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EURAXESS LINKS CHINA

Dear Colleagues,

Welcome to the November edition of the **EURAXESS Links China Newsletter**.

This month's ***EU Insight*** brings you the latest developments regarding the adoption of the new European Research & Innovation funding programme Horizon 2020 (2014-2020) and some of its most remarkable features.

The ***Feature*** section introduces "Voice of the Researchers", a bottom-up EURAXESS initiative that aims at building a bridge between the research community and European policy makers. The first Voice of the Researchers conference took place on 21-22 November in Brussels and welcomed, among its participants the 6 winners of the EURAXESS Science Slams organized throughout the world last September and October.

The past month saw the 16th EU-China Summit taking place in Beijing with several agreements and joint declarations signed related to research and innovation, covering topics such as Intellectual Property Cooperation, Energy Security or Research and Innovation Cooperation in Food, Agriculture and Biotechnology.

Numerous events were held on the sides of this summit, including those co-organized by EURAXESS Links China: the *2nd EU-China Workshop on Joint Research Structures (JRS) in China* and the *Horizon 2020 Launch and General Training*. Both events, held successively in the morning and afternoon of the 22nd of November at the Regent Hotel in Beijing, attracted over 200 participants from all over China, illustrating the interest of the research community in the various tools that can bring the EU-China research and innovation cooperation forward.

The ***News & Developments*** section also features the newly published 'EU Industrial R&D Investment Scoreboard 2013' which provides interesting data and international comparisons in terms of innovation investments and performances by industrial players. On a lighter tone, while a EU Research Highlight of last month's newsletter was showing how European researchers were trying to reconcile fresh drinks in any season with energy saving *(see October edition, page 15)*, this month we learn that others might soon make it possible to enjoy the effects of alcohol while staying healthy *(see below, page 18)*.

Besides the usual calls for proposals and applications listed under the ***Grants & Fellowships*** section (including the new Erasmus Mundus 2014 call), this edition of our newsletter also includes two calls for paper linked to conferences in the field of social sciences that will take place next year. The first one to come will be the 3rd Workshop on Europe-China Relations in Global Politics to be held in Guangzhou on 13-14 March. The deadline to submit papers for this conference is 20 December, 2013.

The second one is the **2nd edition of the International Conference on New European Research on Contemporary China, which will this time be co-organized by the French Center for Research on Contemporary China (CEFC) and EURAXESS Links China.** The conference will take place on July 2-4 and will be hosted, as for its very successful first edition, in the EU Delegation in Beijing. The call for papers for this conference has now been launched and we invite doctoral candidates and recent PhDs in humanities and social sciences currently in China or planning to be in China in the summer of 2014 to apply before 15 February, 2014. See all details below, under the ***Events*** section.

This newsletters ends as usual with the ***Press Review***, looking back on some of the main news related to science, technology and higher education in China published over the past month in the Chinese media.

Wishing you a pleasant read,

With best regards,

Andrea Strelcova

Jacques de Soyres

EURAXESS Links China Country Representatives

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 European research landscape and conducting research in Europe or with European partners.

Please email to 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 Strelcova, Jacques de Soyres, EURAXESS Links China Country Representatives

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1 EU Insight

Horizon 2020 adopted by the European Parliament with implications for the ERC

The European Parliament approved Horizon 2020, the new EU Framework Programme for Research and Innovation for 2014 to 2020. With a budget of €70.2 billion, Horizon 2020 will be a key component of Europe's strategy to create economic growth and to reinforce its global competitiveness. The budget jump in real terms over the current Seventh Framework Programme (2007-2013) is nearly 30%.

In the light of the overall European Commission's annual budget for 2014 which is down 6% when compared to this year's budget, the increase in funding secured for research, education and innovation is particularly remarkable.

The amendments to the framework programme included by the European Parliament (EP) address the improved support for small and medium sized enterprises (SMEs), the goal of attracting more people into science and the importance of non-fossil energy research.

The Members of the European Parliament (MEPs) made it a target that at least 11% of the Horizon 2020 budget should go to SMEs. Moreover, there will be a specialized SMEs department, with its own budget, to ensure that the programme's calls for tenders are SME-friendly.

Máire Geoghegan-Quinn,

Commissioner for Research, Innovation and Science:

"This is a vote of confidence in the power of EU research and innovation funding. It paves the way for more investment in knowledge and competitiveness in Europe. The European Parliament's support for and input to Horizon 2020 has been very important."

To further EU climate goals, MEPs have earmarked 85% of the Horizon 2020 energy budget (around €5.4 billion) for non-fossil fuel energy research.

In order to attract new people into research, Horizon 2020 will include measures to widen the group of researchers participating in the programme and to attract young students to take up careers in science.

After the Parliament's vote, the programme needs to be formally adopted by the EU Member States too, in the coming weeks. The programme starts on 1 January, 2014.

Prof. Helga Nowotny,

ERC President:

"[…] I interpret this as a vote of confidence for the ERC. This substantial budget increase over the coming seven years will allow the ERC to continue its mission – finding and funding the very best researchers with the most creative ideas – with renewed vigour."

The European Research Council (ERC) will receive over €13 billion, around 17% of the total budget. This represents an approximate 75% increase of the ERC budget compared to the previous seven-year programme. The ERC will be part of the first pillar of Horizon 2020, which is 'Excellent Science'.

You will find in the box below the summary of the main features of the ERC in 2014 as presented in the Draft Work Programme which is made public before its final adoption[1].

Three ERC frontier research grants will be available under Work Programme 2014: Starting, Consolidator and Advanced Grants.

The two streams of what was previously known as the ERC Starting Grant were divided into two separate calls under Work Programme 2013.

The Scientific Council will analyse the pilot phase of the ERC Synergy Grant (calls were made under Work Programmes 2012 and 2013) before deciding on the scope and timing of future calls. There will be no call under Work Programme 2014.

Important extensions to the restrictions on applications will apply from the 2015 calls based on the outcome of the evaluation of the 2014 calls – see restrictions. on submission of proposals under "Eligibility criteria".

ERC Principal Investigators will also continue to be able to apply for the Proof of Concept Grant, first introduced under the revised Work Programme 2011.

Sources:

[1] EP press release on the EU budget 2014

[2] Draft Work Programme of the ERC

[3] ERC press release regarding the European Parliament vote on Horizon 2020

[4] EP press release on the adoption of Horizon 2020

[5] EC press release on the approval of Horizon 2020 by EP

[6] Commissioner's speech on the launch of Horizon 2020 in Madrid

[1] This paper is made public just before the adoption process of the work programme to provide potential participants with the currently expected main lines of the work programme 2014. It is a working document not yet endorsed by the European Commission (EC) and its content does not in any way prejudge the final decision of the Commission.

2 Feature

EURAXESS – "Voice of the Researchers: Raising Researchers' Voices - opinions on jobs, careers and rights" conference held on 21-22 November 2013 in Brussels

Voice of the Researchers is a bottom-up EURAXESS initiative that aims at building a bridge between the research community and European policy makers. The first conference held under the VoR flag kicked off in Brussels on November 21st, offering an intense two-day programme rich on discussions, debates, presentations and networking opportunities. The event, unique in its format as well as innovative use of social media, brought together different stakeholders from the research and innovation landscape. Presented by young researchers themselves, the event was designed to engage policy makers with the scientific community.

The topics oscillated across whole range of challenges researchers have to face, such as lack of funding, relocation problems and diversity across research environment in EU's member states; tough job market and lack of clear career track; the difficulty of work-life balance, brain drain, and also, the dilemma between mobility versus the desire for a stable life. After several plenary sessions and topic-specific workshops, the representatives of the research community faced EU policy makers in a heated debate over the current state of affairs in Europe, as well as the future of Europe as a knowledge-intensive destination and an "innovation union". One of the hot topics discussed was also the attractiveness of Europe as a first-class destination for top-notch research and development.

The disillusionment, confusion as well as disappointment of many researchers were brought to the floor together with the attempts to find suitable political solutions for the European Research Area to become a unified space where ideas and knowledge circulate without borders or other restrictions.

In the liberal, positive atmosphere, the intense debate on the above-mentioned issues was spaced out by science presentations that gave the conference an entertaining vibe. The assigned slots also included the performance of the EURAXESS Science Slam winners from the US, Brazil, India, ASEAN, Japan – and China. All of the six winners amazed the audience with their compelling slams that showed the significance of science popularization.

The 6 winners of the EURAXESS Science Slams organized throughout the world.

The winner of Science Slam in China, Dr Yu Yang from the University of Wuhan, offered his performance on the second day of the conference. Acknowledging the environmental problems China is facing, Yu Yang presented the audience with his innovative solution – the floating treatment wetlands - with the same vigour as during the Beijing finals which won him the honour to present his slam in Brussels. His presentation on artificial wetlands implanted into lakes that could not only help clean the polluted water but at the same time also provide more green public space, was carried out with enthusiasm, energy as well as confidence. With his simple, yet playful illustrations and even a short musical performance, Dr Yang achieved a strong and cheerful applause from the audience of roughly 200 people. He also enthusiastically praised the conference as an open way to connect real people with their political representatives, and discuss solutions for issues in research and innovation.

EURAXESS Links China representative Andrea Strelcova and EURAXESS Science Slam winner Yu Yang at the Voice of the Researchers conference in Brussels, Nov. 2013.

The event indeed provided a valuable platform for the research community to share their opinions and thoughts with the actual policy makers, and the activities of Voices of Researchers will hopefully continue in the future with more events to come.

3 EURAXESS Links Activities

EURAXESS Share - 2nd EU-China Workshop on Joint Research Structures (JRS) in China & Horizon 2020 Launch and General Training successfully held on 22 November 2013 in Beijing

The second edition of the *EU-China Workshop on Joint Research Structures (JRS) in China*, co-organized by EURAXESS Links China, the EU Delegation to China and supported by several Member State embassies, brought over 200 participants together to learn from and react on studies related to the development of JRSs in China as well as practical experiences of setting up and developing JRSs in China.

At this occasion a handbook on "How to Establish a Europe-China Joint Research Structure" co-edited by the EU SME Centre, the IPR China SME Helpdesk, the EU Delegation to China and EURAXESS Links China was released. **The e-version is available on the EURAXESS Links China website.**

The workshop was followed by a networking lunch for all participants and by the official launch in China of the new European Framework Programme for Research and Innovation *Horizon 2020* and a general training on how to participate in it. This afternoon session, co-organized by the EU Delegation to Dhina, the Dragon STAR project and EURAXESS Links China again brought together over 200 members of the research community in China, all interested in this huge research funding programmee, the largest in the world with a budget of 79 billion euros over the next seven years (first calls to be published on 11 December 2013).

These events were organized by EURAXESS Links China under its EURAXESS Share series of events.

The presentations and reports of these events can be found on the EURAXESS Links China website.

EURAXESS Share – Researchers' Night 2.0 held on 27 November in Beijing

A big crowd of PhD students and Postdocs from all fields of research and of all nationalities answered the invitation of EURAXESS Links China, ThinkInChina, the European University Centre at Peking University and Understanding Science to come to the Bridge Café on the 27th of November evening to meet fellow researchers and share experiences and ideas around drinks and sandwiches for the 2nd edition of the Researchers' Night.

The warm and friendly atmosphere and the room arrangement making sure that researchers working on similar issues would have the chance to sit together and exchange made for a very good and pleasant networking evening. Many thanks to all the participants and to the guest speakers for their interesting and entertaining stories. Definitely somehting to do again in the future, in Beijing and elsewhere!

4 News & Developments

4.1 EU & Multilateral Cooperation

16th China-EU Summit held in Beijing on 21st November, sees signature of several cooperation agreements and adoption of China-EU 2020 Strategic Agenda for Cooperation

At the invitation of Premier Li Keqiang of the State Council of the People's Republic of China, Herman van Rompuy, President of the European Council, and José Manuel Barroso, President of the European Commission, travelled to Beijing for the 16th China-EU Summit, from 20th to 21st November 2013.

The two sides announced the launch of negotiations of the China-EU Investment Agreement. They welcomed the launch of the China-EU Dialogue on Innovation Cooperation *(see details below)*, and highly appreciated the successful dialogue and outcomes at the China-EU Urbanisation Partnership Forum, the China-EU Urbanisation Exhibition and the 6th round of China-EU Energy Dialogue, which all took place at the side of the Summit. They also welcomed the holding of the Business Summit and of the High-Level Regional Policy Dialogue.

During the Summit, the following agreements were signed:

- Administrative Agreement for an Intellectual Property Cooperation;
- China-EU Joint Declaration on Energy Security;
- Letter of Intent on Research and Innovation Cooperation in Food, Agriculture and Biotechnology *(see details below).*

Both sides jointly adopted the China-EU 2020 Strategic Agenda for Cooperation, a comprehensive document setting out China and the EU's shared aims to promote cooperation in the areas of peace and security, prosperity, sustainable development and people-to-people exchanges.

Read the full official press release.

1st EU-China Innovation Cooperation Dialogue Joint Statement

The 1st meeting of the EU-China Innovation Cooperation Dialogue took place in Beijing on 21 November 2013.

The discussion led to the following main conclusions:

- The two sides welcomed the launch of a new flagship initiative on Food, Agriculture and Biotechnology. *(see below)*
- The two sides welcomed progress made on developing the Research and Innovation pillar of the EU-China Sustainable Urbanisation

Partnership. Topics of common interest in areas such as city planning, green transport, clean technology and sustainable energy are to be supported.

- The two sides welcomed the prospect of developing a joint initiative on aviation. In consultation with EU and Chinese industry, stakeholders' priorities of common interest are being identified and will result in joint EU-China calls for collaborative research and innovation projects.
- Cooperation involving industry and research institutes on the information and communication technology will be enhanced through existing and further mechanisms. Key topics such as future telecommunications (5G), smart cities and internet of things will be explored.
- The two sides have a shared interest in promoting predictable, transparent and effective framework conditions related to innovation. The two sides should continue to promote a level playing field with respect to research and innovation both in Europe and in China, and to work on lowering barriers to innovation and balanced research cooperation.
- To pursue further the objectives of the Innovation Cooperation Dialogue, the two sides agreed to set up an Expert Task Force on Innovation Cooperation to identify and promote successful practices in the EU and in China.
- The second meeting of the Innovation Cooperation Dialogue will take place in Europe in 2014.

Access the full text of the Joint Statement here.

EU, China to cooperate on food, agriculture and biotechnology research

On 21 November, the EU and China have launched the first EU-China flagship initiative for research and innovation with the signature of a Letter of Intent on Research and Innovation Cooperation in Food, Agriculture and Biotechnology (FAB) between the European Commission and the Chinese Academy of Agricultural Sciences (CAAS). This new initiative will ensure concrete, substantial and balanced joint research and innovation cooperation activities on selected priorities of common interest. It was announced during the 1st EU-China Innovation Cooperation Dialogue (see above).

This Letter of Intent was signed on the European Commission side by: D. Cioloş responsible for Agriculture and Rural Development; M. Geoghegan-Quinn, in charge of Research, Innovation and Science; T. Borg responsible for Health; and J. Potocnik in charge of the Environment. On the Chinese side, it was signed by Li Jiayang, President of the CAAS and Vice-Minister of Agriculture.

The Letter of Intent will pave the way for an ambitious strategic long-term partnership in the fields of food, agriculture and biotechnology, building on the long-standing EU-China research and innovation cooperation, within the overall context of the Scientific & Technological Cooperation Agreement.

Cooperation between the EU and China in agriculture and rural development has developed in the last few years. In June 2012, Commissioner Cioloş signed the EU-China Cooperation Plan for Agriculture and Rural Development with the Chinese Minister of Agriculture, Mr Han Changfu. This Letter of Intent is therefore also seen as a further enhancement of the Agricultural Cooperation Plan signed in 2012 where agricultural research was already included as a key area for future cooperation.

Under the terms of the Letter of Intent, the EU and China will:

- Harness their respective Research and Innovation Programmes (EU Horizon 2020 and ASTIP - Chinese Agricultural Science and Innovation Programme) to increase funding and improve mechanisms for cooperation;
- Design and implement joint and coordinated research programmes and support joint collaborative research projects and activities based on identified common challenges and shared objectives;
- Reinforce their position of searching for innovative solutions to address the common challenges of global food security, quality and safety and help in finding a sustainable model of agriculture, developing a sound bio-economy and, ultimately, improving their trade relations;
- Work on the following priority areas of common interest: 1) food related science including food waste, 2) sustainable agriculture, including integrated pest management and bio-control, low-input and organic farming systems, water and soil management, 3) animal health and sustainable livestock production systems, 4) urban agriculture to contribute through urban greening to the Urbanization Partnership, 5) biotechnology, including new sources of biomass.

Learn more about the exchanges between European and Chinese experts that led to this Letter of Intent on the EU Delegation to China website.

China, EU to enhance cooperation on urbanization

China is willing to learn from the European Union (EU) in its push towards urbanization, Premier Li Keqiang said on Thursday. Li addressed the closing ceremony of Thursday's 2013 China-EU Urbanization Partnership Forum, saying that the country will respect and protect the rights of rural people, and strive for sustainable urbanization. The premier urged China and the EU to deepen cooperation in many aspects, especially among enterprises, to jointly improve city design, public services and historical and cultural relic preservation.

Further details in source: Xinhua net.

Horizon 2020: Experts wanted for biggest EU research programme yet

Ahead of the start of Horizon 2020, the new EU research and innovation programme, the European Commission has today launched a **new call for independent experts**. Experts are needed to evaluate proposals for EU funding and for other activities such as monitoring, programme evaluation and policy development.

Interested candidates are invited to file their application **online** as soon as possible in preparation for the first project proposal evaluations, which will start in 2014.

In addition to researchers and academics, the European Commission is aiming to substantially increase the number of specialists from the commercial and business communities. Horizon 2020 covers a whole range of activities in the fields of science and technology, innovation, social sciences and humanities, ethics, gender, communication, project management and more. This call is open to those **of any nationality** with a high level of expertise in the relevant fields of research and innovation.

The call for expression of interest will remain open for the lifetime of Horizon 2020. The support services (FAQ as well as the Research Enquiry Service for general enquiries and the IT helpdesk for technical matters) are accessible from the **online registration platform**. Further details on the type of expertise sought are set out in the **Participant Portal**.

Read more in source: European Commission

EU Industrial R&D Investment Scoreboard 2013 published

The European Commission published its 2013 EU Industrial R&D Investment Scoreboard on 18 November. The Scoreboard is based on a sample of 2,000 companies, the world's top investors in Research and Development (R&D) representing more than 90% of the total expenditure on R&D by businesses worldwide.

Leading world R&D investors have continued to increase their R&D investments by 6.2% in 2012, a figure above their net sales growth (4.2%). The 527 EU companies increased R&D investment and net sales by the significant figures of 6.3 % and 4.3 % respectively. The 658 US companies reported a higher increase in R&D (8.2 %) but net sales grew only by 2.9 %, compared with a strong increase in 2011.

