such as the temperature and humidity. By using these technologies, the energy consumption for cooling system of the building in summer has been reduced by 50 percent. (source: China Daily)

Beijing given 10% of central funds to curb air pollution

In May, the central government allocated 10 billion yuan ($ 1.6 billion) to three major industrial zones to curb air pollution in 2014, double the amount allocated in 2013, according to the Ministry of Finance. “Of the government funds, Beijing will get 1 billion yuan to support the work in reducing air pollution this year,” said Fang Li, deputy director of Beijing Environmental Protection Bureau on Monday [13 October]. Beijing received 700 million yuan in 2013 to reduce air pollution, Fang added. “Though there has been no detailed allocation plan of the doubled special funds in 2014, it should be used in the fields involved with public interests, such as improving the public transportation system, since the funds are from taxes,” said Ma Zhong, head of Renmin University of China’s School of Environment and Natural Resources. (source: China Daily)

Why Does Eastern Tropical Pacific Cool under Global Warming?

Global warming has been the hottest topic in recent climate change studies. It can affect the global hydrological cycle, atmospheric circulation and extreme weather, thus it is critically important to every life on the earth. However, the warming is not spatially uniform throughout the global ocean, even some regions occur cooling signals. It is worth noting that there exists a significant cooling trend in the eastern tropical Pacific sea surface temperature (SST) during recent decades, which is proved to be the key to the current global warming hiatus. Therefore, understanding the mechanism responsible for the cooling signal in the eastern tropical Pacific under the global warming background is of crucial importance to climate change studies. ZHOU Tianjun and his research team at the Institute of Atmospheric Physics (IAP), explored the effects of global warming due to the increased greenhouse gases (GHGs) and found that it cannot explain the cooling in the eastern tropical Pacific during recent three decades. Thus other mechanisms in addition to global warming likely exist to account for the phenomenon. They further examine the effects of the most important decadal variability of the climate system, Interdecadal Pacific Oscillation (IPO) and Atlantic Multidecadal Oscillation (AMO), in forming the recent cooling in the eastern tropical Pacific Ocean. The results show that the cooling trend is preliminarily dominated by the phase transition of IPO from positive to negative phases during this period, which overwhelms the effect of global warming. (source: CAS)

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Energy

China establishes first nuclear safety support system

The Chinese government has set up a nuclear safety technical support system. The completion of the system, first proposed in 2011, has been announced at a Beijing conference organized by the International Atomic Energy Agency. Liu Hua is the chief engineer of China’s National Nuclear Safety Administration. “In our central-level monitoring of nuclear facilities, we have an average of 20

persons to supervise one nuclear power plant. This figure almost keeps pace with the international standard. Moreover, we have 330 supervisors to inspect the nuclear facilities' construction process round the clock." In addition, an environmental monitoring system has been put in-place to monitor for any radioactive leaks from nuclear power plants. The Chinese government decided to create the nuclear support system in the wake of the Fukushima nuclear reactor meltdown in Japan. (source: China Daily)

Massive coal field discovered in China's Xinjiang

A massive coal field with 11.6 billion tonnes of coal has been discovered in northwest China's Xinjiang Uyghur Autonomous Region, local authorities said Wednesday, providing a fresh supply for the country's energy strategies. Located in the southern part of the Sandaoling Mining Area, Hami Prefecture, the coal field boasts high-quality steam and civil coals, according to Xinjiang's coalfield geology bureau. Extraction work began last year within an area of 913.22 square km, the bureau said. Hami Prefecture is one of the five major coal bases in Xinjiang, with an estimated reserve exceeding 570 billion tonnes. In recent years, a dozens of state-owned energy enterprises have moved to tap the coal resources there, steering coal power and increasing Hami's strategic status in China's energy industry. (source: China Daily)

China constructs big hydropower station in SW areas

China started to build the largest hydropower station in its Tibetan areas on Monday to tap the rich water resources in the southwest. The hydropower station, which straddles the Yalong River in Sichuan's Ganzi Tibetan autonomous prefecture, has an installed generating capacity of three gigawatts with a total reservoir capacity of 10.8 billion cubic meters. The first generator is expected to come into service at the end of 2021 and the entire station to be completed in 2023. (source: China Daily)

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Transport (including aeronautics)

High speed trains debut in Beijing

China's CSR Corp on Tuesday [28 October] displayed high-speed train models that can attain speeds of 250 kilometers per hour and resist alpine temperatures as well as sandstorms at a tech expo in Beijing. The new trains could adapt to extreme weather in high-altitude areas with temperatures as low as minus 40 degrees and highs of 45, company staff revealed, while it could also resist sandstorms. These trains would be operated along the Lanzhou-Urumqi railway after the current test run, it was added. The Lanzhou-Urumqi high-speed railway is expected to open by the end of this year, with a speed of 250 kilometers per hour, cutting journeys to nearby provinces from 12 hours to about nine. The 1,776 kilometers of track will be the longest one-off high-speed railway line in the world. (source: China Daily)

