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In this July edition of ***China Links Newsletter*** we report on the visit of European Commission Director General for Climate Action Jos Delbeke, who conducted meetings with Chinese counterparts about carbon trading, an issue of strategic interest both for the EU and for China and on which both sides agreed to exchange further.

In the ***Calls & Announcements*** section we inform you about the events organized on the EU Pavilion at the Shanghai World Expo about mobility of students and researchers and about innovation, to be held on August 30 and 31. You are welcome to register and participate if interested.

From the European Commission perspective, the main announcement related to research activities of the past month is the one concerning the **publication on July 20 of the FP7 2011 Work Programmes**. These documents list all the research topics that can be funded by the Commission in the coming year. The release of the Work Programmes has been accompanied by the publication of calls for proposals for most of the topics listed in the Work Programmes. This edition provides all the necessary links to discover and access the calls' details. You can also find information about these calls and links on the [EURAXESS Links China website](#).

The ***In Focus*** article introduces the China-EU Institute for Clean and Renewable Energy (ICARE), which will open its doors later this year in Wuhan and become a new milestone in the institution-based S&T cooperation between the EU and China. The article presents the content of the project and tries to draw some lessons from its smooth realization.

The ***Highlights from the Media*** report on the promulgation by several Chinese ministries of an interim regulation on managing the intellectual properties derived from major earmark projects, an issue on which the EU is closely cooperating with Chinese authorities in particular through the [EU-China IPR2 project](#). In June, the EU Delegation S&T section and EURAXESS Links China also organized a workshop on IP in research collaboration and we will inform you after the summer break about the opportunities to follow-up this activity, in collaboration with the IPR2 project.

Other highlights from the media feature further declarations and studies published in China about the issue of mobility of researchers, thus illustrating the importance of this topic which we tackled in several previous editions of this newsletter, as well as the continuous efforts and progress made in China in the field of environment, a field of increasingly intensive cooperation between China and the EU.

We thank the contributors to the **Researcher's voices** section for sharing their experience and views in their inspiring articles.

We hope you will find this edition of **China Links Newsletter** interesting and wish you a very pleasant summer until the next joint *August-September* edition of this publication.

Best wishes,

The **China Links Newsletter** editing team

About this newsletter

CHINA LINKS NEWSLETTER is a monthly electronic newsletter, edited by the S&T section of the EU Delegation to China – EURAXESS Links China that provides information of specific interest to European researchers in China.

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

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

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Major EU-China S&T contacts and relations

Visit to China of European Commission Director General for Climate Action

On 7-9 July, Director General Jos Delbeke of Directorate General Climate Action made a visit to China. His mission included to conduct meetings with Chinese counterparts (Ministry of Environmental Protection, NDRC Climate Change Department and experts) and hold a workshop, all on technical and EU-China levels, about carbon trading. The aim of the mission was to test the ground for cooperation on domestic climate policy, especially on emissions trading.

The Commission funded the workshop hosted by [The Climate Group](#) on emissions trading to meet domestic greenhouse gas reduction targets, focusing on domestic

policy lessons from the [European Union Greenhouse Gas Emission Trading System](#) (EU ETS: the largest multi-country, multi-sector Greenhouse Gas Emission Trading System world-wide launched in 2005). Meetings following the workshop with ETS and industry experts, demonstrated great interest in learning in detail how the EU created its ETS infrastructure.

The visit succeeded in demonstrating the commitment of the Commission about domestic policy coordination. The Chinese National Development and Reform Commission (NRDC) expressed interest on deepening the exchanges with the EU on this issue and welcomed a follow-up technical workshop as well as a fact finding visit to Europe in the autumn of this year.

In Focus

ICARE : Learn from success

The China-EU Institute for Clean and Renewable Energy (ICARE) will open its doors in Wuhan, Hubei province, in a few months, establishing a new milestone in institution-based Sino-European S&T higher education cooperation.

This project is interesting and worth of our attention for different reasons. The first ones are of course linked to the actual content of this project and to its potential contribution to the development of Sino-European exchanges in the fields related to clean and renewable energy. But the history of this project and of its completion, now almost achieved, are also rich in teachings for bringing EU-China cooperation in Science and Technology further.

Content of ICARE

ICARE has 3 main objectives. The first one is to produce qualified human resources (Master degree holders) to fill the gap between the growing industry demand for specialized clean and renewable energy experts, and the skills currently available on the Chinese job market. The second objective is to provide training and education to professionals on clean and renewable energy technologies. Finally, ICARE will foster scientific cooperation between EU and Chinese top researchers in the clean energy field by creating a “research platform”. These 3 objectives are addressed in the three pillars structuring the content of the ICARE project.

The first pillar of the China-EU Institute for Clean and Renewable Energy, which will be located at the premises of the Huazhong University of Science and Technology (HUST), is its Master programme. Dedicated to university students who have already obtained a degree in engineering or another relevant scientific discipline, this two-year Master programme, with courses taught by EU and Chinese professors, aims at training an increasing number of engineers in areas where there is a strong need for qualified personnel in China.