Table 1. Overall performance of the 2000 companies in the 2013 *Scoreboard.*					
Factor	*Total*	*EU*	*USA*	*Japan*	*Other countries*
No. of companies	2,000	527	658	353	462
R&D in 2012, € bn	538.8	158.0	189.4	102.7	89.4
R&D change %	6.2	6.3	8.2	0.4	8.8
Net Sales change %	4.2	4.3	2.9	3.3	5.8
Operating Profit change %	-10	-18.4	-5.5	4.2	-8.9
Employment change %	1.5	1.1	3.0	1.3	1.0

What percentage of R&D spending do EU firms account for in the Scoreboard?

Out of the 2,000 companies gathered in the Scoreboard, 527 are based in the EU. These companies invested €158 billion in 2012, equivalent to 29.3 % of the overall investment in R&D by the Scoreboard companies.

Distribution of the 527 EU companies in the 2013 R&D Scoreboard

Germany 130; United Kingdom 107; France 75; Sweden 40; The Netherlands 35; Italy 30; Denmark 25; Finland 20; Spain 16; Belgium 13; Austria 12; Ireland 11; Luxembourg 4 ; Portugal 4 ; Czech Republic 1; Greece 1; Hungary 1; Malta 1; Slovakia 1.

What are the EU's top 10 R&D investing companies?

rank	Company	Country	Industry	R&D - 2012 (€bn)
1	VOLKSWAGEN	Germany	Automobiles & Parts	9.52
2	DAIMLER	Germany	Automobiles & Parts	5.64
3	ROBERT BOSCH	Germany	Automobiles & Parts	4.92
4	SANOFI-AVENTIS	France	Pharma & Biotech	4.91
5	SIEMENS	Germany	Electronic & Electrical Equip.	4.57
6	GLAXOSMITHKLINE	UK	Pharma & Biotech	4.23
7	NOKIA	Finland	Technology Hardware & Equip.	4.17
8	BMW	Germany	Automobiles & Parts	3.95
9	ERICSSON	Sweden	Technology Hardware & Equip.	3.86
10	EADS	Netherlands	Aerospace & Defence	3.63

Read more in source: European Commission
Download the EU Industrial R&D Investment Scoreboard 2013

World powers back hotter-than-the-sun reactor

Günther Oettinger, European Commissioner for Energy, addresses representatives of ITER Member States at the construction site on 6 September 2013. Image courtesy of ITER

Ministers representing many of the world's main economic powers met on 6 September 2013 to show their support for one of the world's most ambitious scientific experiments – a nuclear fusion reactor that will operate at temperatures ten times hotter than the core of the sun.

Representatives from the seven regions (including China) that are backing ITER – the International Thermonuclear Experimental Reactor – met for only the second time at the site of the planned reactor in southern France last September to underline the importance of the project.

ITER aims to produce energy through the same nuclear reaction that powers the sun. But, while the centre of the sun burns at 15 million degrees Celsius, the hydrogen inside the ITER reactor will be heated to some 150 million degrees Celsius.

At that temperature, electrons are ripped off individual atoms to form plasma, where nuclei float in a sea of electrons.

The high temperature means the plasma cannot be allowed to touch the sides of the reactor. So it will be suspended amid a vacuum in a toroid – a doughnut shape – using some of the world's most powerful magnets.

'The magnetic field will put very high mechanical stress on the supporting structure,' said fusion physicist Dr Osama Motojima, ITER's Director-General. 'So we developed an engineering design almost close to the limit of the material.'

Read more in source: Horizon

HORIZON - the EU Research & Innovation Magazine is written by independent journalists on behalf of the European Commission's Directorate-General for Research and Innovation. It aims to communicate the priorities and achievements of EU-funded research, its impact on citizens' lives and its contribution to the EU goals of smart and sustainable growth. The e-magazine also offers a space for guest writers to express their views on EU research and innovation.

http://horizon-magazine.eu

EU Research & Innovation Policy – Smart specialisation: Building on Europe's strengths

As a major provider of research funding, the European Union is seeking to build on these regional and sectoral strengths in order to drive growth and prosperity across the 28-nation bloc.

The approach, known as smart specialisation, is designed to enable European regions to focus on their strengths by targeting research funding at those science and technology areas where local industries, universities and research centres already have an established lead or strong background.

The strategy, part of the Europe 2020 plan for smart, sustainable and inclusive growth, helps to avoid the problem of unnecessary duplication of research activities and prevents funding being spread too thinly at the risk of limiting its impact in any one area.

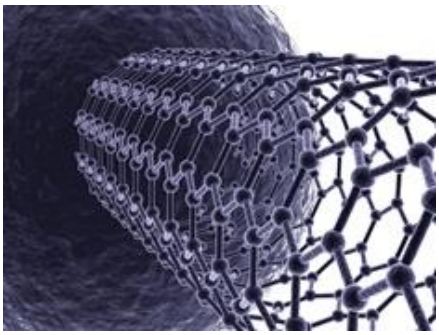
Significantly, it also contributes to cooperation between businesses, public entities and knowledge institutions within a region and between regions.

From 2014 to 2020, EU regional and investment funds will include a new strategic approach to economic development through smart specialisation, focused on developing a vision, identifying competitive advantage, setting

strategic priorities and making use of smart policies to maximise the knowledge-based development potential of any region, strong or weak, high-tech or low-tech.

Read more in source: European Commission

EU Research Highlight – Developing a nanotech 'Swiss Army knife'



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To make the best use of nanotechnology, researchers and businesses need the most advanced and effective tools. FIBLYS and its direct follow-on project, UnivSEM, achieved a major breakthrough in precisely this area, creating a unique new machine which is vividly summed up by one of the project leaders, Dr Jaroslav Jiruse of the Czech company TESCAN, as 'a Swiss Army knife' of nanotechnology tools. Developed to the point of full commercial use by FIBLYS, the machine is currently being further enhanced by UnivSEM.

The radical advance achieved by the FIBLYS-UnivSEM 'multi-nano' tool was that it enabled operators, for the first time, to use just one machine to carry out a range of processes which previously required separate pieces of apparatus. One immediate benefit is that this saves time since samples do not have to be moved between devices and set up again each time. It also saves money, with multiple machines – each one potentially costing millions of euros - able to be replaced by a single one.

Removing the need to switch between machines eliminates the risk of contamination or oxidation of the sample. "It also means that researchers can be certain they are looking at exactly the same area of the sample," says Dr Jiruse.

At the heart of the machine there are a number of specialised tools, including two microscopes providing detailed imaging of the sample. The first is a Scanning Electron Microscope which provides immense power of magnification. Magnifying an area of 10x10 nanometres into an image of 10x10 centimetres, for example, is equivalent to magnifying a human footprint on the moon to an image the size of the moon itself. The second, an Atomic Force Microscope, reveals the three-dimensional atomic structure of the sample.

Another key part of the machine is a Focused Ion Beam. This has the ability to modify the specimen – for example, by etching it, cutting it or milling it in order to see inside it or prepare a cross-section for analysis. It can also be used to deposit layers of additional material on the specimen and in this way create new materials or structures. The toolkit of this remarkable nanotech 'Swiss Army knife' is completed by an array of analytical devices using techniques such as Energy Dispersive X-ray Spectroscopy or 3D Electron Backscatter Diffraction. Most significant is a Time-of-Flight Mass Spectrometer, sensitive enough to analyse molecules at a level of parts per million. Previously, this type of spectrometer had to be housed in large, expensive, standalone, machines. Incorporating one into the 'Swiss Army knife' was one of the major achievements of FIBLYS-UnivSEM.

Read more in source: European Commission

EU Research Highlight – Designing new ways to protect water quality

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Europe's Water Framework Directive states that water is a heritage we must protect and defend. The potential threat of water contamination and the spread of waterborne diseases are becoming more serious than ever before. This is the result of a number of factors, including the increase in population, globalisation and the movement of more people across borders and between continents, and the effects of global warming.

The European Union-funded MICROAQUA project set out to develop a new, highly-efficient, rapid method of detecting waterborne pathogens (bacteria, viruses, protozoa and cyanobacteria) that cause human diseases. Existing techniques are laborious and time-consuming, requiring labour-intensive cultivation and microscopic examination of potential pathogens from water samples. The innovative molecular biological techniques being investigated by the MICROAQUA team would, by contrast, enable the rapid - and more reliable - detection of pathogens in large volumes of water.

The project is due to run until November 2014, but the team has already succeeded in designing and testing the key components of a planned 'universal microarray chip'. This chip comprises a number of species-specific probes that are able to recognise the nucleic acids from various disease-causing or otherwise harmful organisms. The toxins produced by cyanobacteria, also known as blue-green algae, which are not nucleic acids, are detected using antibodies or other toxin-binding proteins.

In addition to the detection of pathogens, the chip is also being designed to provide an assessment of water quality more broadly. It does this by monitoring the presence of a type of algae called diatoms, which are well-characterised bioindicators of overall water quality.

Read more in source: European Commission

EU Research Highlight – Synthetic alcohol substitute could eliminate health risks – and hangovers

A drug that mimics some effects of alcohol but lacks its harmful properties would have real benefit for public health, a leading scientist has argued.

Professor David Nutt, the Edmond J. Safra Professor of Neuropsychopharmacology at Imperial College London, has identified candidate molecules that reproduce the pleasurable effects of alcohol but are much less toxic. He is looking for investors to help develop the product and bring it to the market.

Alcohol mimics a chemical called GABA which is produced in the brain, but it also acts on receptors for other brain chemicals. The alcohol substitute would be designed to target GABA receptors very selectively, avoiding undesirable

side effects such as hangovers and loss of coordination. An antidote could also be made to block the receptor, allowing drinkers to sober up quickly.

Read more in source: Imperial College London

EU Research Event - 2nd Innovation Convention will take place on 10 and 11 March 2014 in Brussels, Belgium

The first edition was described by a leading technology website as "a creative collusion of some of the world's brightest people from across all sectors involved in research, innovation and science".

This second edition will be even bigger and better, with over 2000 participants.

It will take place under the patronage of the President of the European Commission, Mr José Manuel Barroso, and will feature inspirational speakers from a range of backgrounds.

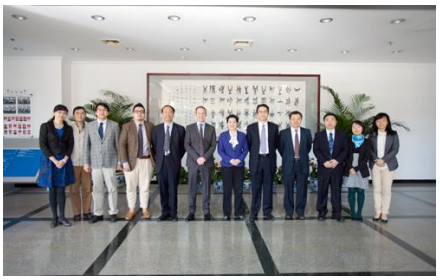
For anyone involved in innovation, from the worlds of research and business to those involved in policy making and funding innovation, the Convention will provide an opportunity to:

- engage in and contribute to the innovation debate with business leaders, top researchers and high-level policy makers;
- network and share experiences with your peers; and
- gain inspiration from world-renowned speakers and great innovation showcases.

Free registration will open in December on the event's website.

For more information regarding the European Commission's international research cooperation activities worldwide, read the European Commission's monthly "International Research Update".

4.2 EU Member States*, China & Bilateral Cooperation



NSFC and Elsevier representatives (source: NSFC)

China - Cooperation Framework Agreement signed between NSFC and academic publishing company Elsevier

The Cooperation Framework Agreement between NSFC and Elsevier was signed on October 15 by Prof. GaoRuiping, Vice President of NSFC, and Mr. Nick Fowler, Managing Director of Academic and Government Institutions at Elsevier. Headquartered in Amsterdam, Elsevier is the world's leading provider of science and health information.

The Cooperation between NSFC and Elsevier mainly covers two aspects: first, Elsevier offers users of NSFC Science Information System free access to Scopus service so that all users, including NSFC staff, reviewers, project PIs,

* Including countries associated with the 7th Framework Programme.

applicants and administrative staff of the hostinstitutions, can obtain the publication information of Natural Science Fund applicants without charge; second, Elsevier offers NSFC a free trial of a customized SciVal service to provide technical assistance tothe selection of peer reviewers and the evaluation of NSFC's funding and managing performance.

Further details available on the NSFC website.

China – List of recipients of the NSFC International Young Scientists Fellowship, 2013 second call, released

Among the 33 young researchers to receive this fellowship through the second 2013 call, 15 are Europeans (1 Austrian, 2 Italians, 4 Germans, 1 Lithuanian, 1 Spanish, 1 Polish, 3 British and 2 French). Access the list on the NSFC website.

Among the 12 young researchers to receive an extension of this fellowship through the second 2013 call are 7 Europeans (1 German, 1 Greek, 1 Dutch, 2 British and 2 French). Access the list on the NSFC website.

Denmark - General Consulate in Shanghai held Nordic Design and Innovation Week

From the 1st of November to the 10th of November the Royal Danish General Consulate in Shanghai hosted the Nordic Design and Innovation Week together with Finland, Norway and Sweden. This was the first time the Nordic consulates in Shanghai collaborated in such a large scale, and it proved a great success in every aspect with several hundred students and professionals attending the events.

The Nordic Design and Innovation Week featured more than 20 different activities, ranging from PechaKucha-seminars on innovation in the Nordic region to lectures on how design can be used to create a better society as well as exciting master classes on new Nordic food held by some of the most promising modern chefs of the Nordic cuisine.

The general idea behind the Nordic Design and Innovation Week was to demonstrate the Nordic countries strong traditions of simplicity, clean lines and functionality that have us rendered as market leaders within the fields of design and innovation. The organisers sought to do so by creating an interactive platform to showcase the Nordic concept of sustainable and innovative design, compromising of such diverse disciplines as democratic architecture, fair trade fashion and schooling through creativity.

The most important part of Nordic Design and Innovation Week however was neither a seminar nor an exhibition or a master class; it was to promote the idea that design is a process, and not just a product.

Source: Denmark in China

Denmark - Danish ambassador participates in signing ceremony with Huawei

On October 25th 2013, the Danish Ambassador to China Friis Arne Petersen participated in the signing ceremony marking the 4.5 billion RMB agreement between the Chinese company Huawei and the Danish telecom operator TDC of a complete upgrade of the TDC 3G and 4G network in Denmark.

Prior to the signing ceremony the ambassador participated in a meeting with Huawei founder and President Ren Zhengfei and TDC management led by TDC's CEO Carsten Dilling.

The agreement has a value of 4 billion DKK (4.5 billion RMB). Huawei established their office in Denmark in 2007 and have has continuously expanded their activities in Denmark. As a result of the agreement with TDC, Huawei will now establish a Nordic Network Operating Centre in Denmark. The creation of R&D facilities in Denmark were also discussed during the meeting with the president of Huawei.

Source: Denmark in China

France - Cooperative Research Innovation Conference (CRIC) in Paris

The first conference on the Franco-Chinese collaborative research, organized by Le Monde and the journal La Recherche, was held on November 14, 2013 at the Ministry of Higher Education and Research, in the presence of some 140 participants. The conference was opened by Mr. Roger Genet, Director General of Research and Innovation (DGRI) at the Ministry of Higher Education and Research (MoR), Mr Chen Ming and Mr Ma Yansheng, Advisor for Science and Technology and Education Advisor to the Embassy of China in France, respectively.
An inventory of topics was established in the first part of conference, first on the development of research and development (R&D) in China and France as well as the Franco-Chinese cooperation, followed by two more particularly oriented subjects concerning the world of business: the protection of intellectual property in China and lessons learned from existing partnerships between foreign and local Chinese players. The second part of the conference was reserved for four roundtables involving French and Chinese actors in collaborative research in four areas: The relationship between clusters and French and Chinese technology parks; Franco-Chinese cooperation in basic research; innovation in China and collaborative research for French SMEs and innovation and collaborative research for large French groups.

Source: La France en Chine

France - Cooperation agreement between the departments of hematology-oncology of Ruijin Hospital and Institute Paoli Calmettes

On Saturday, November 16, 2013 a cooperation agreement was signed between the Department of hematology and oncology of Ruijin Hospital and Shanghai Institute Paoli Calmettes Aix Marseille. The agreement was signed by Professor Jean-Paul Borg and Professor Didier Blaise, Scientific Director of the Institut Paoli Calmettes and Chairman of the Department of Hematology Institute, respectively, and Professor ZHU Zhenggang, director of the Hospital Ruijin. The official signing ceremony of the cooperation agreement was held at the 8th Sino-American medical symposium, to which both involved parties were invited.

Source: La France en Chine

France - 5th Franco-Chinese Conference on Bioethics held in Wuhan

A fifth edition of the Franco-Chinese meeting on bioethical issues was held on November 7 and 8 in Wuhan at the Huazhong University of Science and Technology (HUST, Department of Humanities and Social Sciences), with the participation of half a dozen experts from France as well as many Chinese experts on the topic of bioethics.

Source: La France en Chine

Italy - Italy and China continue cooperation in the space field

The ASI delegation of the Agenzia Spaziale Italiana (ASI) attended a meeting with the Minister of Science and Technology which promoted the Sino-Italian project of three-dimensional mapping of the moon to be carried out by university students of the two countries. The project “Mapping Moon” is coordinated by ASI and the National Remote Sensing Center of China (NRSCC). The ASI President Saggese and the NRSCC Director Liao Xiahan have signed a declaration of intent for the project during the fourth Italo-Chinese Forum on Innovation.

The meeting with Ma Xingrui, President of the China National Space Administration (CNSA), was also particularly significant. The two delegations have confirmed their interest in working on the use of satellite data and on the Chinese space station. President Ma specifically urged Italy to cooperate in the field of space exploration, with particular reference to the Chinese program dedicated to Mars.

As part of the agreements between the Italian Ministry for Education, University and Research (MIUR) and its Chinese counterpart in June 2012, in particular in relation to the program "Mapping Moon" co-ordinated by the Italian Space Agency (ASI) and by the National Remote Sensing Center of China (NRSCC),

the ASI issued a call for the collection of expressions of interest. The full text of the call and the requirements for participation as well as funding information can be found on the ASI website.

Source: L'ambasciata d'Italia, ASI

Sweden - Sweden-NSFC joint research programme supports 4 joint Sino-Swedish projects in the field of antimicrobial resistance

The Swedish Research Council (VR) and the National Natural Science Foundation of China (NSFC) jointly selected 4 Sino-Swedish projects proposals for fuunding over a 5 year period (from 1st January 2014 to 31st December 2018). The list featuring the 4 projects selected can be seen on the NSFC website.

UK - Scholarship applications from China encouraged with new Chinese Chevening website

The British Embassy in Beijing today launched a new online portal in Mandarin designed specifically to help Chinese nationals apply for the UK's prestigious Chevening scholarship programme. The website, which can be found at CheveninginChina, provides information and guidance to help new applicants understand the Chevening programme and application process. The Chevening provides scholars with world-class educational opportunities in the UK. The scholarships are funded by the FCO and its partners and sponsors, and scholarship applicants are open to apply to any universities and courses in the UK. Since 1983, 42,000 of the world's best and brightest from 118 countries have been awarded a Chevening Scholarship.