High-speed rail part of deals worth $10b

China will take a decisive stake in the next stage of Russia's transportation development, with Chinese companies building the country's first high-speed rail line. The agreement formed part of joint deals worth $ 10 billion being signed on Monday [13 October]. Chinese firms and their Russian partners will hold talks on design, financing, supplying facilities and construction of a 770-km high-speed line connecting Moscow and Kazan, an important metropolis on the Volga River. This was one of 39 agreements being signed after Premier Li Keqiang and Russian Prime Minister Dmitry Medvedev met for the 19th Regular Prime Ministers' Meetings. Under the Russian plan, the line will form the initial section of a railway stretching to Beijing, with completion scheduled for 2018 in time for the World Cup soccer finals in Russia. Kazan is one of the host cities. Trains on the line will reach speeds of up to 400 km/h, shortening the traveling time between the two cities from 13 hours to three and a half, according to the Moscow Times newspaper. (source: China Daily)

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Socioeconomic sciences & the humanities, archaeology & paleontology

Large paleolithic site found in NE China

Chinese archaeologists said they have discovered a large paleolithic site that dates back 10,000 to 30,000 years in Northeast China's Heilongjiang Province. The ruins, covering more than 40,000 square meters, were found in a mountainous area in Kangle Village, Muleng City, said Ni Chunye, director of the city's administration of cultural heritage, on Wednesday [29 october]. The site was identified as belonging to the Old Stone Age earlier this month. A total of 136 stone tools in various shapes were collected from the surface of the site. The findings and geological features indicated the site belongs to the Upper Paleolithic period, Ni said. Of the unearthed large paleolithic sites in China, the Muleng site is furthest east, providing important evidence for research on human development, according to Li Youqian, an expert with the provincial institute of archaeology. (source: Global Times)

Xi calls for new type of think tanks

Chinese President Xi Jinping called for a new type of think tank catered for China as the country looks to modernize its governance. Xi said at a meeting of the Leading Group for Overall Reform that intellectual resources are the most important for a nation, playing a crucial role in governing a country successfully. Currently, China lacks think tanks with great influence and international reputation, Xi said. The president said think tanks should be led by the Communist Party of China (CPC) and adhere to correct direction. They should also demonstrate Chinese characteristics and style. Think tanks should also abide by scientific spirit and encourage researchers to make explorations and study. Think tanks affiliated to all departments, including the Party, the

government, the Chinese Academy of Social Sciences, the Army, enterprises, as well as non-governmental think tanks, should be developed in a coordinated way, so that to form a think tank system with clear definitions, features and appropriate scales, the President said. (source: China Daily)

Ties between Party, rule of law the core issue: Xi

Chinese President Xi Jinping said the relations between the Communist Party of China (CPC) and the rule of law is "the core issue for the building of a country with the rule of law." The fourth plenary session of the 18th CPC Central Committee was held last week and adopted a decision to comprehensively promote the rule of law in China. Xi, also General Secretary of the CPC Central Committee, made an interpretation of the decision published on Tuesday, saying that adhering to Party's leadership, socialism with Chinese characteristics and implementing theory of socialist rule of law with Chinese characteristics are the "keys to do well in comprehensively promoting rule of law." "Party's leadership is the most essential feature of the socialism with Chinese characteristics, and the most fundamental guarantee of socialist rule of law," Xi said, according to his interpretation. The Party's leadership and the rule of law is consistent with each other, as socialist rule of law must adhere to the Party's leadership, while the Party's leadership must rely on socialist rule of law, the decision said. (source: China Daily)

China studies becomes more popular

The symposium on China studies organized by China's Ministry of Culture and the Chinese Academy of Social Sciences kicked off in Beijing on Wednesday, attracting scholars and academics from 17 different countries. At the symposium, scholars talked about the growth of China studies in foreign academic institutes as well as the spread of Chinese literature and the Chinese dream. Addressing a meeting at the symposium, Liu Qibao, head of China's publicity department, said that hoped foreign professors of Chinese studies will continue their efforts in the translation and broadcast of Chinese literature works. (source: China Daily)

Ancient cliff paintings found in NW China valley

Chinese archaeologists have discovered more than 40 rock paintings in northwestern Gansu Province that may shed light on nomadic lives thousands of years ago. Found in the Chijinshan Valley near Jinchang City, the paintings depict human faces, animals and hunting scenes. They were carved on smooth cliffs and remain well-preserved, according to the Gansu provincial cultural heritage administration. Researchers said the majority of paintings were created in the period between the Eastern Zhou Dynasty (770 BC - 221 BC) and the Han Dynasty (202 BC - 220 AD), similar to the 200 rock paintings discovered in Jinchang in the 1990s. Gansu was home to many ancient nomadic settlements in early Chinese history. Murals offer precious clues to studies on their lives due to a lack of historical records in this regard. (source: Global Times)

Highlights of the communique of the 4th plenary session of the CPC Central Committee

The communique focuses on strengthening the rule of law through various measures and changes, including several judicial reforms, the recognition of the constitution as the set of rules the government should abide to as well as the establishment of mechanisms to supervise and sanction interferences from officials in judicial proceedings. The highlights of the communiqué can be found here. (source: China Daily)