This Master programme is divided in 4 semesters. The first year will give the students a general introduction to the clean and renewable energy sector and, in the second year, an in-depth expertise in specific technology areas has to be selected by the students according to their preferences. The last semester will consist of a 6-months training period in a private company or in a research organisation, where the students will put into practice skills and knowledge previously acquired. The master is expected to be awarded to 650 students during the 5 years of the project implementation’s initial phase (2010-2015). The master awarded will be a double degree from HUST and an EU partner university. It should be noted that foreign students interested in the development of clean and renewable energy activities in China will be given the possibility to apply for direct admission in the second year of the Master programme.

The second action within ICARE is the setting up of a vocational training centre for existing energy professionals. Dedicated to different target audiences (installers and technicians, engineers and managers, policy-makers), it aims at providing ad-hoc, specialized, high level, short-term training programmes to existing energy professionals who want to re-orientate their

career towards the clean and renewable energy sector or acquire operational knowledge on a specific technology, as well as to those who want to be kept updated on the latest political and technological developments in the clean and renewable energy sector. The trainings will hence differ depending on the nature and goals of the trainees, who are expected to reach the number of 1000 by 2015.

Last but not least, the research support platform was a strong wish of both the Chinese and the European sides, and aims at achieving the goal of fostering long-term scientific cooperation between EU and Chinese top researchers. This interactive cooperation platform will be open to all energy experts from Chinese and EU universities and facilitate exchange of PhD students between EU and Chinese universities, co-supervision of research activities, initiation of joint research projects, etc.



The location of the future EU-China Institute for Clean and Renewable Energy on the campus of HUST

Lessons to be drawn from the realization of the ICARE project

The strengths of institution-based cooperation

With its three pillars covering higher education, professional training and research, ICARE has the means to become a comprehensive tool for nurturing a pool of highly qualified Chinese specialists in the field of clean and renewable energy. However, the range of this new joint EU-Chinese institution's positive influence will not be limited to the training of Chinese human resources, but also reach EU-China S&T cooperation through different channels, which can be seen as specific strengths of institution-based cooperation.

In ICARE, some of the best European professors and specialists in the field of clean energy will collaborate with Chinese professors to spread their knowledge and expertise to young Chinese students and researchers, who will be the next generation of actors in the Chinese energy sector. Within the walls of the institute, exchanges of ideas, sharing of knowledge and creation of personal contacts between European and Chinese experts will happen every day

during many years. It is the obvious advantage of institution-based cooperation to be solid, concrete and long-lasting. While not aiming directly at immediate gain and applicable outcomes to bring back home, such institution-based cooperation acknowledges the fact that, to produce outstanding outcomes, the parties cooperating need to reach a high level of mutual knowledge and trust, and aims precisely at creating the conditions for achieving this.

Why it is important to target issues of shared interest

Institution-based cooperation and its benefits come at a high cost, be it in money, time and commitment to the success of the project. The choice of the fields to be addressed by such cooperation is therefore of paramount importance: only a field of strategic importance for all parties involved might be able to mobilize the efforts necessary to complete the realization of the project. The utmost importance of the energy sector both to China and to the EU might therefore be a key to understand the smooth and rapid development of the ICARE project and its expected success in the years to come.

The production of cleaner energy and increasing energy efficiency are seen by Chinese authorities as priorities in order to maintain growth while making the country's economy more sustainable. Concretely, this means that China plans to produce 15% of its total energy mix from renewable energy sources by 2020. China, in fact, has a big potential in renewable energy sources (hydropower, biomass, wind, solar and geothermal energies in particular). At the same time, since coal will remain the main energy source, massive investments in energy efficiency will be needed.

With the boost to the development of China's clean and renewable energy industry and with a lack of post-graduate courses specifically designed to prepare qualified engineers for this industry, it is easy to see how ICARE addresses a very pressing issue in a very strategic field. Located in Wuhan, at the gates of western China so to speak, where most of the renewable energy resources are, and given the EU well-established experience in fostering the development of renewable energy technologies and energy efficient measures, ICARE is in an ideal position to become a reference for this sector in China.

The need for qualified people at all levels in the renewable energy sector is also shared in Europe. The development of ICARE has to be seen not only from the perspective of China's agenda but also from the development perspective of the European clean energy sector and industry. Another lesson to be drawn from the ICARE project is that taking into account and building on the current situation and trend in Europe (in this case the development of the clean and renewable energy sector and of the training of its human resources), is a clear impetus to the success of a cooperation project realized as far as in China.

The majority of the EU project partners of the selected consortium for implementing ICARE (lead by the [*Institut des Sciences et Technologies de Paris - ParisTech*](#)) are members of [*EUREC Agency*](#), the European Association representing more than forty prominent research institutes and universities active on [*research and deployment activities in the renewable energy sector*](#). The EUREC universities have been cooperating since 2002 within the EUREC Master in Renewable Energy: an eighteen-month post-graduate programme where students gain an in depth knowledge of renewable energy technologies. The EU organisations involved in ICARE have, therefore, matured a strong partnership experience and are used to working together in designing common educational programmes.

The fact that ICARE can rely and capitalize on such a strong asset as the already established and dynamic EUREC Agency is an obvious factor of its success, and directly linked with the fact that renewable energy stands high in the European agenda.

Another factor of ICARE's success might be found in the way it has been managed.