Source: Gov UK

UK - Collaboration to support research into China's development lessons and engagement with Africa

The UK Department for International Development (DFID) and the Economic and Social Research Council (ESRC) have announced a collaboration of up to £4.5 million, to support research into the economic development impact of China's engagement in sub Saharan Africa; and how lessons from China's own successful and rapid economic transformation could generate practical measures for low-income Africa.

The unprecedented pace and scale of China's economic growth and structural transformation has led domestically to millions being lifted out of poverty within just a few decades and its emergence as a global economic player. As such, China is often portrayed as a rich learning ground for those looking for approaches to promote economic development in low- and middle-income countries. At the same time, China's growing engagement with Africa – be it

through direct investment, trade, commercial lending, technology transfer or development aid – has sparked a lot of media and political attention.

DFID and the ESRC have partnered to launch a programme of research that will critically evaluate what lessons China's own economic development transformation can offer other developing countries – in particular in low-income Africa – and help deepen current knowledge of how Chinese engagement with Africa has contributed, in comparative perspective, to the continent's economic development prospects.

The programme is open to organisations with a demonstrable research capacity and from anywhere in the world. Academics from the Global North and South, China and Africa are strongly encouraged to work together in any configuration of their choosing.

Successful projects will either take as a starting point a developmental challenge facing Africa and examine possible solutions linked to recent experience from China's own economic development, or build our understanding of aspects of China's engagement with Africa relevant to the continent's economic development.

Research grants will be for up to four years in duration with a value of between £200,000 and £2 million.

Source: Gov UK

*See details about this call below, under the **Grants & Fellowships** section.*

5 Grants & Fellowships

5.1 Call announcements for international researchers

Austria - CSC-FWF Scholarship Program 2013 Call

The programme is operated jointly by the China Scholarship Council (CSC) and the Austrian Science Fund (FWF) and aims at enabling excellent Chinese PhD and Postdoc students to stay at an Austrian research institution in order to pursue their PhD and Postdoc studies fully or partly in Austria in the excellent research environment of selected research groups, covering **all major scientific fields** (incuding social sciences).

Interested Chinese PhD and Postdoc candidates have to apply at the FWF for a position in a specific research group.

Deadline for applications is **6 December, 2013** (for a start of stay in Austria in September/October 2014).

Information for Chinese applicants can be found on the FWF website.

Belgium – FWO Ph.D. fellowship

The FWO-Vlaanderen is the funding agency of Flanders for research performed at the universities in Flanders.

These fellowships are intended for young researchers who are doing their PhD at a Flemish university are a granted for a period of 2 years, renewable once. The size of the scholarship is based on a research assistant's salary.

Non-EU candidates must have a basic degree from one of the countries within the European Union or the European Economic Area or Switzerland.

The candidates must submit a proof that the university trustees grant him or her permission to prepare a PhD thesis (for PhD fellowships) or that he has a PhD or equivalent degree.

The PhD research must be fundamental in nature. There is no restriction as regards the topic. The FWO employs a strictly bottom-up approach, in which the researcher can choose the topic of his/her research.

Candidates are only eligible for a PhD fellowship within the first five years of obtaining their Master's degree, calculated on the start date of the fellowship (1 October).

The next application deadline is **3 February, 2014**.

Find out more about this programme on the FWO website.

Belgium – Postdoctoral fellow

The postdoctoral fellowships from the FWO are intended to help researchers who already have a PhD to develop an independent research career.

Researchers can only apply for a postdoctoral fellowship within six years of obtaining their PhD, calculated on the start date of the fellowship (1 October).

The fellowship is provided for a period of 3 years and can be renewed once if necessary, with a wage at the PhD assistant level.

The next application deadline is **3 February, 2014**.

Find out more about this programme on the FWO website.

Belgium - Pegasus Marie Curie Fellowships (short)

The goals of PEGASUS are:

- to attract excellent postdoctoral researchers to Flanders in order to contribute to the advancement of Flemish science
- to provide the selected fellows with optimal conditions to further develop their research career in Flanders or abroad.

On the start date of the fellowship, the candidate must have obtained a PhD or a degree, in any scientific area.

Applicants for a Pegasus-short fellowship can only apply within 10 years after obtaining their PhD.

Pegasus-short Postdoctoral fellowships are awarded for a period of 1 year at a Flemish university. These fellowships are not renewable, but candidates can apply afterwards in the open competition for a regular postdoctoral fellowship of three years. This short fellowship is available under the form of an employment contract (standard option) or a stipend (at request).

Applicants can submit a proposal in any of the 5 following scientific domains:

- **Biological sciences**
- **Humanities**
- **Social sciences**
- **Medical sciences**
- **Exact and applied sciences**

The next deadline for application is **1 February, 2014**.

Further details available on the FWO website.

China (Hong Kong) - Hong Kong PhD Fellowship Scheme 2014/15

Established by the Research Grants Council (RGC) of Hong Kong in 2009, the Hong Kong PhD Fellowship Scheme (HKPFS) aims at attracting the best and

brightest students in the world to pursue their PhD studies in Hong Kong's institutions.

Candidates who are seeking admission as new full time PhD students in the following eight institutions, irrespective of their country of origin, prior work experience and ethnic background, should be eligible to apply.

- City University of Hong Kong
- Hong Kong Baptist University
- Lingnan University
- The Chinese University of Hong Kong
- The Hong Kong Institute of Education
- The Hong Kong Polytechnic University
- The Hong Kong University of Science and Technology
- The University of Hong Kong

The Fellowship provides an annual stipend of HK$240,000 (approximately US$30,000) and a conference and research-related travel allowance of HK$10,000 (approximately US$1,300) per year to each awardee for a period of up to three years. More than 200 PhD Fellowships will be awarded in the 2014/15 academic year*. For awardees who need more than three years to complete their PhD studies, additional support may be provided by the chosen institutions. For details, please contact the institutions concerned directly.

Eligible candidates should first make an **Initial Application** online through the Hong Kong PhD Fellowship Scheme Electronic System (HKPFSES) to obtain a HKPFS Reference Number by **2 December 2013 at Hong Kong Time 12:00:00** before submitting applications for PhD admission to their desired institutions.

Further details about this scheme, the initial application and the applications to each of the 8 participating universities available on this website.

EU - JPI Water – Call for proposals for transnational research projects on „Emerging water contaminants - anthropogenic pollutants and pathogens”

The Joint Programming Initiative “Water Challenges for a Changing World” (the Water JPI) is an intergovernmental initiative with the vision of achieving sustainable water systems for a sustainable economy in Europe and abroad. The initiative is composed by 19 partner countries plus the European Commission (non-voting partner). Five additional countries are observers.

A total of 11 Water JPI Partner Organizations from 10 partner countries have agreed to launch a Pilot Call in November 2013.

The aim of this Pilot Call is to enable multi-national, collaborative research, development and innovation projects addressing questions relating to the water challenges faced by the European society. Water JPI Funding Partner Organizations particularly wish to promote multi-disciplinary work and to encourage proposals with fundamental and/or applied approaches, to stimulate

mobility of researchers within the Consortium and to enhance collaborative research and innovation during the project life and beyond.

The Water JPI Funding Partner Organizations have arranged a Pilot Call for European RDI projects on "**Emerging water contaminants – anthropogenic pollutants and pathogens**" addressing at least one of the following challenges:

- **Identification and prevention of emerging freshwater contaminants;**
- **Control, mitigation and methods for treatment and removal; and**
- **Impact on ecosystems services and human health.**

A total of around €9 million has been provisionally allocated for this Pilot Call by the 11 Water JPI Funding Partner Organizations from 10 countries.

Projects can be funded for a period of two to three years.

Deadline for application is **19 December, 2013**.

Visit the Water JPI website for all details about this call and how to apply.

EU – Erasmus Mundus 2014 Call for proposals Action 2

The Erasmus Mundus Action 2 supports the establishment of partnerships between European institutions and institutions in other countries, with the objective of developing mobility schemes. Scholarships for students, scholars, researchers, professionals are also provided under this programme.

Consortia must include a minimum of 5 higher education institutions from at least 3 European countries and a number of higher education institutions from targeted non European regions.

Deadline for submission of applications is **3 March, 2014**.

Access the call on the Erasmus Mundus website.

France – Cai Yuanpei 2014

Created by the Chinese Ministry of Education and the French Ministries of Foreign and European Affairs and of Higher Education and Research, the Cai Yuanpei program aims at fostering the exchanges of PhD students and their supervisors and related post-docs between the 2 countries.

Research cooperation projects between French and Chinese research teams will be selected and financial supports for the travels and stays in the partner country will be provided for 2 full years (June 2014-June 2016).

Each project should involve 8 people (4 on each side) including one or two PhD works and students on each side. **All disciplinary fields are eligible**, including Human and Social Sciences. About 20 new projects are expected to be supported each year.

The deadline to submit applications is **15 January, 2014**.

More details available on the Campus France website.

France – Xu Guangqi 2014

The goal of the Xu Guangqi programme is to develop collaborations between Chinese and French researchers working in laboratories affiliated to unviersities, research organisations or companies of both countries by supporting them in their initial phase of launching and development. Mobility of young researchers within the collaborations is particularly appreciated. **All disciplinary fields are eligible**, including Human and Social Sciences.

Funding up to EUR 5000 can be provided to support mobility of members of the partnering research teams between France and China in 2 directions (flight tickets and EUR 110/day).

The projects to be funded under this programme are selected by the French Embassy to China.

Deadline to submit application fort he 2014 call is **3 February 2014**.

More details available on the Campus France website.

Germany - 2014 Sino-German (CSC-DAAD) Postdoc Scholarship Programm

In order to deepen the Sino-German cooperation in the research and support the Chinese young scientists, the China Scholarship Council (CSC) and the DAAD offer a new joint program for Chinese postdocs from 2013. The program allows Chinese young scientists to carry out 7 - to 18-month research projects at a university or a non-university research institute in Germany.

This program is open to anyone interested from all research fields. It is also open to candidates, whose PhD Studies are not yet finished at the time of application. For the year of 2014, CSC and DAAD plan 25 positions in the joint promotion program. Applications should be submitted from 20th November to **20th December 2013** to the DAAD office in Beijing and CSC. The earliest possible date for the beginning of a scholarship is July 2014.

Please find more information about the program on the DAAD website.

International – IIASA Young Scientists Summer Program

The International Institute for Applied Systems Analysis (IIASA) annual 3-month Young Scientists Summer Program (YSSP) offers research opportunities to talented young researchers whose interests correspond with IIASA's ongoing research on issues of **global environmental, economic and social change**.

From June through August accepted participants work within the Institute's research programs under the guidance of IIASA scientific staff. Funding is provided through IIASA's National Member Organizations (NSFC in China).

Applicants to the YSSP prepare a research proposal that corresponds both with their professional plans and the agenda of their selected IIASA Program. Accepted applicants begin work before the summer by planning their research in close collaboration with their IIASA supervisors.

Participants are expected to be resident at IIASA (Austria) for the entire 3-month period; June through August. Up to five days of leave may be approved by supervisors for participation in conferences and/or for personal reasons. Participants also agree to a timely submission of their research reports.

The 2014 program starts on June 1, 2014, and ends on August 31, 2014. In order to be considered, applicants must commit to staying for the entire program.

Application deadline is **13 January, 2014**.

Further details available on on the IIASA website.

Luxembourg - ATTRACT 2014

The ATTRACT programme by the National Research Fund (FNR) aims to support the Luxembourgish research institutions to expand their competences in strategic research areas by attracting outstanding young researchers with high potential to Luxembourg.

The programme is designed for researchers not yet established in Luxembourg; it offers them the opportunity to set up an independent research team within a public-sector research institution in Luxembourg that is willing to host them. Research proposals should be submitted jointly by the candidate and the host institution which has to provide a clear and attractive career track to the candidate.

Proposals selected under the ATTRACT programme have a lifespan of five years and the financial contribution by FNR can be up to EUR 1,750,000 or 2,500,000 € for 'Starting Investigators' or 'Consolidating Investigators' respectively. Following a successful final evaluation, the applicant can transition to the next career stage and obtain tenure (if not already the case) and promotion.

Projects submitted should be innovative and of high scientific quality. Candidates must be able to show that they have gained a minimum of two and a maximum of eight years' professional experience since successful completion of doctoral studies.

Application deadline fort he 2014 call is **3 February 2014**.

Access the call on the FNR website.

Luxembourg - INTER Mobility Programme

The aim of the INTER Mobility Programme is to promote the scientific exchange between research groups of the Luxembourg public research institutions and

research groups abroad in order to foster innovative, internationally competitive research and support the exchange of key knowledge and technological know-how. Thus the activities should have a strong impact on the research programme of the Luxembourg research group as well as on the career development of the researcher. The INTER Mobility Programme allows for research stays in both directions (researchers working in Luxembourg to go abroad or for researchers from elsewhere to come to Luxembourg).

More specifically, the FNR intends to support:

- Post-Docs and senior researchers working in Luxembourg to visit the leading research institutions in the field or
- The visit of established senior researchers in Luxembourg public research institutions.

The minimal duration of an FNR-funded research stay is 6 weeks. The total cumulated duration of the research stay is limited to 1 year.

The next application deadline is **20 January, 2014**.

Further details available on the FNR website.

Netherlands - Innovational Research Incentives Scheme Veni

Veni is part of the Incentives Scheme. It provides grants of EUR 250,000, allowing researchers who have recently obtained their PhD to conduct independent research and develop their ideas for a period of three years. Researchers who have completed their PhD within the last three years can apply for a Veni grant. **All fields** are covered by this scheme.

Researchers from outside the Netherlands can apply but the project to be funded should be carried out at a Dutch institution recognised by NWO.

The application deadline is **7 January, 2014**.

Further details about this call can be found on the NWO website.

Netherlands - Cooperation China - Joint Scientific Thematic Research Programme (JSTP) - Joint Research Projects

JSTP aims at fostering research collaborations of Sino-Dutch research teams that share high ambitions to work together in sustainable joint research projects by providing multi-annual research funding, and by calling for proposals demonstrating complementary expertise between Dutch and Chinese research teams in areas, in which both The Netherlands and China excel. Thematic Calls for Proposals are published annually, featuring different thematic priorities each year.

The 2014 Call for Proposals addresses the research topic **'Smart Energy in Smart Cities'**.

Research teams of Dutch and Chinese researchers, with a senior Principal Investigator on both the Dutch side and the Chinese side can apply for funding of joint research projects with a duration of 3 to 4 years.

Closing date for submitting expressions of interest is **8 January 2014**, 11:00am CET. Closing date for submitting joint research proposals is 26 March 2014, 11:00am CET.

More details available on the NWO website.

Netherlands - Cooperation China - Joint Scientific Thematic Research Programme (JSTP) - Dialogue Seminars

The aim of the dialogues is twofold: the seminars serve as fore-sighting exercises aimed at identification of research topics for future joint research that can be embedded in the research lines of the participating research teams. Secondly, the seminars are important networking opportunities for Dutch and Chinese researchers. The Dialogue Seminars are aimed, broadly, at all scientific disciplines. They serve as fore-sighting exercises for future research topics, and are therefore not bound to the annual theme for the JSTP Call for Proposals of the Joint Research Projects *(see above).*

Research teams of Dutch and Chinese researchers, with a senior Principal Investigator on both the Dutch side and the Chinese side can apply for funding of Dialogue Seminars, with 10 to 15 participating scientists from each side. The maximum financial contribution to an individual seminar will comprise up to EUR 30,000.

Closing date for submitting Dialogue Seminar proposals is **26 March 2014**, 11:00am CET.

More details available on the NWO website.

Portugal – CMU Portugal Doctoral Program Scholarships

In the framework of the Carnegie Mellon Portugal Program (CMU Portugal), FCT and the Information and Communication Technologies Institute (ICTI) open a call for applications for PhD Scholarships, taking place in Portugal and at the Carnegie Mellon University (CMU), in the following fields:

- Computer Science
- Computer Science – Robotics
- Software Engineering
- Electrical and Computer Engineering
- Human Computer Interaction
- Language Technologies
- Applied Mathematics
- Technological Change and Entrepreneurship
- Engineering and Public Policy

The research topics available, as well as the supervisors, both at CMU and at the Portuguese Universities, are defined by the CMU Portugal Program. Hence candidates do not need to present a work program or an adviser's support letter and CV at the time of application. However the candidates are required to present recommendation letters and a motivation letter where they should justify the reasons for applying to one of these programs and also justify their research topics selection. The scholarship will only be granted if the candidates are accepted by CMU and by one of the Portuguese Universities within one of the PhD programs.

These scholarships are available to persons holding a bachelor degree or a masters degree or equivalent in the areas targeted by the CMU Portugal program.

The application deadlines are **15 December, 2013 or 15 January, 2014** depending on each PhD program in the different fields covered by this programme.

Further details can be found on the FCT website.

Switzerland - Swiss National Science Foundation (SNSF) Advanced Postdoc.Mobility

The fellowships for advanced postdocs are a funding scheme of the Swiss National Science Foundation (SNSF) enabling advanced postdocs to conduct a research stay abroad with the option of a return phase at a research institution in Switzerland.

The Advanced Postdoc.Mobility fellowships are awarded for 12 months up to a maximum of 36 months. A return phase of 3 to 12 months is possible. These fellowships are in principle awarded for a continuous stay (in justified cases, two or more partial stays and/or spending part of the fellowship in Switzerland may be approved).

Eligibility requirements include having obtained a Doctorate (PhD) or medical training with a doctorate (MD) and at least 1 year's experience as a postdoc, Swiss nationality, valid permanent residence, residence or cross-border commuter permit, or marriage resp. registered partnership with a Swiss national.

For persons with foreign nationality, at least 3 years of research activity at a Swiss research institution are required tob e eligible.

The next deadline for application is **1 February, 2014**.

Find out more on the SNSF website.

UK - DFID-ESRC China and Africa research programme

The Department for International Development (DFID) and the Economic and Social Research Council (ESRC) are pleased to announce a dedicated programme of research to investigate in comparative perspective the economic

development impact of China's engagement in sub-Saharan Africa. The programme aims to critically evaluate what lessons China's own economic development transformation can offer other developing countries - in particular in low-income Africa.

Research projects under this call are expected to either take as a starting point a developmental challenge facing Africa and examine possible solutions linked to recent experience from China's own economic development, or to build understanding of an aspect of China's engagement with Africa relevant to the continent's economic development.

The programme encourages academics from developing and developed countries to work together in any configuration of their choosing, and principal investigators can be from anywhere in the world.