Extraordinary Fossil Reveals the Origin of Mating by Copulation

A profound new discovery announced October 19 in Nature by an international team led by world-renowned palaeontologist, Flinders University Professor John Long, reveals how the intimate act of sexual intercourse first evolved in our deep distant ancestors. In one of the biggest discoveries in the evolutionary history of sexual reproduction, scientists from Australia, China, Estonia, Sweden and the UK, who scrutinised a vast number of fossil specimens held in museum collections across the world, and found that internal fertilisation and copulation was invented by ancient armoured fishes, called placoderms, about 385 million years ago in Scotland. Placoderms, the most primitive jawed vertebrates, are the earliest vertebrate ancestors of humans. The discovery shows that male fossils of the Microbrachius dicki, which belong to the antiarch group of placoderms, developed bony L-shaped genital limbs called claspers to transfer sperm to females; and females developed small paired bones to lock the male organs in place for mating. “It was previously thought that reproduction spawned externally in water, and much later down the track in the history of vertebrate evolution,” said Prof. Long. (source: CAS)

CPC convenes key meeting on rule of law

The Communist Party of China (CPC) on Monday [20 October] kicked off a key meeting which centered on “rule of law” for the first time in the Party’s history. In 1997, the Party decided to make “rule of law” a basic strategy and “building a socialist country under the rule of law” an important goal for socialist modernization. Significant progress has since been made in the legal sector. In 2010, the country announced it had established a socialist system of laws. Greater judicial transparency is seen as a result of reforms. Yet the implementation of laws is not ideal. The Fourth Plenary Session of the 18th CPC Central Committee - slated for Oct 20-23 - will deliberate on a draft decision of the CPC Central Committee on “major issues concerning comprehensively advancing rule of law,” sources close to the meeting said. The decision is widely expected to set the tone for the CPC to promote rule of law in China in an all-rounded manner under new circumstances. This is the first time a plenary session of the CPC Central Committee has taken rule of law as its central theme. (source: China Daily)

China pilots expanded property rights for farmers

China will pilot a set of reforms aimed at giving farmers greater property rights to allow them to enjoy more benefits of the country’s urbanization drive. In China, urban land is owned by the state, and rural land is normally under collective ownership. While gradual reforms since the 1980s saw the trading of urban land evolve into a robust property market, land in the countryside has remained largely static as farmers generally have the right to use the land, but

cannot directly trade or mortgage it. This scenario has put Chinese farmers in a vulnerable position, and a key reform meeting last year pledged to gradually change the situation. While implementing the most strict policies to protect arable land, the country will grant farmers rights to possess, use, benefit from and transfer their contracted land, as well as the right to use land ownership as collateral or a guarantee, said a document released after the Third Plenary Session of the 18th Communist Party of China Central Committee held last November. As a follow-up to the document, the latest policy specified procedures to allow farmers to transform their collective rights into a shareholding system. (source: China Daily)

Studies of Xi Jinping thought or ideology grab lion's share of funding for research

Nearly all of the proposals approved by the National Social Sciences Fund in the latest round deal with analysing Xi Jinping's thoughts or ideology. Academics hungry for grants should pick up a collection of speeches by Xi Jinping - it pays to study the words of the president, according to the latest round of state funding for social sciences. Nearly all of the proposals approved by the National Social Sciences Fund deal with analysing Xi's thoughts or ideology, a departure from previous years. Analysts said the shift pointed towards the increasing influence of propaganda over academia, and the emergence of a cult of personality around Xi. The grants, some worth as much as 800,000 yuan (HK$1 million), are decided by the National Planning Office of Philosophy and Social Science. The organisation falls under the party's Publicity Department and is headed by propaganda chief Liu Qibao. Despite that proximity to the censors, the office has previously shown a willingness to support a wider range of research proposals. But this year, five of the 12 top topics on the list to receive major funding are about Xi. And none of the chosen scholars has a published history of "Xi thought", which suggests academics are pushing topics likely to get approval rather than ones in their area of expertise. (source: SCMP)

Experts discuss fresco protection at Xi'an symposium

More than 300 heritage protection experts from Germany, Italy, South Korea and Japan, as well as from Chinese provinces and regions discussed mural protection this week in Xi'an, the capital of Shaanxi province. Held on Thursday and Friday [16 and 17 October], the International Symposium of Preventive Protection Research on Chinese Ancient Frescoes focused on how best to protect and restore frescoes and architectural surfaces, key technologies to prevent mold and shedding, research on characteristics of mural materials in ancient tombs, and research on micro morphology and discoloration of mural surfaces and other topics relating to fresco protection. (source: China Daily)

Anti-corruption crucial for China's long-term growth: Nobel laureate

China's massive anti-corruption campaign will affect economy for a short term, but is crucial to maintaining growth in the long run, Michael Spence, a Nobel Prize winner on economics said Wednesday. The anti-corruption campaign has essentially displaced some reform agenda for a short run and caused the bureaucracy "frozen," said Spence at a seminar titled "Challenges of Job-Rich

and Inclusive Growth" held by the International Monetary Fund (IMF). Spence said: "I don't think one should assume this is a failure at all but rather a very important first step and my expectation is it will get pretty decent healthy structure change and healthy growth prospect in China." He believed there are three reasons for China to pursue the anti-corruption campaign "aggressively." Corruption is "a major source of social tension" and state-owned assets have too much power to the economy compared with the growing private sector, Spence told Xinhua on the sidelines of the seminar. "And third, a lot of reforms require an efficient and honest bureaucracy at multiple levels. So they have to kind of clean up first," said Spence. Spence said real estate posts the biggest risk for the Chinese economy right now. "If there were crashes in real estate values because of excessive tightening, then that will have a big effect on households' balance sheet and on consumption and you can see a really big growth slowdown," he said. But Spence said "I don't think it's most likely the outcome," adding the current losing momentum for China's real estate market is still on an acceptable level. (source: China Daily)