Advantages of (relatively) decentralized project management

The official launch of the preparatory work for the establishment of ICARE can be dated of April 24, 2008, with the signature by then European Commissioner for Science and Research Potocnik and then Chinese Minister of Education Zhou, of a letter of intent regarding the setting up of an EU-China Institute for Clean and Renewable Energy. Two years later this comprehensive institute will open its doors in Wuhan, with an ambitious programme addressing issues strategic to both the European and the Chinese sides. The rapidity with which the project was conducted can be explained by the fact that it was locally initiated and locally driven. From this also derives some of the project's strengths mentioned before.

Being first suggested by the EU Delegation to China, the idea of ICARE was based on the factual and precise observation of China's will and efforts to support the clean energy sector and of its need for qualified staff. Furthermore, the Chinese side was involved in the project from its genesis, taking an active part in its shaping before its formal approval. The proximity between those in charge of leading the project (EU Delegation to China and Chinese Ministry of Education) grandly facilitated exchanges between both sides, from the inception until the coming final stage of implementation, thus ensuring the mutually beneficial and interesting nature of the project to be maintained during all the different stages of the project.

Thus, another lesson to be drawn from ICARE might be the efficiency of a certain level of decentralization in the management of S&T cooperation projects with China. A practice already adopted by numerous European research institutions and member states embassies (as well as by the EU when it comes to development aid funds), which have their own resources to locally develop collaborations of different kinds with China, but a practice that could maybe advantageously be implemented further, for example in the International Cooperation programme of the European Commission.

China Links Newsletter will naturally keep you informed on the opening of ICARE and its other future developments. In the meantime, for more information about ICARE, you can contact the programme officer currently in charge of the ICARE project within the EU Delegation to China, Mrs Wang ZhengYu (Zhengyu.WANG@ec.europa.eu).

Researchers' voices

Articles featured in this section have been sent to us by members of the readers' community for publication in the newsletter.

We welcome your articles for the next edition, be it scientific articles, information on research and S&T programs in China or more personal testimonies about doing research in China.

Please send the articles to Jacques.desoyres@euraxess.net

A ERC Grant Awardee who come from China and working in Germany as a young professor

(This testimonial follows the In Focus article on ERC published in the newsletter June edition)

By **Prof. Yong Lei**

Professor at the Department of Physics
University of Muenster, Germany



I like to work on high-impact and risky ideas to challenge my imagination. In 2008, I had a new high-challenging idea of three-dimensional (3D) surface nano-patterning technique, which is the precondition to realize the new generation of nano-devices (especially gas sensors) with high performance and tunable property. I wrote a proposal based on this idea and successfully obtained the European Research Council (ERC) Starting Grant in 2009, which is a high prestigious research awards to the excellent young scientists who work in Europe. Based on this large ERC research funding (1.4 million Euros to my project), I built my ERC research group in Muenster and could realize the high-challenging 3D surface nano-patterning technique and high-sensitivity gas sensors. The successful accomplishment of my ERC project could be great importance to improve the atmospheric environment by detecting the minimum harmful concentration of atmospheric contamination.

ERC research grants provide good opportunities to excellent scientists who wish to advance his research and scientific career in Europe. The successful ERC grant awardee will largely benefit from the excellent research and scientific environments in Europe based on the funding support from ERC. Based on the successful experience of my research topics with the ERC research funding, I hope more and more excellent scientists will apply the ERC prestigious research grants in the future.

About Professor Yong Lei's background

Dr. Yong Lei is Professor at the Department of Physics in the University of Muenster in Germany. He is the Leader of the 'Surface Nano-Structuring Group' of the Institute of Materials Physics and also a scientific member of the Center of Nanotechnology in the same university.

Prof. Yong Lei received his PhD in the Chinese Academy of Science in 2001. After that, he worked in the Singapore-MIT Alliance for two years as a SMA research fellow. He joined the Karlsruhe Research Center in Germany as an Alexander Von Humboldt Fellow in 2003. In 2006, he started to work in the Department of Physics at the University of Muenster as a group leader. He was promoted as W1 professor in 2009 in the same university.

The major research fields of Prof. Yong Lei include surface nano-structuring and nano-patterning, 1D nanostructures, structure-related properties of regular surface and 1D nanostructures and their device applications especially in environmental improving. So far he has authored many publications and reviews in first-class international scientific journals. Prof. Lei has an international reputation in the fields of surface nano-structuring and nano-devices. He is one of the pioneers and leading experts in the field of UTAM nano-patterning research. His research has received wide scientific recognition, and his publications have been cited more than 1200 times in the past 8 years.

Prof. Yong Lei received some important research prizes and awards for his contributions in surface nano-structuring field. He is one of the successful grant awardee of the prestigious European Research Council Funding. In 2005, he was awarded the First Prize of the Best Research from the NanoMat NetWork in Germany. In 2008, he received the Excellent Young Scientist Prize of University of Muenster in 2008.

Foreign R&D investment in Shanghai

By Professor Seamus Grimes

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Those who are familiar with foreign owned R&D in China will know that the atmosphere for FDI has changed a little of late, but one can never be sure about what really is going on, and that is particularly true for somebody like myself with a significant language, if not a wider, cultural barrier.