Grants will be for a maximum of four years and with a full Economic Cost (fEC) value of between £200,000 and £2 million. We expect to fund a mixed portfolio of small (in the region of £200,000 to £500,000) and larger (£500,000 and above) research projects under this call. UK-based researchers will be funded at 80 per cent fEC, whilst non-UK researchers will receive 100 per cent of the direct costs of the research, plus a variable overhead. The total budget for this call will be £4.5 million.

The full specification and other relevant documents can be found below. Deadline for applications is **13 March, 2014**.

Further details available on the ESRC website.

5.2 Calls still open

Calls first announced in previous editions of the newsletter

EU – CERN Non-Member State Postdoc Fellowship Programme

Deadline for application is **1 December 2013**.

Further details available on the CERN website.

International - IIASA-Funded Postdoctoral Program

Applications are accepted all year round. The upcoming deadline is **1 December, 2013**.

More details available on the IIASA website.

Norway - The Wenner-Gren Foundation: International Collaborative Research Grants

Next deadline for application is **1 December, 2013** (for funding starting in July through December of next year).

Further information available here.

Europe/China - Europe-China call for collaborative research on The Green Economy and Understanding Population Change

The closing date is **3 December 2013**.

Further details can be found on the ESRC, ANR, DFG, NWO and NSFC websites.

Switzerland – Ambizione Energy

Next submission deadline is **2 December, 2013**.

Further details available on the SNF website.

Sweden - STINT Institutional Grants

This call closes on **December 3, 2013**.

Access further details on the STINT website.

EU - CERN Technician Training Experience (TTE)

Next deadline for application is **13 December 2013**. More details can be found on the CERN website.

UK – Chevening Scholarships

Applications for 2014-2015 Chevening Scholarships in China will close on **15 December 2013**.

Read more on the Chevening website.

France – COOPOL Innovation: 2014 Call

Deadline to submit proposals is **31 December, 2013**.

Further details available on the French Embassy website.

France - EIFFEL PhD scholarships

Deadline for receipt of applications by Campus France : **January 8th, 2014**

Further details available on the Campus France website.

Germany - 15 PhD fellowships at the Graduate School of East Asian Studies at Freie Universität Berlin

Applicants should apply via the online portal: https://apply.drs.fu-berlin.de/eas

Deadline to submit applications is **15 January, 2014**.

Learn more on the GEAS website.

Greece - Onassis Foundation Fellowships for foreigners

Deadline for application is **31 January, 2014**.

Further details available on the Onassis Foundation website.

EU - Dragon-Star Innovation Award – call for application

Deadline for application is **31 March, 2014.**

Find out more about the eligibility criteria and download the Innovation Award application form here.

More details available on the Dragon Star project website.

5.3 Open calls under FP7 and Euratom

The following calls are open under the Cooperation programme

- Information and Communication Technologies / **1** open call
- Joint Technology Initiatives (Annex IV-SP1) / **1** open call

The following calls are open under the Capacities programme

- Research Infrastructures / **1** open call
- Support for the coherent development of research policies / **1** open call

6 Jobs

China - Faculty Positions Available in Beihang University (Beijing)

As part of Beihang's further pursuit for excellence in research and education, the university has expanded its global search for the best research talents to join its International Research Institute for Multidisciplinary Science (IRIMS).

Six independent international research centers (IRC) were established recently under the name of IRIMS: **IRC for Biological and Nature-Inspired Materials, IRC for Big Data, IRC for Clean Energy Systems and Materials, IRC for Implanting and Interventional Medical Device, IRC for Nuclei and Particles in the Cosmos, and IRC for Soft Matters Physics and Its Application**. As the core part of IRIMS, IRCs are devoted to establish a world-class, advanced and multidisciplinary research platform.

Beihang University invites applications for full-time Professors, Associate Professors and excellent scientists. Preference will be given to candidates whose research emphasis demonstrates the potential to complement and advance the IRIMS existing research strengths. Successful candidates will be provided competitive salaries and start-up funds, in line with national Recruitment Program of Young Experts and Beihang "Zhuoyue" Program.

Requirements & Qualifications

- Recruitment Program of Young Experts (1000 Plan Professorship for Young Talent): candidates should under the age of 40; have obtained a PhD degree in a world-renowned university with at least 3 years of research experience abroad; or have obtained a PhD degree in Mainland China with at least 5 years of research and teaching experience abroad; special offers will be granted to those who have excellent research achievements during their doctoral study.
- "Zhuoyue" Program Professor & Associate Professor: candidates should have a PhD degree in a world-renowned university; or have obtained a PhD degree in Mainland China with at least 2 years (Professor) or 1 year (Associate Professor) of research experience abroad; have a proven track record of faculty or research fellow positions abroad before coming to China.

The announcement wille expire on **30 May, 2014**. Read the full announcement on Nature Jobs.

China – Nanjing University opens 4-6 Tenure Track and Tenured Faculty Positions in Chemistry and Biology at All Levels (Nanjing)

Nanjing University – The New Institute of Chemistry and BioMedical Sciences (ICBMS) which is led by Drs. Aaron Ciechanover (the 2004 Nobel Laureate in Chemistry) and Guigen Li, seeks applications for 4-6 tenure track and tenured faculty positions in chemistry and biology at all levels. Areas of research are not limited, but will cover those where there is a potential for translation.

These include **synthetic organic chemistry, biochemistry, cellular, molecular and developmental biology, disease mechanisms (cancer, neurodegeneration, inflammation, and metabolic diseases), bio-organic/medicinal chemistry, protein chemistry and proteomics, genomics, and computational biology and bioinformatics**.

Applications should include: (1) curriculum vita; (2) summary of research achievements; (3) statement of proposed research; and (4) three letters of recommendation.

Evaluation of applications will continue until the positions are filled. Potential applicants are nonetheless invited to send their applications before **15 December, 2013**.

Access the full announcement on Nature Jobs.

China - Vice President (Academic Affairs) at South University of Science and Technology (Shenzhen)

The South University of Science and Technology, China (SUSTC) invites applications and nominations for Vice President (Academic Affairs). SUSTC is committed to excellence in teaching and research; therefore, it offers internationally competitive salaries, fringe benefits, retirement and housing subsidy to the Vice Presidents. The modern campus also offers pleasant working conditions.

The Vice President (Academic Affairs, VPAA) report directly to the president. The VPAA provides strategic leadership in the development and implementation of academic and research programs. Successful candidates are expected to be internationally renowned scholars with administrative experience and good communication skills. Excellent leadership and organizational skills are also important.

The teaching language at SUSTC is English or Putonghua. As we expect an international faculty, the majority of teaching materials and reference books will be in English and many classes will be conducted in English.

Opening expires on **5 February, 2014**. Access the full announcement on Nature Jobs.

China – Faculty and Post-doctorals at Sun Yat-sen University State Key Laboratory of Ophthalmology (Guangzhou)

The State Key Laboratory of Ophthalmology at Sun Yat-sen University is the only State Key Laboratory for Ophthalmology in China. It receives funding and administrative support directly from the central government and this mechanism enables the country's most accomplished scientists and scholars to conduct pioneering research. The State Key Laboratory is proud of providing highly supportive and international environment, with faculty from other countries such as the U.S.A. and South Korea.

The Laboratory for **Translational Systems Biology** contains two major components: Human genomics and Computational Biology. Specific areas of interest include, but are not limited to, (1) next generating sequencing based experimental approaches, in particular single cell sequencing technology, (2) translational research in human genetics/genomics and (3) computational biology to problems in human diseases.

The laboratory is now recruiting full-time faculty members and post-doctoral fellows:

- Faculty members

Applicants should have research experience in one of the following areas: genetics, genomics, bioinformatics or computational biology. The rank will depend on experience and credential. The compensation package is internationally competitive.

- Post-doctoral fellows

Applicants who have recently obtained a Ph.D. degree in one of the areas stated above are welcome. The successful applicant will be supported according to international standards.

Access the full announcement on Science Careers.

Germany - Scholarship Computational Systems Biology at Humboldt Universitaet zu Berlin

The Humboldt Universitaet zu Berlin is seeking doctoral students for the DFG Research Training Group "Computational Systems Biology" (CSB) which focuses on the system-level understanding of biology using computational methods. CSB is embedded in the thriving Berlin life-science environment and involves high-ranking research institutions such as Humboldt-Universität zu Berlin, Freie Universität Berlin, Charité-Universitätsmedizin Berlin, Max Planck Institute for Molecular Genetics and Max Delbrück Center for Molecular Medicine Berlin-Buch.

CSB is looking for highly-motivated students with a strong interest in systems biology and mathematical modelling. Successful applicants must hold the equivalent of a master's level degree in life sciences, mathematics, physics or computer sciences.

EU – Doctoral and senior researchers positions at the Joint Research Centre

The European Commission's Joint Research Centre (JRC) is currently advertising the following vacancies:

- 1 doctoral position (deadline 4 December, 2013)

- 2 senior researcher position (deadlines 9 and 31 December, 2013) Further information on the JRC website.

The PhD fellowship comprises a monthly stipend which is initially granted for 1,5 years and which can be extended for another 18 months.

Application deadline is **7 January, 2014**.

Access the full announcement on EURAXESS Jobs.

Access thousands of other research jobs and fellowships announcements on the EURAXESS Jobs portal.

7 Events

7.1 EURAXESS Links China

EURAXESS Connect event – International Conference: New European Research on Contemporary China, 2nd Edition - July 2-4, 2014 – Beijing – CALL FOR PAPERS

Co-organized by the French Center for Research on Contemporary China (CEFC) and EURAXESS Links China, with the support of the Delegation of the European Union to China, the European Center for China Studies (ECCS), the Heinrich-Böll Foundation and Think in China, this conference aims to bring together doctoral candidates, post-doctoral researchers and recent PhDs based in China, either European nationals or affiliated with European research institutions, in order to produce an overview of the emerging problematics in Chinese studies. The focus of the conference is on contemporary China, in a multi-disciplinary social science perspective.

Along with the growing exchanges between China and Europe, the number of European doctoral candidates and recent PhDs in humanities and social sciences doing research in and studying China has increased; many young Chinese scholars also choose to bring their expertise on contemporary China to European academic institutions. They all represent the future of European research on contemporary China. The main purpose of this Conference held for the second time in Beijing is to provide a forum for these young researchers at the European level and in China.

The success of the first edition held in 2012 which gathered 50 young researchers from 15 countries (selected among 130 applicants) confirmed the necessity to provide such a forum for reflection and discussion.

The Conference will be an occasion to facilitate exchanges on common research subjects, compare perspectives and methodologies, and promote interdisciplinary dialogue. By providing a space for debate and reflection, the Conference intends to contribute to the emergence of more diverse theoretical approaches on the subject. It will enable the participants not only to expand their network and broaden their horizon, but also to take part in the construction of European research networks and promote the China-Europe dialogue.

Who can apply?

The Conference is designed for doctoral candidates and recent PhDs in humanities and social sciences currently in China or planning to be in China in the summer of 2014, either European nationals or affiliated with a European university or research institute, regardless of nationality. Among the different disciplines that will be considered are anthropology, law, economics,

geography, history, literature, international relations, political sciences and sociology.

The conference will sponsor domestic travel within China and accommodation in Beijing for selected participants; however, no funding is available for international travel.

Registration details and schedule:

（1） A paper title and abstract (up to 20 lines) in English is to be sent by **15 February, 2014** to Ms. Miriam Yang: cefc@cefc.com.hk.

（2） The selected participants will be notified by 15 April 2014

（3） The final papers (up to 8000 words) should be sent by 31 May 2014

（4） Selected papers may be published in the journal China Perspectives/ Perspectives chinoises.

For more information, please click here. To download the call, please click here.

7.2 EURAXESS Links China Recommends

3rd Workshop on Europe-China Relations in Global Politics - 13-14 March, 2014 – Guangzhou - CALL FOR PAPERS

The 3rd edition of this workshop is entitled **'Regional Integration in Asia and Europe'** and will take place on 13 & 14 March 2014 at Sun Yat-sen University.

The event takes place in the framework of the UACES Collaborative Research Network on EU-China Relations (ESSCA School of Management at Angers/ College of Europe at Bruges/ Graduate School of Global Politics at Free University Berlin). The event is generously supported by Konrad-Adenauer-Stiftung Shanghai.

The organizers cordially invite researchers at all stages of their career, coming from China, Europe and beyond to present their research.

Contributions related to the following thematic panels are most welcome:

- **A German Europe, a Chinese Asia? Leadership of Regional Integration in Asia and Europe**
- **Regional Integration in Asia and Europe and the Role of the US**
- **Overcoming the Crisis: Economic and Business Prospects in the course of Regional Integration in Asia and Europe**
- **From Borders to Bridges or Vice Versa? Regional Integration, Peripheral Countries, and Sub-State Actors**

The working language is English.

Please send your **paper proposal** of not more than **400 words** together with a brief CV until **Friday, 20 December 2013** to the following email address: Frauke.Austermann@essca.fr

Find out more about this upcoming conference here.

ThinkINChina #31 – Screening of the documentary '5+5 五加五 A cabbie driving for art: Artists and Villains in a Beijing village' - Beijing, 3 December, 2013

This is an open event.

Details available at www.thinkinchina.asia.

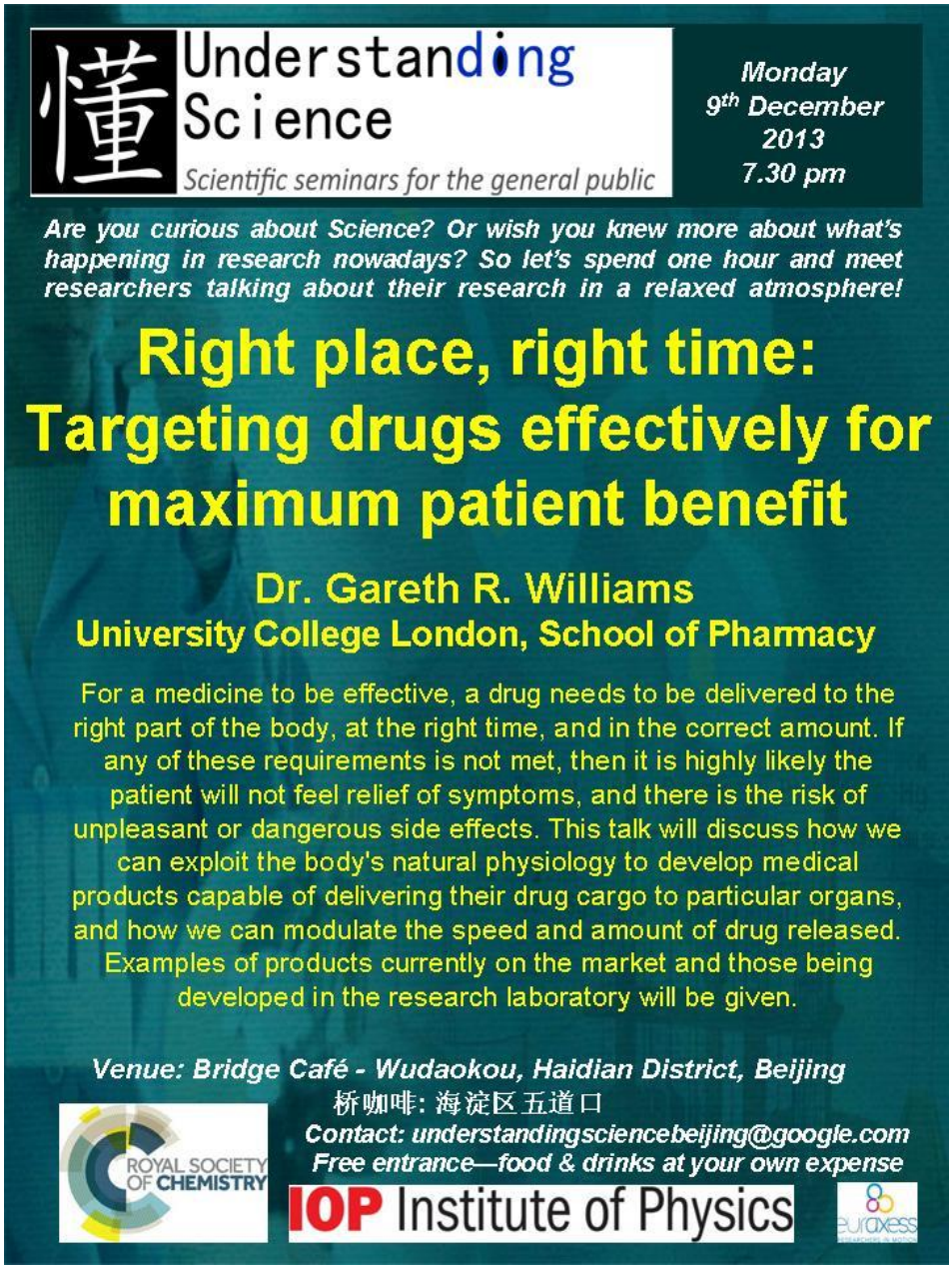
Understanding Science - "Right place, right time: Targeting drugs effectively for maximum patient benefit", Beijing, 9 December, 2013

The next "Understanding Science" lecture will be in the Bridge Café in Wudaokou (right by the line 13 Wudaokou subway station).

On Monday 9th December at 7.30 p.m. Dr. Gareth R. Williams from University College London, School of Pharmacy will give a talk on "Right place, right time: Targeting drugs effectively for maximum patient benefit".

See more details in the flyer below.

This is an open event.



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7.3 Upcoming scientific events in China

Find out about major events in Europe on the European Commission's 'Conferences & Events' website.