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Space

China tycoon announces plans for satellite communication network

A mysterious Chinese tycoon who plans to dig a second, $40 billion canal linking the Caribbean and the Pacific is spreading his reach into space with ambitions for a network of satellites, reports said Monday [27 October]. Wang Jing, who won a 50-year concession to build and operate a canal in Nicaragua last year, announced that one of his companies launched a test orbiter last month. The move made Xinwei Telecom Enterprise Group the first private firm to invest in China's space industry, which is mostly military-run, Beijing News said. Wang, in his early 40s, ranked 224th on the Forbes' world's billionaires list this year with wealth estimated at $6.1 billion. The satellite, developed with Tsinghua University, was expected to provide a cheaper alternative to foreign satellite communication providers in China's sea and desert areas, Beijing News said, citing Tsinghua Professor Lu Jianhua. Wang said Xinwei planned to develop four more satellites with the university and build a telecommunication "constellation" over the next 10 years, the report said. (source: China Daily)

China's Wenchang to Launch Space Station

China's fourth space launch center, the Wenchang satellite launch center in south China's Hainan Province, will launch the country's space station and cargo spacecrafts. Tao Zhongshan, chief engineer of the Xichang launch center, told Xinhua on Sunday that the new center will be used mainly for geosynchronous orbiters, large-tonnage space stations, cargo spacecraft, and large polar orbit satellites. Wenchang has an advantage for transportation of modules of such spacecraft as it is located near a seaport. The site's low latitude will also help the carrying capacity of rockets by about 10 percent,

compared to Xichang. The Chang'e-5 moonlander, which will collect samples and return to Earth, will be launched from Wenchang, probably in 2017. (source: CAS)

China launches test return orbiter for lunar mission

China launched an unmanned spacecraft early Friday [24 October] to test technologies to be used in the Chang'e-5, a future probe that will conduct the country's first moon mission with a return to Earth. The lunar orbiter was launched atop an advanced Long March-3C rocket from the Xichang Satellite Launch Center in southwest China's Sichuan Province. The test spacecraft separated from its carrier rocket and entered the expected the orbit shortly after the liftoff, according to the State Administration of Science, Technology and Industry for National Defense. The whole mission will take about eight days. Developed by China Aerospace Science and Technology Corporation, the spacecraft will fly around the moon for half a circle and return to Earth. On its return, the test spacecraft will approach the terrestrial atmosphere at a velocity of nearly 11.2 kilometers per second and rebound to slow down before re-entering the atmosphere. It will land in north China's Inner Mongolia Autonomous Region. The mission is to obtain experimental data and validate re-entry technologies such as guidance, navigation and control, heat shield and trajectory design for a future touch-down on the moon by Chang'e-5, which is expected to be sent to the moon, collect samples and return to Earth in 2017. It is the first time China has conducted a test involving a half-orbiter around the moon at a height of 380,000 kilometers before having the spacecraft return to Earth. The test orbiter is a precursor to the last phase of a three-step moon probe project, a lunar sample return mission. (source: China Daily)

China completes first coastal space launch center

China has finished building its first coastal space launch site in Wenchang city of the country's southernmost Hainan province, reported the People's Daily. It will be put into service in 2015. Wenchang Satellite Launch Center is the country's fourth space launch base. Of those, it is located at the lowest latitude. Thanks to its location at 19 degrees north latitude, the center will be mainly used to launch synchronous satellites, heavy satellites, large space stations, and deep space probe satellites. The Long March 5 rocket, which is under trial, will be launched from the base next year. The Chang'e 5, a new lunar probe scheduled to land on the moon around 2017, will also set off from the center. In addition, the center will conduct a mission to launch China's first manned spacecraft to the Moon, said Long Lehao, a carrier rocket expert with the Chinese Academy of Engineering. The project might be carried out around 2025, he added. China's other three space launch bases are the Jiuquan Satellite Launch Center in Gansu province, the Taiyuan Satellite Launch Center in Shanxi province, and the Xichang Satellite Launch Center in Sichuan Province. (source: China Daily)

Chinese scientist proposes new scientific satellites

A Chinese scientist has proposed a series of satellites to monitor "global change," or planetary-scale changes concerning the Earth. Speaking at the ongoing Asia-Pacific Remote Sensing Symposium in Beijing, Guo Huadong,

dean of the Institute of Remote Sensing and Digital Earth with the Chinese Academy of Sciences, suggested six satellites to monitor global change as well as observation technology based on the moon. Global change is a relatively new scientific area that developed after realization that climate change was only one part of a larger phenomenon. Global change researchers look at land, oceans, the atmosphere, natural planetary cycles and deep Earth processes as well as human society. Guo's proposed six satellites would study the impact of human activities, the carbon source of land forests, light pollution, the volume and movement of glaciers, and changes in the ocean environment and global climate. China has launched a series of Earth observation satellites and established a stable Earth observation system. However, it has no global change scientific satellites yet. According to Guo, more than 200 Earth observation satellites have been launched worldwide, including 25 global change scientific satellites, 13 of which are in orbit. It is estimated that there will be nearly 30 global change scientific satellites in 2030. (source: Global Times)