There has been a lot of recent commentary in the media about the 'new' focus in 'indigenous innovation' by the Chinese government. This is more a new elaboration of the key Science and

Technology 15 year plan published in 2006. Multinational companies here have had some concern that this would mean an uneven playing field, with some restrictions on their access to the market.

They are probably correct. Unlike many small states such as Ireland, China is in a very strong bargaining position with multinationals. The huge size of its market, which is growing at a faster pace than other regions of the world, has become a vital area of focus for many global corporations. Major corporations like GE, which are involved in key sectors such as energy, avionics and healthcare equipment already have huge back orders for everything from wind turbines to locomotives to airline engines. Recently around 50 new airports were completed in China and in the next 10 years another 50 are due for construction. Trillions of dollars will be invested in all kinds of infrastructure. So there are huge public procurement contracts up for grabs. The main fly in the ointment is that China is now stipulating that these contracts must prioritise products and services with 'indigenous innovation', or intellectual property and trademarks that have been initially registered in China.

It is not to suggest that foreign companies are not prepared to register patents in China; the general trend, however, is to register patents, even if some contribution towards them comes from R&D centres in China, in more developed regions like the US. This is for business reasons and it is also related to a poor record of implementing what is now a reasonable IP protection regime.

But multinationals will need to rethink their business model if they are to gain access to lucrative contracts in this rapidly expanding market. The multinational model is increasingly global in its orientation, and although core R&D activity remains close to the corporation's headquarters, there has been a growing trend in recent years to decentralize R&D functions to emerging regions like China and India, particularly to be close to existing manufacturing operations and to adapt products to local markets.

China now has had around 30 years in foreign direct investment, and while the earlier expectations were based on a transfer of technology from foreign companies to local companies, this has not really happened to any great extent. This is not to say that local companies have not benefitted from the presence of major multinationals in China, but the state has become increasingly wary about its dependence on foreign technology. China is no longer willing to play the subservient role of being the 'world's factory' and is determined to move its economy up the value chain into more knowledge based activities. Many would agree that this is an important issue, and would encourage a re-thinking of policy. The danger, however, is that China might move in the direction of 'techno-nationalism' by seeking to develop domestic standards rather than becoming more integrated in international standards. While this might offer some level of protection to Chinese companies for a period, it is also likely to make it more difficult for them to compete globally.

China has some rather unique features which might suggest that it is developing its own form of capitalism, which some have called state or authoritarian capitalism, in that the state plays a very significant role in controlling many aspects of the economy. State Owned Enterprises,

which are often overly bureaucratic organizations continue to be very important, and certain sectors such as energy and telecommunications services continue to be strongly regulated and to a large extent closed to foreign companies. To some extent the state is seeking to allow for a transition period where Chinese companies can exercise a limited form of competition within such closed sectors, before the real global competition begins in earnest. Also the dominant political objective of creating a 'harmonious society', influences greatly China's economic policies.

China is also adopting its position to global integration in relation to its increasing influence in the world economy. Part of its determination to develop its own technology is related to issues such as defence, since it has a long historical memory of being invaded and mistreated by foreign powers. There is little new about the scramble for China's market: what is new is China's ability to control access to what is seen by many as a major source of future expansion.

Although multinational companies have expressed concerns about how China's new rules about intellectual property development may play out, they are probably more concerned about their own ability to compete within the Chinese market for a growing share of what is available. To date such companies have had the market to themselves, and they were in a position to obtain high profit margins and a good level of reward in the form of licence fees and royalty payments for any technology transferred to China. More recently, however, they are experiencing a new form of competition from local companies. In many cases Chinese companies are not very innovative and do not invest very significantly in R&D. They are also focused very strongly on the rapidly expanding middle segment of the market with hundreds of millions of people earning an average of \$5,000 a year. Multinationals are being forced to develop less expensive products for this 'good enough' market, and this has implications for their very significant investment in R&D. Just at the time, therefore, when China is growing in significance as a key market for the future growth of major corporations, gaining market share in China may prove to be increasingly challenging.

Socio-digital Worlds: The Economic and Societal Challenges for Universities, Governments and Companies

By *Mervyn Levin*,

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New forms of expression, enabled by Socio-digital Worlds, are shaping our lives at an accelerating pace. The forms, devices and systems of socio-digital worlds are rapidly permeating society and the economy.

These trends are opening up a wide range of research directions making it imperative that Universities fully embrace this new environment.

The relevance of research in these areas has immense potential to provide useful insights that:

- transform the delivery of public services to reach all segments of the population;
- provide new pedagogical approaches to education and life-long learning;
- tackle major healthcare challenges;
- stimulate access to culture;
- increase productivity in both the public and private sectors;
- raise environmental awareness.

The significance of Socio-digital Worlds, which includes social networks, games and serious games, is that they are the next phase of the Internet's revolution and likely to have the same impact as its initial introduction. These converging, more immersive and empowering technologies are changing the way we live, work, play, learn, participate and are governed because of their powerful capacity to engage and connect people in new ways.