Field	Date	Location	Title *(click for more details)*
Medicine	3-5 December, 2013	Shanghai	Clinical Trials Technology 2013
Innovation policy	5 December, 2013	Beijing	Exclusive Dialogue with MOST Torch Center Official: Innovation Policies for Foreign Invested Enterprises (EU Chamber of Commerce)

Engineering	7-8 December, 2013	Guangzhou	2013 International Conference on Information Science and Cloud Computing (ISCC 2013)
Genomics	16-20 December, 2013	Shenzhen	BGI Bioinformatics Workshop on Diseases
Engineering	19-21 December, 2013	Hong Kong	2013 Hong Kong International Conference on Engineering and Applied Science
Medicine	20-23 February, 2014	Macau	19th World Congress on Controversies in Obstetrics, Gynecology & Infertility (COGI)
Engineering, Life science	21-23 February, 2014	Sanya	2014 Asia-Pacific Conference on Life Science and Engineering
Biotechnology	27-28 February, 2014	Shanghai	4th Annual Pharma R&D Asia Congress
Biotechnology	27-28 February, 2014	Shanghai	3rd Annual Clinical Trials & Outsourcing Asia Congress 2014
Biotechnology	25-28 March, 2014	Beijing	2nd Pharmaceutical Regulatory Affairs Summit Asia
Engineering	17-18 May, 2014	Nanjing	The 2nd International Conference on Materials Engineering（ICMEN2014）
Engineering	22-24 May, 2014	Beijing	2014 2nd International Symposium on Engineering and Natural Sciences (ISEANS 2014)
Engineering	22-24 May, 2014	Beijing	2014 The 2nd International Congress on Engineering and Information (ICEAI 2014)
Education	22-24 May, 2014	Beijing	2014 the 2nd International Conference on Education and Social Sciences (ICEASS 2014)
Computer science	19-20 July, 2014	Shanghai	4th International Conference on Computer Engineering and Networks (CENet 2014)
Marine biology	4-9 August, 2014	Shanghai	ClimEco4

8 Press Review*

8.1 Policy & Papers

China sets up carbon trading market to curb emissions

Beijing launched carbon emissions trading on Thursday, making it China's third market for carbon trading. An initial 490 companies, whose carbon emissions account for 40 percent of the city's total, have been included in the scheme, according to the Beijing Municipal Commission of Development and Reform. Under the trading program, companies which produce more than their fair share of emissions will be able to buy unused quotas on the market from companies that cause less pollution. The market is based on the Beijing Environment Exchange. Five deals worth 40,800 tonnes in carbon quotas have been traded thus far at prices ranging from 50 to 52.25 yuan (8.16-8.36 U.S. dollars) per tonne. (source: China.org)

Academic reforms

Early last month, more than 1,000 of China's most eminent scientists gathered in Beijing for an important event held every two years by the Chinese scientific community. After a week-long closed-door vote, they elected 120 new academicians, awarding them the highest honor in Chinese academia. The Chinese Academy of Sciences (CAS) and the Chinese Academy of Engineering (CAE) are seen as China's elite academic institutions, and being elected to both is seen as the highest of honors for a scientist. This year, however, the science community had reason for concern. For the past two months, the world of academia has come under scrutiny over a string of recent corruption scandals amid rising calls for reform to the academician system. In September, Zhang Shuguang, a former senior official from the recently dismantled Ministry of Railways, confessed to spending 23 million yuan ($3.77 million) on bribing and hiring scholars to compile materials for him in his bid for election to CAE and CAS in 2007 and 2009. Zhang was only one vote short of his target in the 2009 election, according to a Southern Weekend report. Before Zhang would make his third attempt, he was arrested for accepting bribes. Although CAS quickly clarified that they were unaware of Zhang's corrupt actions, public doubts

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lingered. On November 15, an official report issued after the Third Plenary Session of the 18th Central Committee of the Communist Party of China (CPC) showed that the country had decided to change its academician election and management system. The aim of this move was to increase the proportion of middle-aged and young talents as well as to implement a compulsory retirement in order to break the life tenure system. Although a press officer from CAE told the Global Times that there was no further information about the plan, there is no doubt that the biggest reform since the restoration of the academician election system 16 years ago is on the horizon. (source: Global Times)

Plenum offers new platform for urbanization

The Third Plenum of the 18th Central Committee of the Communist Party of China may be a good opportunity to push the country's ambitious urbanization bid - a major effort to change the development model of the world's second-largest economy. The CPC's new leadership designated urbanization as a growth point of the economy and called for quality and new urbanization at its economic work conference in December, after China's exports were adversely affected by the lingering global crisis. China's urbanization ratio hit 52.57 percent in 2012, increasing almost 1 percentage point each year from 17.9 percent in 1978. The per capita gross domestic product was about $6,102 in 2012. The steady and rapid urbanization seems sustainable for awhile along with the economic growth. (Source: China Daily)

China to consider intellectual property court

China will strengthen protection of intellectual property rights (IPR), improve the mechanism to encourage innovation, and explore ways of setting up the IPR court, according to a landmark policy document. (source: Global Times)

Low-carbon development the way to go: report

China should manage its massive urbanization plan in a low-carbon way to alleviate growing pressures on the environment and resources, a report said. "Low-carbon urbanization is an effective way to control greenhouse gas emissions, which will be the major task for the country in the coming decades," Wang Weiguang, chief editor of the report Green Book of Climate Change, said on Monday. China plans to cut carbon emissions relative to GDP by 40 to 45 percent by 2020, compared with 2005 levels. In order to reach the target, low-carbon development is necessary, said Wang, who is also head of the Chinese Academy of Social Sciences. Low-carbon development means a minimal output of greenhouse gas emissions, which cause climate change. Statistics show China emitted more than 9.2 billion tons of carbon dioxide in 2012, nearly 27 percent of the world's total. (Source: China Daily)

Beijing, Shanghai top 10 in knowledge in Asia-Pacific

Beijing and Shanghai ranked in the top 10 of 33 cities in the Asia-Pacific region in knowledge competitiveness, a recent report said. The Asia-Pacific Knowledge Competitiveness Index for 2013 was compiled by the Antai College of Economics and Management of Shanghai Jiao Tong University. In this year's report, Beijing and Shanghai, 2 of 13 cities in China, ranked fifth and eighth. It is the first time Shanghai has risen into the top 10, having been in 11th place in 2012. The country's capital ranked 10th last year. The top three places were occupied by Tokyo, Japan; Ulsan, South Korea; and Osaka, Japan. "The index mainly reflects a city's capability to transform its knowledge power into productivity and wealth. From this year's report, we can see that some emerging economies in the Asia-Pacific region are surging forward with good momentum," said Luo Shougui, a professor at the Antai College of Economics and Management, who compiled the index. (source: China Daily)

Legislation speeded up to reduce pollution

China plans to speed up the introduction of legislation related to environmental protection and resource management amid rising public concern over pollution. A five-year legislative agenda revealed on Wednesday by the Standing Committee of the 12th National People's Congress shows that the top legislature wants to review 11 environment-related draft laws and amendments. In the legislative plan drafted five years ago, only seven fell in this category. The standing committee, consisting of more than 170 members, was elected in March. Once a new committee is formed, it makes a legislative plan for its five-year tenure. "The rise (of draft laws) in this category shows the top legislature's great concern for environmental protection and resource management," said Zhai Yong, director of the legislation department of the NPC's Environment and Resources Protection Committee. "It also shows the country urgently needs to protect the environment and scientifically exploit natural resources," he said. (source: China Daily)

8.2 Voices & Opinions

Economist calls for market-driven urbanization

China's leading economist and advocate of reform Wu Jinglian has called for a new model of urbanization that is market driven and more efficient, the Shanghai Securities News reported Tuesday. In an article published in the paper Wu said China must avoid urbanization that heavily stresses developing land and expanding city size. China's old mode of urbanization was characterized by high population density that generated too many negative effects, such as serious traffic jams and great difficulties in providing security and public health services. In Wu's opinion, the outdated model of progress misguided urbanization toward simple land development and pursuit of large

city scale, resulting in frequent demolitions and relocations that violated public interests, and leading to an excessive concentration of resources in a few megacities. The finance, service and manufacturing industries all crowded into these megacities, attracting millions of "non-urbanized" migrant workers Wu said. Meanwhile, lower investment efficiency and rapid expansion of city scale triggered large debts at all levels of government and high risks to the country's financial stability. To solve the problems, he urged repairs of systematic flaws, such as cutting down administrative forces in the market and integrating the nationwide labor, land and capital markets for better use of resources. He added that the country should give full play to the market's "decisive" role in allocating resources as described in the communique published on November 12 after the Third Plenary Session of the 18th Communist Party of China (CPC) Central Committee. (source: China Daily)

Innovation key to new economic growth, Xi says

President Xi Jinping said the country must quickly transform its economy using an innovation-driven strategy to achieve growth targets. On a visit to universities and high-tech companies in Hunan province on Monday and Tuesday, the president said the country should develop innovations as well as science and technology to re-energize economic growth. To drive an economic transformation forward, China must pass structural reforms and absorb the excess production capacity found in industrial sectors, he said. (source: China Daily)

8.3 Thematic Activities

Health

Scientists develop new test for cancer

Chinese scientists announced on Sunday they had developed a method to measure the concentration of a cell protein that enables the detection of cancer with only a drop of blood. The amount of the cell protein in a cancer patient exceeds that in a healthy body, they said. Luo Yongzhang and his team at Tsinghua University identified heat shock protein 90 alpha (Hsp90 alpha for short) - an essential and ubiquitous protein in various cell types - as a "novel tumor biomarker." The team has also developed a quantitative detection kit for clinical use. "Levels of tumor biomarkers increase in accordance with cancer progression. It has become a useful approach for disease monitoring and efficient evaluation," Luo said. (source: China Daily)

Artificial cornea breakthrough in Wuhan

A hospital in Wuhan has carried out 47 successful artificial cornea transplants, Chutian Metropolis Daily reported on Friday. Up to 5 million people require cornea transplants every year in China. This number far exceeds corneas donated, about 5,000. China started biological tests on artificial corneas in 2010 in five hospitals. The tests involved 115 patients, of whom 47 actually received artificial cornea transplants in Wuhan Union Hospital. The operations had a 100 percent success rate. (source: China Daily)

Research takes DNA path to historic figures

The Shanghai-based Fudan University plans to study China's historic figures, including Confucius, with the help of modern DNA technology, as their research to map the DNA of Cao Cao, an ancient Chinese warlord, has made groundbreaking progress. At a media conference on Monday, the university's research group introduced latest DNA findings on Cao Cao, a famous warlord and politician from the Three Kingdoms period (220-280), as the result had already been published in the Journal of Human Genetics, an official magazine of the Japan Society of Human Genetics, according to the Beijing Times. Led by two professors from history and anthropology departments respectively, the research was launched after the discovery of an alleged Cao Cao tomb in Central China's Henan Province in 2009. (source: People)

Vaccine switch to prevent paralysis

China has set a goal to introduce the inactivated polio vaccine (IPV), which does not pose a risk of paralysis, into its routine immunization program in two years, and officials say an application has already been filed with the State Food and Drug Administration for mass production and use of the first domestically made IPV. "The oral vaccine has helped China eliminate polio, and now we're preparing to introduce IPV, which is in line with the international standard and can better protect against the polio infection," said Shen Qi, deputy director of the National Institutes for Food and Drug Control's Institute for Biological Product Control. Polio, or poliomyelitis, is a virus that infects the brain and spinal cord, mostly in children under 5. One in every 200 cases leads to paralysis, usually of the legs. The World Health Organization is requesting countries that use only the oral vaccine introduce at least one dose of the inactivated vaccine before October 2015. (Source: China Daily)

Mutant gene discovery will help research

Chinese doctors have discovered and registered a new mutant gene for alpha-thalassemia, first of its kind worldwide, an advance that enriches the gene database to assist researches into cures for genetic disease. Thalassemia is a disease where the carrier is missing or has malfunctioning genes responsible for making hemoglobin, the blood protein that helps to carry oxygen around the

body. The hemoglobin molecule has subunits commonly referred to as alpha and beta. There is no effective cure for alpha-thalassemia, and the discovery of the new mutation will help prevention and research into the disease while preparing theoretical basis for future gene therapy. (Source: China Daily)

TCM firms should 'learn rules of West'

An expert in China's natural health products has one crucial suggestion for traditional Chinese medicine-makers interested in selling their products in the United States: Know the rules. Though TCM is slowly gaining acceptance in the US, most remedies are sold as over-the-counter herbal supplements. Familiarity with US Food and Drug Administration regulations will help Chinese TCM companies sell their products in the US. However, a major challenge is also the quality of TCM ingredients and products. "Problems, such as high amounts of heavy metal and pesticides, seriously hinder the development of TCM. TCM companies haven't set aside money to conduct rigorous studies to develop a kind of medicine that is accepted by the West," said Lin Ziqiang, vice-president of the World Federation of Chinese Medicine Societies. (Source: China Daily)

Nanoparticles-based Multi-adjuvant Whole Cell Tumor Vaccine Serves as Treatment for Anti-tumor Immunotherapy

Whole cell tumor vaccine (WCTV) is a potential treatment modality that contains all relevant tumor associated antigens (TAAs) and can simulate a polyvalent immune response. Therefore, WCTV is common used in medical fields. However, the poor immunogenicity limits its application. Previous researches have attempted to introduce a cytokine adjuvant in WCTV to solve the problem but the high expectations decrease because of the single-adjuvant WCTV. Researchers with Institute of Process Engineering, Chinese Academy of Sciences prepared a nanoparticles-based multi-adjuvant WCTV modified with cell penetrating peptide and successfully imported exogenous granulocyte macrophage conlony-stimulating factor (GM-CSF) and interleukin 2 (IL-2) into lewis lung carcinoma cell line (LLC) cells. Uniform-sized pristine nanoparticles (p-NPs) were prepared and then decorated with cell penetrating peptide (CPP). The results showed that as-designed nanoparticles could increase NP cellular uptake, facilitate GM-GSF and IL-2 internalization and keep cytokine activities. (source: CAS)

Vaccine gets WHO nod for global use

Children in South Asia at risk from deadly Japanese encephalitis will be protected by China's first vaccine approved for global use by the World Health Organization. The vaccine, manufactured by the Chengdu Institute of Biological Products, has received WHO prequalification, which means it meets international standards for quality, safety and efficacy. "This is a welcome development, both in the fight to protect children in developing countries from the virus and in the future availability of vaccines more generally, as China is

now producing vaccines up to WHO standards," said WHO Director-General Margaret Chan. (source: China Daily)

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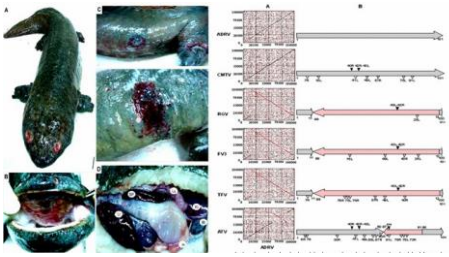
Food, agriculture & fisheries, biotechnology

Mechanism of Selenite Uptake by Rice Uncovered

Selenium (Se) is one of essential micronutrients for humans and animals, it is involved in a number of physiological functions in humans, such as anti-oxidants, cancer protection, and immune responses. Se is obtained primarily from plant foods, especially cereal foods, therefore, its accumulation by crop plants is of great interest. A team led by Prof. CHU Chengcai of the State Key Laboratory of Plant Genomics, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, including the scientists from Henan University of Science and Technology, recently revealed the molecular mechanism of selenite uptake in rice. (source: CAS)

Science Reports Achievement by Tsinghua Researcher on Molecular Mechanism of Plant Innate Immunity

Through collaboration with researchers in CAS(Chinese Academy of Sciences)and UK, Dr. Chai Jijie from Tsinghua University recently published in Sciencetitled“Structural basis for flg22-induced activation of the Arabidopsis FLS2-BAK1 immune complex”. A novel molecular mechanism of how conserved molecules from pathogens interact with receptors in plant innate immune system was revealed for the first time. During the long process of evolution, plants gradually acquired a series of efficient and sophisticated innate immunity system against microbial pathgens. Flagellin perception in Arabidopsis is through recognition of its highly conserved N-terminal epitope (flg22) by flagellin-sensitive 2 (FLS2), so that immune system is turned on to eliminate invasion from pathogens. However, the molecular mechanism of the host-pathogen interaction is unclear, revealing of which will shed lights to improve current crops resistance to pathogen, so as to boost the yield. (source: NSFC)



Revealed: Complete Genome and Genomic Architecture Changes of Andrias davidianus Ranavirus (ADRV)

The Chinese giant salamander Andrias davidianus, is a rarely endangered species and the largest amphibian in the world. It is endemic to China, and was enlisted as a class II protected species. Iridoviruses are important pathogens of the aquatic organisms including fish, amphibians and reptiles, and have been prevalent around the world. There is evidence to suggest that iridoviruses have contributed to the disappearance or decline of wild amphibian species including frog and salamander. Identification and genomic characterization of the

iridovirus pathogens is a critical first step in developing strategies to control outbreaks of the disease. Prof. ZHANG Qiya, Prof. GUI Jianfang (Institute of hydrobiology, Chinese Academy of Sciences) and Prof. HONG Yijiang (Nanchang University) recently started a cooperation of studying viral pathogen in Chinese giant salamanders. Based on the isolation and identification of a novel ranavirus (Andrias davidianus ranavirus, ADRV) from diseased Chinese giant salamanders that exhibited systemic hemorrhage and swelling syndrome, they determined and molecularly characterized its complete genome, and analyzed the significant genome changes between the virus and other ranaviruses. (source: CAS)

Chinese scientists sequence genome of kelp, seafood species

Chinese scientists have completed genome sequencing of saccharina japonica, whiteleg shrimp and Yesso scallop, opening possibilities for boosting quality and yield of the three species commonly harvested as seafood. Scientists from the Ocean University of China and Sun Yat-sen University announced the discoveries on Wednesday at a conference in the eastern city of Qingdao in Shandong Province. The genome of saccharina japonica, a type of kelp, is estimated to contain 35,725 genes which are larger than the genes of other eukaryotic algae, while Yesso scallop is estimated to have 29,650 genes in its genome, according to scientists. Chinese scientists have previously mapped the genomes of four marine creatures, including oysters, large yellow croaker, grouper and tongue sole, which are widely cultivated in China for food or industrial use. Saccharina japonica has medicinal effects and can be used to develop new drugs. It also contains seaweed glue and carrageenan, which are used in industries like dyeing and textiles, said Liu Tao with the Ocean University of China. (source: Global Times)

Genome sequence of extinct dolphin published

Chinese scientists on Wednesday published the genome sequence of the Yangtze River dolphin, an iconic freshwater mammal of China driven to extinction by human activity. A paper published in online scientific journal Nature Communications describes the study by Yang Guang at Nanjing Normal University and his colleagues, who sequenced the genome of a male dolphin and resequenced three additional genomes. A genome is the genetic material contained within an organism. "Studying the genome sequence of the Yangtze River dolphin is important to understanding the cetaceans' evolution and adaptation to aquatic life, and the reasons behind the dolphin's extinction," Yang said. Nicknamed the "Goddess of the Yangtze," the dolphin otherwise known as "baiji" is one of the four known river dolphin species in the world. It was declared extinct in 2006, which means the population is too small for species' reproduction. (source: China Daily)

* * *

Information & communication technologies

Govt draws up blueprint for e-commerce development

China will further boost the development of e-commerce, aiming to bring online retail sales up to 10 percent of the country's total retail sales by 2015, according to guidelines released by the Ministry of Commerce on Thursday. Total e-commerce transactions in China, including retail sales, are expected to exceed 18 trillion yuan ($2.95 trillion) by 2015. By that year, exports and imports via e-commerce could amount to at least 10 percent of China's total trade, the ministry has forecast. E-commerce has proven itself to be a new powerhouse for the nation's economic growth. According to the Hangzhou-based China e-Business Research Center, online retail transactions accounted for 6.8 percent of all retail sales, reaching 754.2 billion yuan in the first half of this year. (source: China Daily)