Chinese entrepreneur eyes balloon-borne space tourism

Travel to space in a high-tech balloon. Enjoy unprecedented views of the Earth and Sun before returning to solid ground in a parachute. It may sound like a pitch pulled from science fiction - but if Chinese Entrepreneur Jiang Fang succeeds, a galactic tour of the stars via balloon may available as early as next year. Fang, president of a Beijing-based company "Space Vision," told Xinhua on Monday [29 September] they have already mapped out many of the technical aspects of such tour, which he says has been endorsed by many experts as feasible. The commercial project includes a manned capsule carried by a high-tech balloon filled with helium gas to carry sightseers about 40 km above the Earth surface where they can see the curve of the planet, experience weightlessness and look for the spots where China's Chang'e and America's Apollo probes landed on the moon. Jiang said in addition to the flight system, the company spent nine months researching feasible communications, radar and other ground-based monitoring operations. Ouyang Ziyuan, a senior scientist in China's moon probe mission, was quoted in the Beijing Times saying he believes the project is a "relatively reliable, safe and economical solution for space travel." After the release of the detailed plan next month, the project will enter the equipment manufacturing stage. Test flights are expected for mid-2015. Jiang expects a trip will cost around 500,000 yuan ($ 81,400). (source: China Daily)

China to help Venezuela launch third satellite

Venezuela signed Sunday an agreement with a Chinese state-owned company to build and deliver into orbit the country's third satellite with the help of Chinese technology. The satellite will be named after the independence hero Antonio Jose de Sucre, although both sides didn't offer details of its cost and specific timeframe for the project. The agreement, which was inked at the presence of Venezuelan President Nicolas Maduro, was signed between the Venezuelan government and China Great Wall Industry Corporation (CGWIC), China's sole commercial satellite launch service provider. "I want to celebrate the agreement to build and launch our third satellite in cooperation with China. Now we'll be more technologically independent with this new tool," said Maduro at the signing

ceremony. In addition, China will expand satellite technology transfer to Venezuela, Chinese President Xi Jinping said during his visit to Venezuela in July this year. (source: China Daily)

China to launch new marine surveillance satellites in 2019

China will launch a new "constellation" of marine surveillance satellites in 2019 to monitor ships, oil rigs, marine disasters and land-based resources. According to Lin Mingsen, deputy director with the National Satellite Ocean Application Service, the HY-3 "constellation" will include a series of satellites that employ synthetic aperture radar technology, "capable of operating day or night... and in all weather conditions." The satellites will be able see meter-long objects from space and generate high-definition imagery of both land and ocean surfaces, Lin said. He said the satellites would be used to monitor ships and drilling platforms, in addition to marine oil spills, sea ice, ocean waves and surface winds among other features. "They will play an important role in reinforcing China's marine rights protection, marine law enforcement and supervision, management of its offshore waters and marine disaster relief and reduction," Lin said. (source: China Daily)

Chinese satellite photographs pedestrian crossing from space

China on Monday [29 September] released the first batch of photos taken by Gaofen-2, its most advanced Earth observation satellite. Gaofen-2 can see object just a meter in length from space, in full color. The stripes of a pedestrian crossing in the Xizhimen area of downtown Beijing are clearly visible in one of the 15 photos published by the State Administration of Science, Technology and Industry for National Defense. Part of Shanghai and an area of coal mines in Shanxi Province were also shown. The satellite, launched on August 19, has uses in areas including land use, mineral resources and disaster relief. It is the second of seven satellites China's high-definition observation project Gaofen which will be launched before 2020. Gaofen-1 was launched in April 2013. Three more satellites will be launched in the next two years, said Xu Dazhe, head of the administration, at a press conference on Monday. Xu said that data acquired by the satellites will be provided to other countries. (source: China Daily)

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People & Higher Education

Prof. YUAN Yaxiang from AMSS Honored with the TWAS Prize for 2014

The World Academy of Sciences (TWAS) has announced the winners of at the Academy's 25th General Meeting held on Oct. 26 in Muscat, Oman. Prof. YUAN Yaxiang from the Academy of Mathematics and Systems Science, Chinese Academy of Sciences was honored with the 2014 TWAS Prize for his contribution to numerical methods for nonlinear optimization, particularly to nonlinear conjugate gradient methods, trust region algorithms, quasi-Newton

methods and subspace methods. TWAS Prizes 2014 are awarded in nine fields: Agricultural Sciences; Biology; Chemistry; Earth Sciences; Engineering Sciences; Mathematics; Medical Sciences; Physics; and Social Sciences (called the TWAS-Celso Furtado Prize). Each year the Academy awards eight prizes of USD 15,000 each to individual scientists who have been working and living in a developing country for at least 10 years. The winners will lecture about their research at TWAS's 26th General Meeting in 2015, where they will also receive a plaque and the prize money. (source: CAS)