My research explains the reasons for the uptake in these new applications, leading to widespread innovation in terms of both proven and potential benefits - beyond purely leisure. This requires policy makers, the research community and industry to embrace, increasingly jointly, a wide range of challenges and opportunities as part of an inter-disciplinary/cross-sectoral approach, involving more collaborative ownership, learning and working.

To contextualise some of the issues of this emerging research environment, I describe my experience overseeing inter-disciplinary and cross-sectoral working in Collaborative R&D environments. I show how collaborative R&D has a sociology of its own compared with more silo-focused work in a single discipline. A major facet of this environment is the development of new mindsets at all levels to effectively engage stakeholders. The associated management, commercial, academic, technology, financial and project dimensions are significant.

In broader terms, as Socio-digital Worlds become more embedded across society through the pervasiveness of new technology and devices, Universities need to consider how they adapt internally to capitalise on the research opportunities. One such requirement is for Natural and Social Sciences to increasingly understand each other's contributions, forge a common language and cooperate to add value. For example, by developing synergies to exploit advances in Games development through a combination of new mathematical algorithms and creative story telling narratives to enhance the game playing experience.

Another key consideration is a need to reshape some University curricula to incorporate more of the interdisciplinarity that Socio-digital Worlds are spawning. This has promising potential to improve the employment prospects of students in an economy where the skills for the resulting applications are growing in demand.

I conclude that bold, new approaches are required to develop joint ownership of research into Socio-digital Worlds, in particular clarity of authority, responsibilities and accountability, across universities, the public sector and industry. The role of Universities is pivotal in contributing to the understanding of increasingly complex societal and economic challenges being shaped by these Worlds. The prize is enhancing the University's relevance to society as a whole.

Mervyn Levin is Founding Director, Levering Ltd, which is co-located in the UK and Asia, with wide ranging roles focused on ICT and digital/creative content. This includes Assessor and Monitor of Collaborative R&D Programmes for several Governments and Corporate Industrial Advisor to Sheffield University. He also publishes in academic journals and presents widely. He works extensively across China, including as Senior Expert to the EU China Information Society Project. He presented some of this agenda at ChinaJoy, China's biggest games event, in Shanghai in July 2010. He is a Fellow of the Royal Society of Arts. He can be contacted at mervyn.levin@gmail.com

Calls and announcement

EU ANNOUNCEMENTS

Research topics to be funded by the EU in 2011

Information on the topics to be funded by the EU in 2011 (under its "Framework Programme 7" –FP7) has been released on the EU research website [CORDIS](#).

Funding will be granted through:

- **collaborative research** calls for proposals (FP7 Cooperation programme, open to Chinese participation);
- **basic research** calls for proposals (FP7 Ideas programme, managed by the European Research Council, open to Chinese researchers);
- **personal fellowships** calls for applications (FP7 People programme);
- **supporting research capacities** (including international cooperation) calls for proposals (FP7 Capacities programme).

Access all the work programmes and relevant information concerning the topics to be funded here: http://cordis.europa.eu/fp7/wp-2011_en.htm!

Calls in most of these themes have been already published on July 20, 2010. Access all the calls under FP7 here: <http://cordis.europa.eu/fp7/dc/index.cfm?fuseaction=UserSite.FP7CallsPage&rs>

The calls with deadlines within the next 3 months are listed separately on the EURAXESS Links China website under its [Funding opportunities – Forthcoming calls](#) section.

Researchers' mobility and Innovation related events on the Shanghai Expo – 30-31 August

The European Commission Directorate General for Education and Culture (also in charge of mobility of researchers) will organise two thematic events in the framework of the EU Pavilion at the Shanghai Expo end of August:

- The "**Study in Europe - The Erasmus Mundus Programme**" event will take place on 30 August.
- The "**Excellence for innovation - The European Institute of Innovation and Technology**" event will take place on 31 August.

These thematic days are aimed to present EU's flagship initiatives in the field of higher education, research and innovation. These events will offer the possibility to show success stories and **explore future pathways for EU-China cooperation in the field of exchange of students, professors and researchers (in particular through the Erasmus Mundus programme) and in the field of innovation.** The participants will be representatives from Chinese authorities, Chinese 985 and 211 universities and research institutes as well as representatives from enterprises.

In order to take part at the two thematic days, please register as soon as possible via the following link, where you can also find a detailed programme of the Erasmus Mundus and EIT thematic day:

<https://erasmusmundus-eit.shanghaiexpo.eu/>

Please enter the following password for your registration: **NPEC_CHIN**

Please note that registrations will in principle be treated in chronological order (first come-first serve) and places at the conference are limited. Conference participation is free of charge but please note that the EIT will not be able to cover your travel and accommodation expenses. You can only attend the conference if you have received a confirmation of your registration.

For more details about the Erasmus Mundus programme (EM) and the European Institute of Innovation and Technology (EIT), please visit the websites http://ec.europa.eu/education/external-relations-programmes/doc72_en.htm and <http://eit.europa.eu/>

Online survey launched about the Seventh Framework Programme

This open consultation is part of the Interim Evaluation of FP7 which is a major exercise to examine progress and provide recommendations to help both the implementation of FP7 as well as contributing ideas for the possible next Framework Programme.

Please give us your opinion by taking part in [this consultation](#).