Commercial 4G to start December 18

China will start commercial 4G mobile communications services on December 18, bringing the most advanced telecommunications technology to the country's more than 1 billion mobile users. China Mobile, the country's No. 1 mobile operator with over 700 million users, will start 4G services on that date with a new brand He, meaning harmonious in the Chinese language. China is expected to issue licences for 4G before the telco's new services start. "It will be a national event and users are allowed to apply for 4G services without changing numbers," said a Shanghai Mobile official. Users in Beijing, Guangzhou and Chongqing will be the first to enjoy commercial 4G, or fourth generation, services. Shanghai, which is still building a citywide 4G network, will launch the services later. (source: China.org)

China, ASEAN ink MoU to boost ICT cooperation

China and the Association of Southeast Asian Nations (ASEAN) signed a memorandum of understanding on Friday to boost cooperation in telecommunications and information technology. It was signed at the close of the 13th ASEAN Telecommunications and IT Ministers Meeting and related meetings in Singapore by China's Industry and Information Technology Minister Miao Wei and Singapore's Minister for Communications and Information Yaacob Ibrahim who represents the ASEAN. Under the MoU, the two parties will work together on areas such as promoting industry, human resource and infrastructure development, as well as cooperation in new technologies and information exchange. (source: **Global Times**)

Tianhe-2 retains title as world's fastest supercomputer

China's Tianhe-2, a supercomputer capable of operating as fast as 33.86 petaflops per second (Pflop/s), remains the world's most powerful system,

according to a biannual Top500 list of supercomputers released Monday. Tianhe-2, developed by China's National University of Defense Technology, put China back at the top of the list in June. It is almost twice as fast as the next computer on the list, Titan of the U.S. Department of Energy (DOE), which has a performance of 17.59 Pflop/s. "The Tianhe-2 is a very powerful computing system," Jack Dongarra, professor of the University of Tennessee and Top500 editor, told Xinhua. "It has almost two times the performance of the number 2 system, Titan. I wouldn't be surprised if it was in the number 1 position for another year." Except for its computing chips, Tianhe-2 uses technologies that have almost all been developed and built in China, including the interconnect system, operating system, front-end processors and software. (source: China Daily)

China sets up cloud computing industry alliance

A cloud computing industry alliance was set up Wednesday in Beijing to promote the development and innovation of information technology. The alliance, China's first of its kind, was jointly established by Tsinghua University, Peking University and the Center for International Economic and Technological Cooperation under the Ministry of Industry and Information Technology. The alliance aims to introduce advanced ideas, technologies and experience of cloud computing from overseas in order to boost the industry in China, said an alliance statement. It will also boost domestic and international cooperation of cloud computing by integrating resources from government, enterprises, universities, research institutes and capital market, it said. (source: China Daily)

Huawei has eye on 5G

Chinese telecom equipment vendor Huawei Technologies Co Ltd announced on Wednesday that it will invest at least $600 million in research and development of fifth-generation mobile technology by 2018. Huawei began investing in 5G in 2009. So far, it's participated in the European Union's 5G research projects, helped establish the 5G Innovation Center in Britain and participated in joint research programs with more than 20 universities around the world.In 2012, Huawei invested $4.8 billion in R&D, accounting for 13.7 percent of its annual sales. The company's R&D investment surpassed 130 billion yuan ($21.3 billion) over the past 10 years. (Source: China Daily)

Three-Dimensional Sound Propagation and Scattering in Two-Dimensional

Over the past several decades, a large number of numerical models have been developed for underwater acoustic propagation. Most of these models provide solutions for two-dimensional (2D) problems, and they provide satisfactory solutions for the majority of propagation problems where the environmental dependence on azimuth is insignicant. However, acoustic propagation and scattering in the ocean usually involves fully three-dimensional (3D) effects. The

full solution of general 3D propagation and scattering is very intensive computationally. Various 3D methods have been developed, and some of those can provide approximate solutions for 3D problems. Recently, a coupled-mode method with the use of the direct global matrix (DGM) approach was proposed by researchers from the Institute of Acoustics, Chinese Academy of Sciences (IACAS), hereafter referred to as the DGMCM model. The DGMCM model can accurately and efficiently model propagation and scattering in very complicated waveguides, but it is restricted to 2D problems. As a result, another group of researchers from IACAS extend the DGMCM model to 3D acoustic propagation and scattering in 2D waveguides. This method synthesizes the 3D field solution by using Fourier transform techniques. And the techniques are based on a sequence of 2D problems, each of which is solved by a numerical model developed by DGMCM. Numerical results indicate that the present model is remarkably accurate, and thus it can serve as benchmark against other numerical models. (source: CAS)

9th IEEE International Conference on e-Science Held in Beijing

The 9th IEEE International Conference on e-Science was held in Beijing on Oct. 22-25, which is the first time that the conference was held in China. The IEEE e-Science conference was designed to bring together leading international and interdisciplinary research communities, developers, and users of e-Science applications and enabling IT technologies. The conference serves as a forum to present the results of the latest research and product/tool developments and to highlight related activities from around the world. Hosted by the Computer Network Information Center, Chinese Academy of Sciences (CNIC), the conference attracted more than 300 scientists and students from about 16 countries or regions. Five workshops and 3 tutorials were held during the conference. More than 70 oral progress and special reports were arranged. The conference focused on the following themes: arts, humanities and e-social science, bioinformatics and health, physical sciences and engineering, climate & earth sciences, data management and digital repositories, research tools, workflow and systems, novel infrastructure, education and e-science practice. During the conference, the best Student Paper Award was awarded to Ph.D candidate WANG Yuwei from the University of Chinese Academy of Sciences, and the Student Innovation Award to Ph.D candidate YANG Ruan. (source: CAS)

ZTE invested $1.4b in R&D this year

Chinese telecom equipment and smartphone maker ZTE Corp said on Wednesday that it had invested $1.4 billion in research and development this year. In a press release sent to China Daily, ZTE said it spends 10 percent of its sales every year on R&D and has invested a total of 30 billion yuan ($4.92 billion) on R&D over the past four years. In 2012, when ZTE experienced a business setback and posted a 2.8 billion yuan loss in net profit, the company

still upped its R&D spending. Currently, ZTE has applied for more than 50,000 patents globally and has been granted 14,000 patents. (source: China Daily)

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Nanosciences, nanotechnologies, materials & new production technologies

Fabrication of Metal-organic Frameworks Membrane

The recently developed metal-organic frameworks (MOFs) are emerged as a new kind of porous crystalline materials with uniform pore structure. This fascinating class of hybrid materials, which are formed by association of organic metal centers and organic linker(s) by covalent bonds or ionic bonds, offer wide applications in gas adsorption and storage, molecular separation, catalysis, photoelectricity and sensor. Due to their good adsorption affinities, high specific surface area, exceptional thermal and chemical stability, the synthesis and application of MOF membranes have attracted intense interest, and recently become a hot topic in gas-separation membranes. However, it is still rather challenged to develop MOF membranes with high gas separation performances since the heterogeneous nucleation and growth of MOF crystals on porous supports surface is very poor. Recently, inspired by the bio-adhesive ability of the marine mussel, a research group led by Professor Aisheng Huang from Ningbo Institute of Materials Technology & Engineering of Chinese Academy Of Sciences, has developed a simple, versatile and powerful synthesis strategy to prepare highly permselective ZIF-8 molecular sieve membranes based on a polydopamine reaction platform. This highly permselective and hydrothermally stable ZIF-8 membranes are of promising for hydrogen purification and separation. (source: CAS)

Nano garnet powders with high sinter-ability synthesized by ultrasonic-assisted chemical co-precipitation method

It is widely recognized that the quality of the sintered ceramics highly depends on the characteristics of the precursor powder. In order to obtain GAGG ceramics with good properties, the initial powder with good cation dispersion and high reactivity is required. There are mainly two methods for synthesizing garnet powders which are solid-state reaction and chemical co-precipitation methods. In general, it is difficult to make all the compositions uniformly mixed when using the former method, while the chemical co-precipitation method can produce powders with elements uniformly mixed at atomic level. However, nano powders synthesized with this method are always easy to agglomerate because of their small particle size. In order to improve their dispersibility, surface dispersants are usually introduced which would cause scattering centers in ceramics and further reduce their optical transmittance. The optoelectronic functional materials and devices group led by Professor JIANG Jun introduced

the ultrasonic waves during the process of chemical co-precipitation, powders with homogenous size and much higher surface area have be fabricated. The transmission of ultrasonic waves in a liquid phase accompanies the acoustic cavitation effect, which may generate transient high temperatures and shear-rate accompanied by bubble collapse. This specific condition is beneficial for deagglomerating of precipitates and the synthesis of ultra-fine powders. The results turned out that the specific surface area of powders fabricated with the ultrasonic-assisted co-precipitation method is almost twice as that synthesized with usual co-precipitation method, and ceramics prepared with the former powders have higher density than that prepared with the latter ones at the same sintering temperature. (source: CAS)

Critical Phase Transition Leading a New Route into Ultrahigh Thermoelectrics

Solid-state thermoelectric technology uses electrons or holes as the working fluid for heat pumping and power generation. There are huge opportunities of adopting the technology in harvesting solar heat and conversing waste industrial heat into electricity, and pumping out operational heat in solid-state electronics. Electronic industry focuses specially on the potential to rapidly cool microprocessors and sensors by the technology within a relatively narrow temperature range around or slightly above room temperature. Scientists from Shanghai Institute of Ceramics, Chinese Academy of Sciences, in collaboration with scientists from University of Science and Technology of China, Shanghai Institute of Applied Physics, and the University of Michigan, have developed a new route to realize ultrahigh thermoelectric performance by using the critical electrical and thermal transports during a continuous 2nd-order phase transition. In the material described in a paper published in *Advanced Materials*, the critical electron and phonon scattering provides a unprecedented example for the subtle tuning of thermoelectric transports, leading to a significantly improved performance. The research potentially offers a cutting-edge opportunity of studying abnormal thermoelectric transports relevant to continuous phase transition, an innovative strategy for developing high-efficiency thermoelectric materials, and a new way of applications especially for electronic heat pumping. (source: CAS)

Quantum Anomalous Hall Effect and Tunable Topological States in 3d Transition Metals Doped Silicene

Recently, a research group led by Prof. LIU Wuming in the Institute of Physics, Chinese Academy of Sciences made progress on quantum anomalous Hall effect (QAHE) and tunable topological states in 3d transition metals doped silicene. They demonstrate that silicene decorated with certain 3d transition metals (Vanadium) can sustain a stable quantum anomalous Hall effect using both analytical model and first-principles Wannier interpolation. They also predict the quantum valley Hall effect (QVHE) and electrically tunable

topological states could be realized in certain transition metal doped silicene where the energy band inversion occurs. (source: CAS)

US, Chinese scientists' discovery may help find new superconductors

A group of US and Chinese scientists have made a new discovery on iron-based compounds, which may help find new superconductors that can be used in power generation, transportation and other fields, Rice University said Monday. The university, based in Houston, the US state of Texas, made the announcement in a published statement Monday, saying that the effort to create practical superconductors has moved a step forward with the finding, which appeared online in a new Nature Communications paper. A team led by Rice physicist Qimiao Si found two distinctly different iron-based compounds share common mechanisms for moving electrons. Understanding that mechanism may help researchers find even better superconductors, Si said. The work by Si and his team showed how the interactions between electron spins in the iron-based compounds drive superconductivity. This interaction is the strongest when the electronic system is close to the Mott transition, which Si described as the point where electrons teeter on the edge of free movement or being stuck in place. (source: Global Times)

China captures first image of hydrogen bonds

Chinese scientists have visualized hydrogen bonds through modified non-contact atomic force microscopy (AFM) for the first time in history, the National Center for Nanoscience and Technology (NCNST) said Friday. Hydrogen bonds are fundamental to the most important molecules in nature. They are responsible for holding the two strands of DNA's double helix together and many enzymes use them to catalyze reactions. Although study of hydrogen bonds began in the 1850's, scientists had not been able to visualize them until now. A group of scientists with the NCNST has modified equipment for five years to create the top non-contact AFM in the field, which has allowed scientists to accurately analyze the structure of hydrogen bonds and directly measure the bond angle and length. (source: China Daily)

China invents low-cost welding robot

Chinese scientists announced that they had invented a low-cost welding robot, which can help improve welding efficiency for small factories. The Hefei Institute of Physical Science under the Chinese Academy of Sciences took six months to develop the robot, which costs a quarter of existing models in the world. It is expected to weld metal structural parts and works for non-standard welding projects, said Dr. Li Tao, director of the project. According to Li, the robot adopts Selective Compliance Assembly Robot Arm (SCARA) technology, which allows it to move more easily, respond more quickly and improve the accuracy of positioning. It is also designed to remember working paths and repeat the same operation automatically. (Source: Xinhua)

High-performance Bio-based Epoxy Resins from Itaconic Acid

Due to the increasing concern about the depletion of fossil reserves and greenhouse gas emission, a large quality of natural polymers and bio-based thermoplastics, such as starch, cellulose, polylactic acid (PLA) and polyhydroxyalkanoates (PHA) as well as the polyethylene derived from sugar cane have been developed as the ideal products to replace the petroleum-based polymeric materials. However, compared with the rapid progress on bio-based thermoplastics, the research on bio-based thermosetting resins, especially bio-based epoxy resins, has been overlooked. Nowadays, almost 90% of the world production of epoxy resins is diglycidyl ether of bisphenol A (DGEBA) . However, Bisphenol A from fossil resources and toxic to organism has been banned in areas directly contacting with body by many countries. Thus, synthesis of bisphenol A-free epoxy resins from bio-derived chemicals is of great significance. Recently, a research group on bio-based polymer led by Prof. ZHU Jin at the Ningbo Institute of Materials Technology and Engineering, the Chinese Academy of Sciences (NIMTE)synthesized a double bond containing itaconic acid based epoxy resin (EIA). This epoxy resin showed low viscosity, high epoxy value (>0.62), as well as simple synthesis process and low cost. Compared with DGEBA, this epoxy resin exhibited comparable or better properties after curing with the same curing agent, and its properties could be further regulated due to the double bond. (source: CAS)

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Environment (including climate change)

Tibet's Salt Lake Resource Investigation Concludes

From October, 11th to November, 8th, eight scientists from the Chinese Academy of Sciences have successfully finished the assignments named "China's salt lake resource dynamics investigation". Targeting at China's salt lakes larger than one square kilometers, the assignment, through outdoor investigation, spot observation and remote monitoring, maps the number, area and distribution of salt lakes and assesses the salt lake reserves, resource density, resource matching, salt lake-related industrial development, miscellaneous resource self-supply, mineral deposit, transport condition, resource consumption, etc. It is aimed to provide basic data for various researches in climate, environment and salt accumulation in the future. The investigation in Qinghai Province had completed in 2012 and that in Tibet Autonomous Region began in October, 2013. Head by the leading scientist Ma Haizhou, wading across 12,000 kilometers, the team has carried out a thorough investigation and finished the sampling for the following laboratory analysis. (China Tibet Online) (source: CAS)

China's largest desert freshwater lake shrinking

Hongjiannao Lake, China's largest desert freshwater lake, has been shrinking sharply over the past 13 years, warned local meteorological authorities on Thursday. The lake, sandwiched between the Muus Desert in Shaanxi Province and the Erdos Plateau in Inner Mongolia Autonomous Region, has shrunk by about one-third since the year 2000, according to latest statistics from the remote sensing information center for agriculture under the Shaanxi Provincial Meteorological Bureau. Experts said human activities including reservoir construction, mining and agricultural irrigation are the main causes for the sad phenomenon. (source: People)

Consequences of Afforestation for Soil Nitrogen Dynamics Quantified in Central China

Soil nitrogen (N) accounts for approximately 88% of the global plant N demand and has an impact on net primary productivity and soil respiration in terrestrial ecosystems. Any change in soil N availability can greatly affect plant growth and productivity and, thus, impact ecosystem functions. The effects of afforestation are of great importance for terrestrial nitrogen (N) cycling. However, the consequences of afforestation for soil nitrogen (N) dynamics remain poorly quantified. LI Ming, supervised by Professor CHEN Xiaoli from Key Laboratory of Aquatic Botany and Watershed Ecology, Wuhan Botanical Garden investigated soil net N mineralization and nitrification rates as well as the inorganic N (NH_4^+-N and NO_3^--N) concentration in the top soil (0-10 cm) in a woodland, shrubland and adjacent cropland in the Danjiangkou Resewoir region of central China using the in situ closed-top tube incubation technique over one year. (source: CAS)

Salt-affected soils can absorb carbon dioxide: scientists

Global saline-alkali soils are estimated to absorb 1.26 billion tonnes of carbon dioxide annually, which may answer the mystery of the "missing carbon sink," Chinese scientists revealed Wednesday. Scientists usually estimate how much carbon dioxide should be in the atmosphere by calculating how much fossil fuel is burned. But some 1.9 billion tonnes of carbon dioxide is unaccounted for each year. A team of 58 researchers and scientists from China, Germany and Belgium conducted a five-year research project on arid land in the inland of Asia and Europe to account for the "missing carbon sink." The team was led by the Xinjiang Institute of Ecology and Geography under the Chinese Academy of Sciences. It showed that salt-affected soils, known as saline-alkali soils, can soak up carbon inorganically and the carbon can be stored in underground saline aquifers, the scientists said. They calculated that the aquifers contain a huge active pool of carbon which could reach 1,000 billion tonnes. The research is significant in addressing climate change as the increase of the pool could mean more room for carbon emissions from industry, the scientists said. (source: Global Times)

China to participate in new global climate pact: official

China will participate in a legally-binding global climate treaty for the post-2020 period if consensus can be reached among all parties, a Chinese official said Monday. "If the international community manages to agree on a legally-binding treaty, China will certainly be on board," Su Wei, deputy chief of the Chinese delegation, told Xinhua on the sidelines of the annual United Nations climate change conference, which kicked off here Monday. "The ultimate goal is to properly deal with climate change through concerted efforts of all parties," said Su, who is also the director of the climate change department of China's National Development and Reform Commission, calling for exchanges and understanding from all parties for a final agreement. The two-week negotiation aims to lay the groundwork for a new global climate pact that sets post-2020 targets on emission cuts to make sure that it can be signed in 2015 and take effect in 2020 as scheduled. The new pact is set to replace the Kyoto Protocol, the first global document with legally-binding targets for developed nations whose second commitment period will end in 2020. Both developed and developing nations have pledged to curb carbon emissions and cope with global warming. The UN determines that developed countries should be held accountable for the accumulated high levels of greenhouse gas emissions since the industrial era. (source: Xinhua net)