Sexologist punished for swindling research funds

China's leading expert on sexology has received an administrative penalty for swindling State scientific research funds. He has been demoted and will have to retire earlier, news website The Paper reported on Monday [27 October]. His failure to provide invoices of payments to sex workers during interviews was one of the reasons for the penalty to Pan Suiming, former director of the Institute of Sexuality and Gender at Renmin University. Pan is well-known for the research he carried out on China's 23 red-light districts from 1998 to 2010 when he interviewed more than 1,000 sex workers as well as hundreds of pimps in recent years. Pan is among seven professors at five universities who have swindled more than 25 million yuan ($4 million) of State scientific research funds, China's anti-corruption watchdog revealed on Oct 10. Four professors have been arrested for swindling State scientific research funds with false subjects, according to a release from the Communist Party of China Central Commission for Discipline Inspection. The Chinese government spent 1 trillion yuan on research and development in 2012 under its scientific innovation drive. However, much of the money has been misused, according to the Ministry of S&T. (source: China Daily)

The Yellow Pearls of China: Women with a PhD

In China it is said that there are three types of people: men, women and women with a PhD. Achieving a PhD is exceptional, the years of slow toil, the low income (with or without a scholarship), as well as the social and intellectual isolation that many candidates experience, is only for an impassioned few. For aspiring female Chinese scholars the decision to undertake a PhD is even more fraught as many face a choice between their academic pursuits and the prospects of having a family. As one undergraduate student at a leading university in Beijing says, "Parents don't see any meaning in a woman getting a PhD. Men should." For women who have taken the plunge, balancing their studies with having a family is agonizing. The prejudice against female scholars, according to Wang Yujia, a PhD candidate at Beijing Normal University, is perhaps a remnant of China's past hierarchical class structures or the so-called four categories of the people. "In the old days women would stay at home and take care of the family and do all of the household chores. After Liberation in 1949 women started doing the same jobs as men, and women were equal to men but these traditional ideas have not changed as quickly as the job market." "As researchers, women have other considerations. There is a saying that 'the role of a mother is not replaceable' so if you choose to further your studies some people will say 'Oh you are so peculiar, you are not a common woman.' I think it is from these attitudes that this third type of person (women with a PhD)

came into being." Once women have overcome the challenges of completing their PhDs they can face discrimination when applying for jobs. At interviews it is common for women in their late 20s or early 30s to be asked whether they are married or have a child. As a PhD candidate at Peking University states "No matter what society thinks about female PhD students, what matters most is what they think of themselves. But most of them will still want to marry someone who is wealthy, smart, handsome and into a good family to be given a good life. They still depend on men. However, they should become independent. They should rely on themselves. That is what is most important otherwise it will be a waste for them to obtain a PhD." (source: Caixin)

Chinese art professor caught kissing students sparks public outrage

An elderly Sichuan university professor photographed hugging and kissing two female students at a restaurant has sparked a debate about sexual harassment at China's universities. Associate professor Wang Xiaojian, who taught at the Sichuan Institute of Fine Arts in Chongqing, became the first educator to lose his job after China's Ministry of Education released new guidelines for universities strictly prohibiting teachers from having intimate relationships with students. Wang, 60, provoked outrage over the weekend after several photos circulated online of him hugging and kissing two female students, one on the face and the other on the hand, at a restaurant in Chongqing. "It is indeed scary to see an associate professor, an art critic, failing to act responsibly as a teacher," Wen Jianghua, a columnist for the Henan Business Daily, wrote on Monday. "Could this be the tip of an iceberg of moral corruption in some colleges?" Just last week, the Ministry of Education rolled out a new set of guidelines to prevent sexual abuse on campuses. These guidelines strictly prohibit college teachers from having "inappropriate relationships" with students or engaging in sexual harassment. The rules also warn educators not to accept kick-backs from students, as well as prohibiting plagiarism and making remarks that challenge the Communist Party's rule. In September, a group of 256 scholars, teachers and students across the nation sent an open letter to the Ministry of Education, urging it to take stronger action against sex crimes on university campuses. (source: SCMP)

University hosts innovation conference for students

The 7th Annual Conference of the National University Students' Innovation and Entrepreneurship was held on Oct. 18 and 19 in Xi'an Jiaotong University, Xi'an, the capital of Shaanxi province. The conference received 672 candidate papers and 138 candidate innovation and entrepreneurship projects from 394 universities. After initial evaluation and re-evaluation, 90 papers and 30 projects were recommended to the conference. It attracted more than 700 students and teachers from nearly 300 universities and colleges and 240 national-level innovation and entrepreneurship training programs. The programs covered 12 disciplines, including science, engineering, agriculture, medicine, literature and law. (source: China Daily)