New publication: Communicating research for evidence-based policymaking

[This guide](#) offers practical advice on how to build a functional communications interface between researchers and policymakers.

Advocating a cooperative approach to the policy design process, it is specifically tailored to meet the needs of those involved in EU-funded socio-economic research projects.

MEMBER STATES – CHINA ANNOUNCEMENTS

WELCOME II – Promoting the return of researchers to the European Research Area

The *Fundação para a Ciência e a Tecnologia* (Foundation for Science and Technology) of Portugal will launch the WELCOME II Programme, allowing researchers of any EU Member State/Associated Country nationality living and carrying out research for the past 3 years in Third Countries (such as USA, Japan **or China**) to join institutions in Portugal, by signing 3-year employment contracts with their host institution.

The programme targets the career development of *Early Post-docs* (Fellows A) and *Experienced Post-Docs* with 5 or more years of experience after PhD (Fellows B) and offers attractive salaries.

Applications should be submitted jointly by the host institution and the individual researcher. All fields are eligible and research topics can be freely decided upon. Applications are assessed by independent peer reviewers.

Call launch: 1 October 2010

Deadline: 12 December 2010

Further Information can be found here: [WELCOME II](#)

Guidelines for NSFC – European research institutions joint projects 2011 released (Chinese)

NSFC has a number of partnerships with European research and research funding institutions including yearly cofunding of joint projects involving exchange of researchers between China and the country of the European institution. In July NSFC released guidelines regarding the application procedure for cofunding of joint projects for year 2011 with the following European research and research funding institutions:

[CNRS](#), [Royal Society of Edinburgh](#), [Royal Society](#).

NSFC-CNRS Joint Summer Institutes in Mathematics, 2011

NSFC and CNRS agreed to organize two “Summer Institutes” in 2011, one in the field of fundamental mathematics, the other in the field of applied mathematics. Each institute will last three weeks, the first week being dedicated to lectures and the two last weeks to seminars and joint research. The institutes will target researchers from NSFC and CNRS but will be open to representatives of other organizations as well as to a limited number of researchers from third countries.

Deadline for application for the Chinese applicants is **8 October 2010**. More details on [NSFC's website](#) (Chinese).

NSFC-DFG-Academy of Finland – 2010 Results of first round of selection of joint Sino-German, Sino-Finnish and Sino-German-Finnish projects

The Natural Science Foundation of China, the German Research Foundation (DFG)

and the Academy of Finland received 22 applications for funding and they preselected 17 of them. These projects will have to pass a second round of selection in order to get the funding.

Find the list of preselected projects on [NSFC website](#).(Chinese)

CALLS

Novo Nordisk - Chinese Academy of Sciences Research Foundation - 4th Call for Project Proposals and 3rd Call for Great Wall Professorships

The aim of [Novo Nordisk-Chinese Academy of Sciences Research Foundation](#) is to fund or co-fund activities of common interest within the fields of Biopharmaceuticals & Diabetes including related disciplines and technologies such as protein chemistry, immunology, inflammation, endocrinology, diabetes, pharmacology and drug delivery.

Any scientist with a PhD degree (or equivalent) and with formal employment at CAS (applicants must hold associate professorship or above) or Novo Nordisk (NN) may apply. The above scientist can also apply on behalf of a PhD student or a young PhD working in his/her laboratory for a PhD or a post-doc fellowship. Applications should preferably be jointly submitted by a scientist from CAS and one from NN R&D. Other parties, e.g. universities in Denmark and Sweden, may be partners in selected projects but will then need to fund their own participation.

NN-CAS Foundation invites relevant partners to submit applications to both CAS

and NN. Next deadline is **30 October 2010**. The applications must be submitted in one e-mail to Ms. WANG Dongyao at dywang@cashq.ac.cn, Professor Wang Ming-Wei at wangmw@mail.shcnc.ac.cn, and Dr. WANG Baoping at baop@novonordisk.com.

More details [here](#) (English).

Novo Nordisk – CAS Research Foundation is also issuing its [3rd call under the Great Wall Professorships scheme](#), which deadline is again **30 October 2010**.

Call for Tenders related to the Directorate-General for Research

The European Commission Directorate General for Research is call for tenders in order to conduct an “Interim evaluation and assessment of future options for Science in Society Actions”. Deadline is **24 September**,

2010 and details are available on the [Directorate General for Research website](#).

JOBS

Permanent position offer – Science officer at International Council for Science (ICSU, Paris)

The International Council for Science (ICSU) is seeking a Science Officer to assist with the planning and implementation of ICSU's initiatives.

Salary: Euros 40,000–55,000 (net per year before income tax)

Location: Paris, France

Closing date: **16 August 2010**

Access the announcement [here](#).