Investment to boost China's climate-smart growth

China has embarked on a climate-friendly growth path and increased finance will help boost the market, global climate change authorities said on Monday in Beijing. China is expected to reveal long-term policies and raise social awareness on climate change, Mark Kenber, Climate Group CEO, said at the launch ceremony of the China Climate Finance Research Project. The project is jointly set up by the Climate Group, China's National Center for Climate Change Strategy and International Cooperation, and China Clean Development Mechanism Fund. "Investment in climate change is good business. China is already grasping the chance," Kenber said. The project aims to help make the allocation of capital more efficient by providing updated research using innovative policy tools. (source: China Daily)

Environmental watchdog punishes assessment agencies

China's environmental watchdog has penalized 34 environmental impact assessment agencies for "falsifying documents" or "poor quality" of assessment reports. Licenses of eight agencies have been revoked for "obtaining qualifications by deception" or provide assessments beyond their scope of evaluation, the Ministry of Environmental Protection announced on Wednesday. The eight agencies, including the Qingdao University, have been fined for their misconduct, the ministry said without specifying the sum. A further 24 agencies have been given three to 12 months to rectify their practices which included

falsifying documents; poor quality of assessment reports and failure to undertake assessment tasks as required. They have been banned from offering environmental impact assessment during the rectification period. Among the transgressors were Peking and Tongji Universities. (Source: Xinhua)

Several cities to trial busting smog with wind corridors

Several Chinese cities will conduct research on building wind corridors to improve natural ventilation and air convection systems in an attempt to better fight punishing smog. The cities of Hangzhou in Zhejiang Province and Nanjing in Jiangsu Province are looking to construct wind corridors by widening roads and increasing vegetation cover while reducing the density of concrete structures that tend to come in the way of natural wind passages over urban spaces. Successful examples of similar projects are seen in cities and municipalities including Wuhan and Shanghai. In a recent circular, the Ministry of Environmental Protection, asked 31 provincial regions to sign a liability agreement to control air pollution by the end of November with the central heating system expected to be switched on soon. (Source: Global Times)

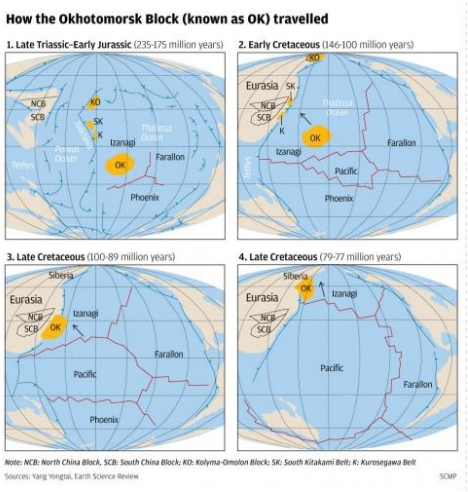
Report highlights smog effects

Smog brings notable negative effects to the climate, environment, health and economy, according to a new report calling for greater attention to the problem and effective measures to control it. Citing historical data analysis, the Annual Report on Actions to Address Climate Change 2013, which was released Monday by the Chinese Academy of Social Sciences, said that China has seen smog with increasing frequency and duration over the past 50 years. According to the report, more frequent smoggy weather is likely to induce extreme climate incidents, hinder air, water and land traffic due to low visibility, affect lung functions and the human immune system, and lead to more deaths and severe chronic diseases. Pollutants in smog also proved to have effects on human reproductive system. (Source: China Daily)

China releases captive-bred panda to the wild

China released the first artificially bred and trained female giant panda into the bamboo groves of Southwest China's Sichuan province on Wednesday, marking a new phase in panda protection. Experts believe there is a good chance that Zhang Xiang, released in Liziping nature reserve in Ya'an city of Sichuan province, will breed. According to Zhang Xiwu, head of wild animal and nature protection at the National Forestry Administration, China has set up 64 nature reserves for the protection of giant pandas, covering 60 percent of their natural habitats and 70 percent of the wild individuals. China sent a male panda "Taotao" back to nature in October 2012. (Source: China Daily)

How Asia's Lost Continent Shaped Ancient China



Giant plate, known as 'OK', threw up coastal mountain range that created huge inland deserts, then sank into Pacific Ocean, study suggests. An ancient continent collided with East Asia and then, like the legendary island of Atlantis, disappeared into the ocean, according to a Chinese scientist. The collision created a mountain range up to 500 kilometres wide and more than 4,000 metres high along what is now coastal southern and eastern China. It also dramatically reshaped the landscape of Taiwan and other East Asian regions such as Japan. But the continent was probably not Atlantis - the event happened about 100 million years ago, when dinosaurs still walked on the planet. Writing in a leading earth sciences journal, Professor YANG Yongtai said the lost continent now lies below the Sea of Okhotsk in northeast Asia. It is known as the Okhotomorsk continental block, or simply "OK" to geologists. (source: CAS)

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Energy

Sodium Silicate Useful in Biodiesel Production and Glycerol Utilization

Previous studies showed that sodium silicate was highly-active and recyclable with little deactivation as a heterogeneous catalyst in converting vegetable oils to biodiesel. Recently, microwave irradiation was used in the transesterification of vegetable oils to biodiesel, because of its high product selectivity, significant energy-saving and drastic reaction acceleration as compared with conventional heating systems. The Biomass Group of Xishuangbanna Tropical Botanical Garden (XTBG) conducted a study to examine the effect of sodium silicate on the transesterification of rapeseed oil and non-edible *Jatropha* oil under microwave irradiation conditions. Reaction process was examined and the catalyst was recycled to test its reusability. In order to make full use of the deactivated sodium silicate from biodiesel production, another objective of their work was to study hydrogen generation from glycerol in subcritical water with the reused sodium silicate and Ni catalyst. In addition, the effects of combination of Ni catalyst and sodium silicate on hydrogen production were also examined. Their study found that biodiesel yield of 95.8% was achieved from rapeseed oil at 400 W in 5 min. Biodiesel yield of 92.8% was achieved from *Jatropha* oil at 400 W in 5 min. The fourth cycled catalyst was utilized to gasify by-product glycerol at 350 °C. H_2 yield of 82.8% (purity 73.6%) was achieved with the used and Ni catalysts. Therefore, microwave-assisted transesterification of vegetable oil with sodium silicate was an effective and economical method for the rapid production of biodiesel. (source: CAS)

China on track to hit eco-targets early

China may achieve its 2020 target of energy efficiency ahead of schedule and will make even more ambitious proposals to realize low-carbon development for the years after 2020, senior climate advisers have said. They said China's non-binding plans to improve energy efficiency and reduce carbon intensity in its economic output have mainly resulted from pressing domestic pressure to transform its extensive development patterns. "China's leadership has already sensed the urgency to do so," Du Xiangwan, chair of the National Expert Committee on Climate Change, said at a news conference during the weekend before the Warsaw conference on climate change begins its second week. (source: People)

Renewable energy set to steam ahead

China will see the biggest absolute increase in power generation from renewable energy in the next 20 years, more than the increase in the European Union, the United States and Japan combined as the country faces a serious battle against pollution, the International Energy Agency said. China will be the strongest driver in the global trend where renewable energy will account for nearly half of the increase in global power generation by 2035, with variable sources, notably wind and solar photovoltaics making up 45 percent of the expansion, the Paris-based energy agency said in its annual World Energy Outlook report released on Tuesday. The increase in power generation from renewable energy will then take a share above 30 percent in the global power mixture, drawing ahead of natural gas in the next few years and reaching the same level as coal as the leading fuel for power generation in 2035, according to the report. "The good news for China playing an active role in developing renewable energy is that it will help decarbonize the global energy system," said Fatih Birol, the IEA's chief economist, in an interview with China Daily. (source: China Daily)

Wind turbine generator installed in China's high-altitude region

The first China-made wind turbine generator has been installed in a wind farm in Inner Mongolia Autonomous Region to capture high altitude wind energy, company officials said Tuesday. The producer, Shanxi-based Taiyuan Heavy Machinery Group Co., Ltd., said that the 5,000-kilowatt wind turbine was installed and put into use last week at a wind farm located more than 2,100 meters above sea level. Cao Keshun, spokesman for the company, said that the generator, which weighs 805 tonnes, can be used both on land and sea for wind power generation. Its annual output is enough to supply electricity for 10,000 households per year. The Chinese government strongly supports development of the wind power industry. The country's wind power installed capacity is expected to top 75 million kilowatts with electricity output reaching 140 billion kilowatt-hours by the end of 2013, said Wang Jun, head of the New Energy Bureau of the National Energy Administration, last month. (source: Global Times)

China's failing solar panel makers see the light, on a farm

China's loss-making solar panel makers believe they may have found a way out of their nightmare - by becoming one-stop renewable energy shops with their own solar farms. Manufacturers of solar panels, hit hard by the scaling back of solar-power subsidies in Europe, are taking advantage of a new package of government subsidies at home and diversifying into solar-power generation. As solar panel prices tumbled following the 2008 global financial crisis, many Chinese wafer, cell or modules makers, like GCL Poly, Canadian Solar and Hareon ventured into solar power generation projects at home or abroad to offset manufacturing losses. Overseas rivals such as SunPower and First Solar Inc, have also diversified into the higher-margin business as solar panel prices remain weak. (Source: Reuters)

China's first coal-to-gas project ready

The first phase of a coal gasification project in north China is complete and will start to supply gas to Beijing at the end of this year. The first phase is ready for production after successful tests, said Li Zhichun, director of the recycling industrial park in Hexigten Qi, Chifeng city in Inner Mongolia autonomous region, where the project is located. The remaining 100-km section of the 429 km transmission pipeline from Chifeng city to Miyun county in Beijing is under construction, Li told Xinhua on Thursday. The first phase can producing 1.33 billion cubic meters of gas each year. The Datang International Power project has three phases with a total capacity of 4 billion cubic meters annually. The second phase is under construction and work on the other two phases will get underway next year. The project began in August 2009, with an estimated investment of 25.7 billion yuan ($4.2 billion). (source: China Daily)

United Kingdom to allow Chinese companies to purchase stakes in latest $25.9b reactor project

The United Kingdom recently signed a $25.9 billion deal to build a new nuclear power plant at Hinkley Point in the southwestern part of England. The UK is allowing Chinese companies to buy stakes in the project — China General Nuclear Corp and China National Nuclear Corp will put up a reported 30 percent to 40 percent of the cost, and the French government-owned Electricite de France SA will hold a 45 percent to 50 percent stake. China, which has 17 reactors, plans to build dozens of nuclear reactors and, following a slowdown after Fukushima, is picking up its pace again. Now with its foot in the door for the UK's energy future, China could play an even more significant role there. (Source: China Daily)

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Transport (including aeronautics)

28 Chinese cities, regions to promote green cars

Twenty-eight Chinese cities and city clusters that will promote the use of new energy vehicles were announced on Tuesday. Government subsidies will be provided for users and manufacturers from 2013 to 2015. The list includes Beijing, Tianjin, Taiyuan, Jincheng, Dalian, Shanghai, Ningbo, Hefei, Wuhu, Qingdao, Zhengzhou, Xinxiang, Wuhan, Xiangyang, Guangzhou, Shenzhen, Haikou, Chengdu, Chongqing, Kunming, Xi'an and Lanzhou, as well as the three-city region of Changsha, Zhuzhou and Xiangtan in Hunan Province. It also consists of city clusters each comprising four to 10 cities in five provinces -- Hebei, Zhejiang, Fujian, Jiangxi and Guangdong. The decision on the 28 cities and city clusters was reached after a group of researchers examined and reviewed application plans on how to promote new-energy, which had been submitted by local or regional governments from across the country, according to a joint ministerial statement. The statement was issued by the Ministry of Finance, the Ministry of Science and Technology, the Ministry of Industry and Information Technology and the National Development and Reform Commission. (source: Global Times)

China to help Romania high-speed rail

China Premier Li Keqiang and his Romania counterpart Victor Ponta agreed on Monday that their two countries would cooperate in building high-speed railways in Romania. After their talks, the two leaders also witnessed the signing of series of cooperation agreements, covering such fields as trade, investment and telecommunication, as well as electricity generation, the Xinhua News Agency reported. (source: Global Times)

Chinese aircraft company opens first subsidiary overseas

The Commercial Aircraft Corporation of China (COMAC) on Saturday opened its first wholly-owned overseas subsidiary in the city of Newport Beach, South California in the United States. The COMAC America Corporation aims to further COMAC's relationship with local civil aviation authorities, aerospace companies and academic institutions, mainly in areas such as airworthiness certification, civil aircraft development and educational training, said Jin Zhuanglong, chairman of the COMAC. (source: Xinhua net)

China conducts test flight of stealth drone

A Chinese stealth unmanned combat aerial vehicle had its maiden flight on Thursday, photos taken by military fans revealed. The successful flight shows the nation has again narrowed the air-power disparity between itself and Western nations. The Sharp Sword conducted its first flight in a test-flight center in Southwest China at around 1 pm, fans said on cjdby.net, China's most

popular military website, adding that the test lasted nearly 20 minutes. (source: China Daily)

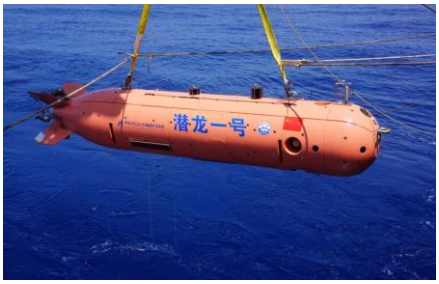
New high-speed railway link to open in N China

A new high-speed railway link that connects the cities including Tianjin and Qinhuangdao in north China will be put into operation on Dec. 1, railway authorities said on Sunday. The link, with a total length of 287 km, is designed with a maximum speed of 350 km per hour and set with nine stops. The maximum speed will be set at 300 km per hour during the link's initial stage in operation, according to the country's railway authorities. Travel time between the departure stop of Tianjin West and the terminal stop of Qinhuangdao is expected to be reduced to one hour and 11 minutes from almost 2.5 hours previously. Construction of the link started on Nov. 8, 2008 and running tests began in early November this year. (source: People)

Tsinghua, Cambridge, Massachusetts launch joint transportation research center

A transportation research center was jointly launched by China's Tsinghua University, Britain's University of Cambridge and the US Massachusetts Institute of Technology on Tuesday in Beijing.
The Future Transportation Research Center was unveiled at a ceremony in Tsinghua University. It was established under the framework of the "Low Carbon Energy University Alliance" that was founded in 2009 by the three educational organizations. The center will focus on future transportation studies, which include smart, green, low carbon and ecological transportation, said Wu Jianping, director of the center. The center will establish a world-class academic exchange platform where leading experts in the world can carry out short-term research and give lectures, he said. (Source: Global Times)

The 6000 AUV Qianlong-1 Finished First Scientific Expedition and Back Home



The unmanned autonomous underwater vehicle (AUV) *Qianlong-1* went home after completing its first experimental application in the Eastern Pacific Ocean on November 6th 2013. Co-developed by Shenyang Institute of Automation of the Chinese Academy of Sciences (SIA), Institute of Acoustics of CAS and Harbin Engineering University, etc, *Qianlong-1* can travel to a depth of 6,000 meters, and is tasked to explore the sea bed and collect hydrological data. The vehicle is on a trial run and marks the first time a Chinese AUV has been used for a scientific expedition. The experimental application results demonstrate that, researchers have made breakthroughs in key technological issues such as overall integrated technology, deep-sea navigation and position monitoring and control technology, intelligent control technology, deep-sea detection technology, multi-acoustic equipment coordination technology, as well as deployment and retrieval technology, etc. (Source: CAS)

Tesla electric cars will hit China's roads around February

Tesla Model S electric sports cars will be shipped from the assembly line to China's shores in January and be sold shortly thereafter according to Elon Musk's statements in the American manufacturer's Q3 conference call. Musk said all regulatory issues have been resolved. Previously Beijing's license plate lottery, which limits the number of new cars allowed on the road, imposed an obstacle. The policy will now set aside 15 percent of the license plate quota for electric cars that can bypass the lottery process. In addition to the vehicles, Tesla also wants to help lay down infrastructure such as service centers and charging stations. Tesla just opened its first dealership in China in Beijing. (Source: TechInAsia)

Italian Aerospace Network set for China take-off

The Italian Aerospace Network announced it was set for take-off in China as it prepares to offer training, material support and spare parts to the aviation industry. The network is mostly comprised of medium to small-sized enterprises. Established in August, it has eight members with annual turnover of 250 million euros ($338 million). The network focuses on spare parts, maintenance and material support. Tian Baohua, a member of the Policy Consultation Committee at the Ministry of Transport, said it is the right time for Italian SMEs in the aerospace sector to enter China. "China's cargo aviation has been surging by 15 percent in the last few years, but general aviation has been stagnating for many years due to restrictions on low-altitude airspace," he said, "but the government is sending out positive signs of gradually opening up flight space." (Source: China Daily)

Chinese high-speed trains venture overseas

Parallel to the development of domestic high-speed rail, the Chinese government and rail enterprises are actively seeking customers overseas. In a meeting with a trade ministers from the Association of South East Asian Nations (ASEAN) last week, Premier Li Keqiang thanked them for traveling by high-speed train from south China to Beijing, calling it a real "roadshow" for Chinese high-speed trains. Thailand, an ASEAN member, plans a high-speed rail network in the next seven years to satisfy its business and tourism demands. Not only Thailand, countries including the United States, Russia, Malaysia, Singapore, Brazil and Turkey are mooting their own high-speed rail projects. The Australian government has completed a feasibility study into a proposed high-speed rail route along its east coast. With the world's longest operational line for bullet trains that run at more than 200 km per hour, China wants to take part in projects overseas. "China's high-speed railway is advanced in technology, safe and reliable, and has a cost advantage," Premier Li told Australian Governor-General Quentin Bryce in a meeting in Beijing in mid-October. (source: China Daily)

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Socioeconomic sciences & the humanities, archaeology & paleontology

Chinese archaeologists uncover 4,000-year-old fortifications

Archaeologists said fortifications of the largest neolithic Chinese city ever discovered were excavated on Wednesday and Thursday in northwest China's Shaanxi Province. The ruins of two square beacon towers, once part of the city wall of the 4,000-year-old Shimao Ruins in Shenmu County, have been uncovered, according to Shaanxi Provincial Institute of Archaeology. One of the towers is 18 meters long, 16 meters wide and four meters tall, while the other is 11.7 meters long, about 10 meters wide and three meters tall, said Su Zhouyong, deputy head of the institute. Sun said the discovery is a breakthrough and contributes greatly to archaeological research on ancient Chinese fortifications. The Shimao Ruins were first found in 1976 in the form of a small town, and archaeological authorities only identified the ruins as part of a much larger city -- the largest of its kind from neolithic time -- last year after measuring the exact size of the ancient stone city. The city was found to have a central area, and inner and outer structures. The walls surrounding the outer city extended over an area of 4.25 square kilometers. (source: People)