Deputy dean arrested for university admissions fraud

A deputy dean of the Henan Agricultural University has been arrested for alleged fraud after some 300 students' admission certificates proved to be fake,

according to a report by www.thepaper.cn on Monday [13 October]. The police also arrested the general manager of a training school, the report said, citing the official microblog of the Zhengzhou Public Security Bureau. The university stated on its microblog on Oct 10 that its economy and administration college signed a cooperative agreement with the training school in April 2014 to provide services to students who intended to upgrade from junior college diplomas to undergraduate degrees through self-taught examinations. However, the training school illegally used the name of the college to enroll junior college and university students by presenting itself as a chapter of the college without permission, the university administration said. (source: China Daily)

Scientist facing loss of top honor title for corruption

A renowned Chinese scientist on genetic breeding and cloning faces the possibility of being deprived of a top honor title in academics after it is suspected he was swindling research funds, the Chinese Academy of Engineering said Saturday [11 October]. Li Ning, professor at the Chinese University of Agriculture, was announced to have been arrested for obtaining state scientific research funds for a trans-gene biology project by misrepresenting the project, according to a statement published by China's anti-corruption watchdog revealed on Friday [10 October]. Harsh punishment will be given to Li in accordance with the constitution of the Chinese Academy of Engineering based on confirmed facts and verdict by judges, the spokesperson of the academy Dong Qingjiu told Xinhua. According to the academy's constitution, as long as academics breach laws, harm national interests or are found scientifically immoral, they will be stripped of the honor title. Eight professors from five universities including Li were found to be involved in unethically obtaining over 25 million yuan ($ 4 million) of state scientific research funds. Four were arrested and two sentenced to jail. The Chinese government spent 1 trillion yuan, or about 1.97 percent of its gross domestic product, on research and development in 2012 under its scientific innovation drive. The figure surpassed 2 percent for the first time to reach 2.05 percent in 2013. (source: China Daily)

Three win Nobel for super-zoom microscopes

Two Americans and a German scientist won the Nobel Prize in chemistry Wednesday [8 October] for finding ways to make microscopes more powerful than previously thought possible, allowing scientists to see how diseases develop inside the tiniest cells. Working independently of each other, US researchers Eric Betzig and William Moerner and Stefan Hell of Germany shattered previous limits on the resolution of optical microscopes by using glowing molecules to peer inside tiny components of life. Their breakthroughs, starting in the 1990s, have enabled scientists to study diseases such as Parkinson's, Alzheimer's and Huntington's at a molecular level, the Royal Swedish Academy of Sciences said. "Due to their achievements the optical microscope can now peer into the nanoworld," the academy said, giving the 8 million-kronor ($ 1.1 million) award jointly to the three scientists for "the development of super-resolved fluorescence microscopy." Betzig, 54, works at the Howard Hughes Medical Institute in Ashburn, Virginia. Hell, 51, is director of the Max Planck Institute for Biophysical Chemistry in Goettingen, Germany, and

also works at the German Cancer Research Center in Heidelberg. Moerner, 61, is a professor at Stanford University in California. (source: China Daily)

Alain Mérieux Awarded 'Friendship Award' in 2014

Mr. Alain Merieux, President of Fondation Merieux was awarded the 2014 China Government Friendship Award, and the presentation ceremony [was held] on September 29th-30th at the Great Hall of the People in Beijing when Mr. Merieux [met] Premier Li Keqiang and attend a series of National Day receptions. Over the last 30 years, Mr. Alain Mérieux has long been actively promoting the Sino-French cooperation in health and the development of China's health services as an official, an entrepreneur, and a social activist. He has met with successive national leaders of China and leaders of the Ministry of Health for many times. In 2007, Mr. Alain Mérieux was appointed by the Foreign Ministry of France as France-part chairman for the China-France Cooperation Project on Prevention and Control Approaches of Emerging Infectious Diseases. He promoted the Sino-French joint development of Wuhan P4 laboratory, which is a model of joint medical and scientific cooperation. On March 26, 2014, President Xi Jinping and Madam Peng Liyuan visited bioMerieux Research Center and learned the cutting-edge product and technology, and inquired in the cooperation with China. (source: China Daily)

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Research infrastructures

China to build airfield in Antarctica

China is to build its own airfield in Antarctica to assist its four research stations on the frozen continent, the Beijing Evening News reports. The airport is expected to provide a more reliable means of trasport for Chinese scientists and staff working in the South Pole. At present their only link to the outside world is via ships, but this lifeline can be cut-off anytime due to frozen seas or bad weather conditions. The airstrip will be built near China's Zhongshan Research Station on the Antarctic coast near the Larsemann Hills, the newspaper said. But it did not give details such as the length of the runway or airport capacity. (source: China Daily)

China's first spallation neutron device makes headway

The construction of the China Spallation Neutron Source (CSNS) makes continued progress as a crucial component finishes installation on Wednesday [15 October]. When completed in 2018, the CSNS, used to probe the microscopic structure of the microscopic world producing similar results as an x-ray, will be China's largest scientific device. The installation of the negative hydrogen ion source, the first accelerator which provides a high quality and stable particle beam, marks a new phase for the whole project, the Chinese Academy of Sciences (CAS) said in a statement. As one of the first pieces of equipment, the negative hydrogen ion device will determine the performance

and efficiency of the whole project, CAS said. The whole device mainly consists of an H-linac and a proton rapid cycling synchrotron and is designed to accelerate proton beam pulses to strike a solid metal target to produce spallation neutrons. The CSNS is the first of its kind in developing countries and projected to be operational in 2018, with a budget of 2.2 billion yuan (about 358 million US dollars), according to the statement. Jointly built by the CAS and the southern Guangdong Province, the CSNS is located in Dalang County of the city of Dongguan in Guangdong, about 125 km from Hong Kong. The world's other three operating spallation neutron sources are in the United Kingdom, the United States and Japan. (source: Global Times)