OPEN CALLS UNDER FP7 AND EURATOM

(regularly updated list available on [EURAXESS Links China website](#))

The following calls for proposals are currently open under the [People](#) programme

Call for proposals	Launched	Deadline
Marie Curie Reintegration Grants	9 October 2009	7 September 2010
Marie Curie International Incoming Fellowships (IIF)	17 March 2010	17 August 2010
Marie Curie International Outgoing Fellowships (IOF)	17 March 2010	17 August 2010
Marie Curie Intra-European Fellowships (IEF)	17 March 2010	17 August 2010
Marie Curie Initial Training Networks 2011 (ITN)	20 July 2010	26 January 2011
Marie Curie Industry-Academia Partnerships and Pathways (IAPP)	20 July 2010	7 December 2010

The following calls for proposals are currently open under the [Ideas](#) programme

European Research Council's Starting Grant:

Discipline	Proposal deadline
Physical sciences and engineering	14 October 2010
Life Sciences	9 November 2010
Social Sciences and Humanities	24 November 2010

The following calls for proposals are currently open under the [Capacities](#) programme

Research Infrastructures / 3 Open calls
Research for the benefit of SMEs / 2 Open calls
Regions of Knowledge / 1 Open call
Research Potential / 1 Open call
Science in Society / 2 Open calls
Activities of International Cooperation / 3 Open calls

The following calls are open under the [Cooperation](#) programme

[Health](#) / **3** Open Calls

[Food, Agriculture and Fisheries, and Biotechnology](#) / **5** Open Calls

[ICT](#) - Information and Communication Technologies / **9** Open calls

[Nanosciences, Nanotechnologies, Materials and new Production Technologies](#) / **12** Open calls

[Energy](#) / **8** Open calls

[Environment \(including Climate Change\)](#) / **8** Open calls

[Transport \(including Aeronautics\)](#) / **9** Open calls

[Socio-economic sciences and Humanities](#) / **4** Open calls

[Space](#) / **1** Open call

[Security](#) / **1** Open call

[Coordination of Research Activities](#) / **1** Open call

[JTI](#) - Joint Technology Initiatives (Annex IV-SP1) / **2** Open calls

Coming Events

(regularly updated list available on [EURAXESS Links China website "Events" section](#))

Field	Date	Location	Title <i>(click for more details)</i>
Medicine	4-10 August	Nanchang (Jiangxi)	Symposium for Chinese Neuroscientists Worldwide 2010 (SCNW 2010)
Chemistry	5-7 August	Changchun	The 6th International Workshop on ZnO and Related Materials
Mathematics	20-24 August	Jiuzhaigou (Sichuan)	The 9th International Symposium on Operations Research and Its Applications (ISORA 2010)
Chemical engineering	23-25 August	Taiyuan (Shanxi)	The 8th International Symposium on Gas Cleaning at High Temperatures
Medicine	27-31 August	Taipei (Taiwan)	The International Conference of 4th Asian Congress of Health Psychology
Higher education	30 August	Shanghai	Study in Europe - The Erasmus Mundus Programme
Innovation	31 August	Shanghai	Excellence for innovation - The European Institute of Innovation and Technology
Chemical engineering	7-10 Septembre	Dalian	2nd Asia Pacific Conference on Ionic Liquids and Green Processes (2nd APCIL)
Medicine	16-20 September	Beijing	25th congress of the Asia-Pacific Academy of Ophthalmology
Biology, Computer sciences	17-20 September	Wuxi (Jiangsu)	2010 International Conference on Life System Modeling and Simulation
Archaeology	18-20 September	Xian	Daming Palace and the Tang Dynasty: National and International Perspectives
Chemical engineering	5-8 October	Taipei (Taiwan)	Asia Pacific Conference of Chemical Engineering
Computer sciences	10-12 October	HuangShan (Anhui)	CyberC 2010: International Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery
Hydraulic Engineering	11-15 October	Shanghai	9th International Conference on Hydrodynamics
Medicine	23-26 October	Beijing	BIT's 8th Annual Congress of International Drug Discovery Science and Technology

Computer sciences	1-5 November	Nanjing	<u>The 9th International Conference on Grid and Cloud Computing (GCC2010)</u>
Computer sciences	3-5 November	Wuhan	<u>The Third International Photonics and OptoElectronics Meetings(POEM 2010)</u>
Robotics	10-12 November	Shanghai	<u>The 2010 International Conference on Intelligent Robotics and Applications</u>
Medicine	7-9 December	Shanghai	<u>BIT's 2nd Annual International Congress of Cardiology</u>
Engineering	7-10 December	Macau	<u>2010 IEEE International Conference on Industrial Engineering and Engineering Management</u>
Medicine	9-12 December	Macau	<u>The International Symposium on Ocular Pharmacology and Therapeutics</u>
Biology	11-15 May 2011	Shanghai	<u>Asian Congress on Biotechnology 2011 (ACB-2011)</u>

S&T highlights from the media¹

POLICIES AND PAPERS

IP Management Regulation

Ministry of Science and Technology, National Development and Reform Commission, Ministry of Finance, and State Intellectual Property Office jointly promulgated an interim regulation on managing the intellectual properties derived from major earmark projects, in a move to implement the defined IP strategy, raise the level of S&T innovations, protect innovation results, promote IP transfer and application, nurture/develop new strategic industries, and protect IP rights in addressing major economic and social issues. The Regulation made the existing laws and policies, including the Law of S&T Advancement, and the Outline of National IP Strategy, part of the efforts to protect the intellectual properties derived from major earmark projects. It covers a range of related contents, including general principles, terms of reference of IP management, managing IPs in implementing major earmark projects, IP ownership and associated protection, and IP transfer/applications. The Regulation also defines the responsibility, rights, and obligations shared by the management at different levels in a major earmark project. It defines the IP management obligations of the management at different levels, including comprehensive management department, project steering panel, and project implementer. Additionally, it makes IP activities and associated protection part of five-year plan, project application, project review and approval, contracts, process management, and results approval. (Source: [MOST](#))