China, EU tap market in urbanization partnership

China and European Union (EU) has made another step forward in enhancing their strategic partnership as cities and organizations of the two parties agreed to join hands in tapping China's growing urbanization market. Tianjin, Shenzhen and 10 other Chinese cities have signed partnership agreements with European cities and organizations during the 2013 China-EU Urbanization Partnership Forum held last week in Beijing. "China expects more EU countries and cities as well as enterprises and organizations to establish close and practical partnership with their Chinese counterparts," said Xu Shaoshi, head of the National Development and Reform Commission (NDRC), the country's top economic planner. Xu made the remarks at the forum, which was part of the 2013 EU-China Exhibition on Urban Development held Wednesday to Saturday in Beijing that featured over 200 exhibitors including cities, design consulting firms and infrastructure service providers. (source: China Daily)

Case of Insect Interruptus Yields a Rare Fossil Find

About 165 million years ago, in what is now northeastern China, two insects were doing what comes naturally. Suddenly, in the middle of copulating, they were struck dead, felled by poisonous gas from a volcanic eruption. The well-preserved fossil of these two froghoppers showed belly- to-belly mating position

and depicts the male reproductive organ inserting into the female copulatory structure, the researchers said. Fossils that show behavior of any sort are unusual, and fossils of mating insects even more so. Only 33 examples of copulating insects are known to exist in the entire fossil record, most of them caught in amber. (Source: NY Times, CAS)

Dinosaur footprints found in South China

Scientists confirmed on Tuesday that they have found seven Hadrosaur footprints in South China's Guangdong Province. They were found when Xing Lida, a PhD student with China University of Geosciences, was conducting a field study in the city of Nanxiong in September. Hadrosaurs are known as duck-billed dinosaurs due to the similarity of their heads to that of modern ducks. They lived in the late Cretaceous period, about 70 million to 80 million years ago. Their footprints were mainly found in North America and Mongolia. The latest finding is expected to help with the research on the evolution and migration of Hadrosaurs. (Source: Xinhua)

Bone flutes suggest 9,000 years of music

Three flutes made of bones of red-crowned cranes have been excavated at an ancient tomb in Central China's Henan province, further evidence of remote ancestors playing music long before they could write, archeologists announced on Friday. They believe that the musical instruments, excavated earlier in October from Jiahu, site of a neolithic settlement, although rough and simple, prove that Chinese residents were playing music as far back as 9,000 years ago. The flutes have been dubbed the world's earliest heptatonic musical instruments discovered so far. The narrow brown pipes of around 20 cm in length and 1.1 cm in diameter feature hair-thin patterns carved on their surface. (source: China Daily)

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Space

China to launch Chang'e-3 lunar probe in early Dec

China is scheduled to launch Chang'e-3 lunar probe in early December, a spokesman with State Administration of Science, Technology and Industry for National Defence (SASTIND) said Tuesday. The lunar probe will land on the moon in mid-December if everything is successful, said SASTIND spokesman Wu Zhijian. Chang'e-3, encompassing a lander and a moon rover, will mark the first time for a Chinese spacecraft to soft-land on the surface of an extraterrestrial body. The Chang'e-3 mission is the second phase of China's lunar program, which includes orbiting, landing and returning to Earth. (source: Global Times)

China successfully launches experimental satellite

China successfully launched the Experiment-5 satellite into a preset orbit with the Long March-2D carrier rocket at 10:12 am Monday at the Jiuquan Satellite Launch Center. The satellite will conduct technological experiments and environmental surveys. It is the 185th launch of the Long March series of carrier rocket. (source: China Daily)

China launches remote-sensing satellite

China on Wednesday sent a remote-sensing satellite into scheduled orbit, according to the Taiyuan Satellite Launch Center. The Yaogan XIX satellite was launched at 11:31 am on the back of a Long March 4C carrier rocket from the launch center in North China's Shanxi province, according to a press release from the Taiyuan Satellite Launch Center. The satellite will be used to conduct scientific experiments, carry out land surveys, monitor crop yields and aid in preventing and reducing natural disasters, the center said. The launch marked the 184th mission for the nation's Long March rocket family. (source: China Daily)

China to share satellite system with Thailand

China's homegrown Beidou Navigation Satellite System will begin overseas operations next year in Thailand. The move is the first step in efforts to promote Beidou abroad, with the initial phase expected to focus on the Association of Southeast Asian Nations. Officials with the Wuhan Information Technology Outsourcing Service and Research Center and Thailand's Geo-informatics and Space Technology Development Agency made the announcement in Bangkok on Wednesday. An agreement with an expected value of $319 million inked by the countries in March established a commitment to cooperate on construction of Thailand's geospatial system, giving the country access to China's advanced technology, products and services. The two sides have agreed to start building a model satellite station based on Beidou in an industrial estate in Thailand's eastern Chon Buri province next month, and nationwide construction will begin early next year. (source: China Daily)

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People & Higher Education

China ranks 47th in global talent competitiveness

Many Asian countries, including China, still lag behind in producing, attracting and retaining professional talent, said a report released on Tuesday by INSEAD, one of the world's leading and largest graduate business schools.

According to the Global Talent Competitiveness Index, China ranked 47th among the 103 countries covered by the research. The 103 countries represent 86.3 percent of the world's population and 96.7 percent of the world's GDP. Singapore, which ranked second, was the only Asian country to make it into the top 20 in the index. Even the developed northern Asian countries are not in this year's top 20 list. Japan charted at 21st, Korea at 28th and Malaysia at 37th. (source: People)

Female college students outnumber male peers, again

Statistics show that female college students have outnumbered male students for four consecutive years, Hangzhou-based Qianjiang Evening News reported on Thursday. Data released on the Ministry of Education's website showed that in 2012, the number of female college students in China exceeded the number of male students by 647,800. In 2012 China had 23.91 million college students on campus, 51.35 percent of whom were female. Female college students outnumbered male students for the first time in 2009, accounting for 50.48 percent of the 21.44 million college students. Female postgraduates seeking a master's degree have outnumbered their male counterparks for the past three years. The report also mentioned that the number of female doctoral students has been increasing, too. In 2008, only 34.7 percent of doctoral students were female. But in 2012 that number increased to 36.45 percent. (Source: China Daily)

China becoming largest source of overseas students to France

China will soon surpass Morocco to become the largest source of overseas students to France, according to a prediction by Laure Castin, an attache in charge of university cooperation at the French Embassy in China. Currently, about 35,000 Chinese students are studying in France, and the figure is expected to reach 50,000 in 2015, according to Castin. According to the attache, 65 percent of Chinese students in France are either seeking master's degrees or doctorates, and the most popular majors are economic administration, engineering, management of public affairs and art. More than 10,000 Chinese students obtained visas for study in France last year, and the number is expected to rise next year, when the two countries will mark the 50th anniversary of the establishment of their diplomatic relations, Castin said. (Source: Xinhua)

Overseas Chinese chase opportunities at home

A growing number of scientists and engineers who have worked abroad are seeking business opportunities in China after encountering career barriers overseas. More than 200 overseas Chinese and representatives of 30 associations for Chinese abroad attended the two-day Conference on China International Exchange of Professionals at the Shenzhen Convention and Exhibition Center, which ended on Thursday. The organizing committee says

Shenzhen has 1,700 companies run by former students who returned from overseas. Almost all are high-tech companies, with about 30 firms having annual output worth more than 100 million Juan. (Source: China Daily)

Chinese scientist awarded Volvo Environment Prize

Chinese scientist Dr. Qin Dahe was awarded here the 2013 Volvo Environment Prize Tuesday night for his outstanding scientific contribution in the field of climate change. Prof. Will Steffen, Volvo Environment Prize Jury highly praised Qin's researches and work, which had been achieved under "very extreme situations." He said the world should share those qualified scientific information about China that was not available in the past. Lena Ek, Swedish Minister of Environment, said ground-breaking sciences require outstanding scientists, but to make changes also requires brave men. She lauded Qin as a man of bravery, who was able to explain clear to people the most complicated sciences, saying based on understanding people were able to take actions, she said Qin, the first Chinese scientist awarded such prize, has been recognized internationally as a key contributor to the fifth assessment report from the UN climate panel (IPCC). The first section of the report, Physical Science Basis, was released in September. The highly respected and internationally recognized glaciologist and climate scientist also attracted wide attention last year with a report on how climate change leads to more extreme weather events. Qin, a leading expert on Cryosphere in central high Asia, found the that glaciers have important impact on water resources and ecosystems for more than 2 billion people in Asia. The cryosphere is one of the main components of the Earth's climate system, comprising snow, river and lake ice sea ice, glaciers, ice shelves, and frozen ground. Upon receiving the award, Qin said he was honored as a Chinese scientist, appreciating the recognition of his works and emphasizing "this award is the honor of my team." (source: Global Times)

Seven CAS Scientists Win Ho Leung Ho Lee Awards

Hong Kong-based Ho Leung Ho Lee (HLHL) Foundation granted science and technology awards to 46 Chinese scientists in Beijing on Dec 30, among whom seven come from the Chinese Academy of Sciences (CAS). Prof. PAN Jianwei of University of Science and Technology of China (USTC) was awarded the Science and Technology Achievement Award, the highest award of the foundation. PAN has been studying in the field of Quantum mechanics foundation, quantum communication and quantum computation for a long time. Six other CAS scientists won the Science and Technology Progress Award this year. They are Dr. WANG Yifang (The Institute of High Energy Physics) for Physics, Dr. JIANG Lei (The Institute of Chemistry) for Chemistry, Dr. CUI Xiangqun (The Nanjing Institute of Astronomical Optics & Technology) for Astronomy, Dr. ZHU Jiang (The Institute of Atmospheric Physics) for Earth Science, Dr. JIANG Wenhan (The Institute of Optics and Electronics) for Electronic Information Technology, and Dr. SHEN Baogen (The Institute of Physics) for Metallur*gical and Materials Technique.* The Ho Leung Ho Lee

Foundation (HLHL) is a Chinese non-government organization founded in Hong Kong in 1994. The foundation is the most influential non-governmental prize in science and technology in China. It annually bestows prizes upon Chinese scientists in three categories, the Science and Technology Achievement Award, the Science and Technology Progress Award, and the Science and Technology Innovation Award. (source: CAS)

More mainland higher education institutions exempt HK students from exams

Hong Kong Education Bureau welcomed Thursday (31 Oct.) the Ministry of Education of China's announcement of detailed arrangements on the admission scheme of Hong Kong students to mainland higher education institutions for 2014. Seventy-five mainland higher education institutions will admit Hong Kong students based on their results in the Hong Kong Diploma of Secondary Education (HKDSE) Examination. Candidates sitting the HKDSE exam next year are eligible for enrollment in the scheme and will be exempted from taking the Joint Entrance Examination for Universities in the mainland. The bureau said the 75 institutions come from 14 provinces and municipalities, giving students more choice. (source: Global Times)

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Research infrastructures

China tests deep-sea mobile workstation prototype

China tested its first experimental deep-sea mobile workstation on Thursday, following the success of its first manned deep-sea submersible, Jiaolong, last year. The model, weighing 35 tons and designed with a capacity of six people, is part of a ten-year experiment by scientists at the China Shipbuilding Industry Corporation (CSIC), who put the model through a first-phase test in a pool on Thursday. The company said that the model, which can operate continuously for up to 18 hours in the deep sea, is a prototype for the nation's future deep-sea workstations. Thursday's trial led the model through a total of 18 separate tests, including manual operations, automatic control, and reliability tests of the model's power and life-support systems. The first-phase test will prepare the company to launch a second-phase test of the model, which is expected in 2014 and will feature underwater operations, according to the company. The tests and technologies will pave the way for the country to develop bigger deep-sea workstations in the future, the company said. (source: Xinhua net)

National deep-sea base under construction

Construction of China's national deep-sea base kicked off on Friday in the coastal city of Qingdao in East China's Shandong province. Liu Feng, director of

the administration center of the base, said it will become a multi-functional platform that will enable China to study and explore the ocean. With an investment of over 500 million yuan ($82 million), the base will cover about 26 hectares of land and 62.7 hectares of sea in Jimo city, serving as a support station for deep-sea facilities, including *Jiaolong*, China's manned submersible. Approved by the State Council in January 2007, the construction of the base is planned to be finished by the end of 2014, and it should be put into operation in 2015. (Source: China Daily)

SSMR Phase III building opened in Shenzhen

The Phase III new building of Siemens Shenzhen Magnetic Resonance Ltd (SSMR) was officially inaugurated on Friday (1 Nov.) in Shenzhen, Guangdong province. SSMR has become the second biggest research and manufacturing center after MRI headquarters in Germany. A new 3Tesla MRI system MAGNETOM Spectra was introduced to the Chinese market on the same day. The expansion of R&D and the production capabilities of SSMR will help to increase the company's presence in the fast-growing market, he says. (source: China Daily)

China to establish 4th Antarctica base

China's fourth scientific research station on Antarctica will be set up during an expedition to the southern continent by the Chinese icebreaker Xuelong that will begin on Nov 7. "Taishan Station, named after Taishan Mountain in Shandong province, will be located at Princess Elisabeth Base ... and will be an important connection between Zhongshan Station, which was built in 1989, and the south pole," said Liu Shunlin, chief scientist at the Polar Research Institute of China and leader of this year's expedition. China will build another station on Antarctica in the next three years to carry out more scientific research, especially on climate change and environmental change. (source: China Daily)

Plasma Experiment Demonstrates Admirable Self-control

A team of Chinese and American scientists has learned how to maintain high fusion performance under steady conditions by exploiting a characteristic of the plasma itself: the plasma self-generates much of the electrical current needed for plasma containment in a tokamak fusion reactor. This self-generated, or "bootstrap," current has significant implications for the cost-effectiveness of fusion power. Magnetic fusion energy research uses magnetic fields to confine the fusion fuel in the form of a plasma (ionized gas) while it is heated to the very high temperatures (more than 100 million degrees) necessary for the ions to fuse and release excess energy that can then be turned into electricity. The most developed approach uses the tokamak magnetic confinement geometry (a torus shaped vessel), and it is the basis for ITER, a 500-MW heat generating fusion plant currently being built in France by a consortium of seven parties—

China, the European Union, India, Japan, Russia, South Korea and the United States. (source: CAS)

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International S&T relations

Chinese, EU leaders hold annual summit

Chinese Premier Li Keqiang and leaders from the European Union kicked off an annual meeting Thursday in Beijing to work out a blueprint for bilateral ties in the coming years as the two sides prepare to start talks on an investment protocol. Li is attending the 16th China-EU leaders' meeting with European Council President Herman Van Rompuy and European Commission President Jose Manuel Barroso at the Great Hall of the People in downtown Beijing. "This summit is held at a historical point, as this year marks the tenth anniversary of our comprehensive strategic partnership," Li said at the beginning of the summit. He labelled Europe an "important pole" amid the multipolarization of the world, and an "important partner" for China, which is striving for modernization. (source: Global Times)

NSFC Vice President He Visits Belgium and the Netherlands

The NSFC delegation led by Vice President Prof. He Minghong visited Belgium and the Netherlands from Sept. 5th to 12th, 2013, at the invitation of Directorate-General -Research and Innovation and The Netherlands Organization for Scientific Research (NWO). In Belgium, the delegation visited DG-RTD and European Research Council. In DG-RTD, Vice President He met with Dr. Anneli Pauli, Deputy Director-General of Innovation and European Research and exchanged views on issues such as research integrity, open access, project re-examination and research ethics. Prof. He inquired into EU Framework Program and the relevant policy measures of European Research Council, and then introduced NSFC's efforts in the aspect of research integrity and open access. At European Research Council, Prof. He met with the Director General of the Council Pablo Amor. During the meeting, both sides introduced their general situation and latest developments, exchanging views on how to reinforce communication between the two organizations and establishing effective long-term mechanism. (source: NSFC)

First science projects chosen in New Zealand-China research partnership

Four joint research projects covering water, non-communicable diseases and food safety and security have been selected for the first round of funding in a New Zealand-China strategic research program, New Zealand Science and Innovation Minister Steven Joyce announced Thursday. The four projects would receive 1.4 million NZ dollars (1.16 million U.S. dollars) over the next three

years from New Zealand's Ministry for Business, Innovation and Employment and China's Ministry of Science and Technology. The projects were the first to be selected under the Strategic Research Alliance (SRA) Joint Research Program, which helped facilitate science research collaboration and the commercialization of science between China and New Zealand, said Joyce, who is currently visiting Beijing, in a statement from his office. (source: People)

Joint training center to help develop skills for China: New Zealand minister

A New Zealand-China joint technical and vocational training center launched in Beijing Thursday will foster research links and help knowledge transfer, according to New Zealand Minister for Tertiary Education, Skills and Employment Steven Joyce. Chinese Vice Minister of Education Du Zhanyuan and Joyce together unveiled a plaque establishing the Virtual Technical and Vocational Education and Training Research Center at China's Central Institute for Vocational and Technical Education (CIVTE). The center was a step in the development of the New Zealand- China Vocational Education and Training Model Program first announced during Prime Minister John Key's visit to China in April, Joyce said in a statement from his office. (source: Global Times)

China and Mongolia signs an MOU on Science Park in Beijing

On October 25th, under the witness of Premier Li Keqiang and Mongolian Prime Minister Norovyn Altankhuyag, the Memorandum of Understanding on Cooperation for the Establishment of the 1st National Science Park in Mongolia between the Ministry of Science and Technology of the People's Republic of China and the Ministry of Education and Science of Mongolia (hereinafter referred to as "the Memorandum") was signed in Beijing by Mr. Wang Zhigang, Vice Minister of Science and Technology and MS. B. Urgamaltsetseg, Vice Minister of Education and Science of Mongolia. According to the Memorandum, China will share with Mongolia the experience of Science Park construction through establishing the 1st Science Park of Mongolia, assign professional institutions to offer advice on functional orientation, development management and construction planning, guide the cooperation on innovation, incubation and acceleration, organize B2B meetings between exchanges of both sides, and offer training for personnel of operation, construction and management, with a view to deepening S&T innovation and cooperation of the two countries. (source: MOST)

International DNA Barcoding Agreement Signed

Experts have urged strengthening international scientific cooperation in species database sharing at the recently concluded fifth International Barcode of Life Conference (IBLC) in southwest China's Yunnan Province. Held for the first time on the Chinese mainland, the four-day conference in the provincial capital city of Kunming, has drawn up the Kunming Declaration to promote unity in the

global barcoding community. "The declaration in Kunming is one of the most important events in the history of biodiversity science. We are following a global trend to open up data. It's critical to protection of biodiversity in the future," Canadian scientist Paul Hebert remarked on Oct.31. The Kunming Declaration, signed by 400 scientists from more than 40 regions and countries, calls for international cooperation in DNA barcoding technology and industry standards. (source: CAS)

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