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International S&T relations

China, Russia urge scientific co-op via innovation forum

Chinese President Xi Jinping and Russian President Vladimir Putin on Saturday [25 October] extended congratulations on the opening of the 2014 Pujiang Innovation Forum, voicing hope for enhancing bilateral cooperation in the fields of science and technology. The forum, themed "Coordinated Innovation and Sharing Opportunities", is being held in the coastal city of Shanghai in east China on Oct. 25-26. Xi said in his congratulatory message that China is implementing a strategy of innovation-driven development and promoting comprehensive innovation with science and technology as the core. Xi expressed his belief that the China-Russia cooperation in science and technology will promote the economic and social development of the two countries and deepen their comprehensive strategic partnership of coordination. Initiated in 2008, the Pujiang Innovation Forum is an annual event jointly organized by the Ministry of Science and Technology and the Municipal Government of Shanghai. The forum aims to build a platform for communication of innovation and development, with in-depth discussions on various hot issues in the area of innovation both at home and abroad. (source: China Daily)

Premier pushes innovation on German visit

Premier Li Keqiang, starting his second visit to Germany on Thursday [9 October] since taking office, aims to maximize Sino-German ties through a unique "innovation program" to help China's economic transformation. Besides a large number of business agreements to be signed during his trip, innovation will be a leading theme for a landmark Sino-German cooperation program over the next five to 10 years. This program will cover and map the future for bilateral cooperation in areas including industry, science and technology, agriculture, education, environmental protection, urbanization, medical treatment and social welfare. The program document is scheduled to be signed after the third China-Germany governmental consultation, co-chaired by Li and German Chancellor Angela Merkel on Friday [10 October]. Shi Mingde, China's ambassador to Germany, said that nearly 20 Chinese ministers led by Li and at least 13

ministers from Germany will take part in the meeting - “a joint Cabinet meeting” to showcase the high-level ties. Diplomatic sources said the program includes more than 100 cooperation proposals and projects. More than 10 intergovernmental agreements and commercial contracts scheduled to be signed will cover areas including energy, agriculture, aviation and space technology, car manufacturing and mobile communication. (source: China Daily)

Beijing to host next year’s Grand Challenges event

China will host the Grand Challenges annual meeting next year in Beijing. The Grand Challenges initiative was set up by the Bill and Melinda Gates Foundation to translate scientific innovations into tools on the ground to help the world’s poor. Wu Feiming, deputy director of the China Rural Technology Development Center under China’s Ministry of Science and Technology, extended the invitation to host next year’s event on the final day of the GC 10th anniversary meeting in Seattle on Thursday [9 October]. More than 1,000 representatives, mostly scientists, from 47 countries attended the four-day meeting. “China has always attached great importance to scientific innovations, and we hope the partnership with the Gates Foundation and the coming meeting, which itself is an innovative breakthrough, can further facilitate China’s science and technology to benefit other developing countries as well,” Wu said. Ray Yip, chief China representative of the Gates Foundation, said the annual GC meeting would bring together hundreds of researchers, funding organizations and policymakers committed to transformational change to discuss progress and collaborate on solutions. GC is a family of initiatives fostering innovation to solve key global health and development problems for the world’s poor. As of this year, more than 1,600 GC grants have been made to science and technology innovators in 80 countries. (source: China Daily)

China’s role grows in Gates Foundation

An increasing number of Chinese businesses and academic institutions have been joining the Grand Challenges initiative set up by the Bill & Melinda Gates Foundation, which aims to help the poor worldwide through science and technology innovations. As of 2014, more than 1,600 grants have been awarded in 80 countries. China is among the 60 countries where more than 107 grants of a subsidiary initiative, the Grand Challenges Explorations, have been awarded, according to the foundation. According to Gates, several innovations are now on the path to becoming important life-saving tools, such as using optic barriers — light waves — to stop mosquitoes from finding humans to bite and thus spreading malaria and dengue fever. Ustar Biotechnologies, in Hangzhou, Zhejiang province, received a grant in October 2013 to develop and market an innovative, portable, low-cost and rapid nucleic acid test for HIV and TB. You Qimin, chairman and CEO of Ustar, said the private company would receive a $ 5.27 million grant and is obliged to make the first shipment, targeting mainly developing countries in Africa, within 36 months. The patent for the test is owned by the company. According to You, Ustar’s HIV testing reagent would cost $ 5. Current mainstream products cost $ 20 for each testing. The Gates Foundation grant means much more than just financial support for You. “Nowadays, China does not lack investment money domestically, but becoming a beneficiary of the Gates Foundation has brought us unprecedented access to

an international platform and unexpected opportunities," he told China Daily. "That status improves our reputation as well, both at home and abroad," he added. (source: China Daily)

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