Resource tax set to boost local economy

National Development and Reform Commission (NDRC), the country's top economic planner, announced a plan to extend the pilot tax scheme introduced in Xinjiang Uygur autonomous region to all 12 provinces and autonomous regions in the west and soon across the entire nation. The benchmark rate will be set at 5 percent and vary across commodities, according to the NDRC. The levy will be based on prices instead of the volume of the commodities produced and will be broadened to apply to coal, crude oil and natural gas. Industry analysts said that the new tax policy will reduce the profitability of major resource producers such as PetroChina Co Ltd and China Petroleum and Chemical Corp, known as Sinopec, as it will result in higher tax costs for them. (Further details in source: [People Daily](#))

Carbon trading in pipeline

The country is set to begin domestic carbon trading programs during its 12th Five-Year Plan period (2011-2015) to help it meet its 2020 carbon intensity target. The decision was made at a closed-door meeting chaired by Xie Zhenhua, deputy director of the National Development and Reform Commission (NDRC), and attended by officials from related ministries, enterprises, environmental exchanges and think tanks, a participant told China Daily on 21 July on condition of anonymity. The consensus that a domestic carbon-trading scheme is essential was reached, but a debate is still

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ongoing among experts and industries regarding what approach should be adopted," the source said. The meeting concluded that such efforts are self-imposed and should be strictly separated from ongoing international negotiations for a successor to the Kyoto Protocol to fight global warming, the source said. As a developing country, China does not shoulder legally binding responsibilities to reduce carbon emissions, according to the basic principle set by the United Nations Framework Convention on Climate Change. Putting a price on carbon is a crucial step for the country to employ the market to reduce its carbon emissions and genuinely shift to a low-carbon economy, industry analysts said. China has mostly relied on administrative tools to realize its 20 percent energy intensity reduction target between 2006 to 2010. To that effect, the country's top 1,000 energy consumers have signed contracts with the central government to improve their energy efficiency. But with rising domestic energy demand, administrative measures are too expensive for the country to meet its future energy conservation targets - something that was also agreed at the meeting, said Tang Renhu from the low-carbon center at China Datang Corporation who also joined the discussion. Although China has refuted the International Energy Agency's label of being the world's top energy consumer, its energy consumption for 2009 stood at 2.132 billion tons of oil equivalent, according to the National Bureau of Statistics. "The market-based carbon-trading schemes will be a cost-effective supplement to administrative means," said Yu Jie, an independent policy observer who previously worked for several international climate-related institutes. Tang also said the differences are centered on whether the pilot carbon trade projects should start from a selected industry, or a certain area. Possible sectors for piloting carbon trade projects include carbon-intensive industries such as coal-fired power generation, Tang said. One of the proposals include setting an absolute cap on carbon dioxide emissions in a certain area or industry. Others argue that the country's carbon intensity target can be converted to some carbon-related allowances for trading schemes. China has pledged to cut its carbon emissions per unit of economic growth by 40 to 45 percent by 2020 from 2005 levels. Yu said it would be very complicated to work out a trading scheme that allocates the carbon-related emission permits among the enterprises in an open and fair manner. "My suggestion is that the number of participating enterprises should be limited, as the goal of pilot trading is to try out the rules and establish a mechanism especially suitable for China," Yu said. China has been testing the waters with voluntary carbon trade, aimed at developing the necessary financial systems and policy tools. The country's first voluntary carbon trade was sealed last August, with a Shanghai-based auto insurance company buying more than 8,000 tons of carbon credits generated through a green commuting campaign during the Beijing Olympics. The trade was carried out through the China Beijing Environment Exchange. Sun Cuihua, an official from the NDRC's climate change department, earlier said the government is also working out rules to guide voluntary carbon trade projects in China. (Source: [China Daily](#))

10-year plan for clean energy

China plans to spend about 5 trillion yuan (US\$738 billion) in the next decade developing cleaner energy to cut emissions and reduce reliance on coal, a government official said. Plans to develop cleaner energy from 2011 to 2020 have been submitted to the State Council for approval, Jiang Bing, head of the National Energy Administration's planning and development department, told a media briefing in Beijing. The cleaner energy guidelines included the exploration of new energy and renewable energy such as nuclear, wind and solar power and geothermal energy as well as unconventional gas. Upgrades of conventional energy such as clean coal and the smart grid will also be included, Jiang said. "The world's major economies have all released clean energy policies to facilitate economic recovery and race to control the commanding point in the future world economic landscape," Jiang said. "China must take this opportunity to develop our own cleaner energy business, create new economic growth point and vie for a favorable position in the global competition." The

National Energy Administration also disclosed its energy plan for the next five years, which focuses on tighter measures to cut energy consumption, higher efficiency of traditional energy, acceleration of clean energy development and improvements of the energy transmission network. Under the five-year plan, non-fossil energy is targeted to make 11 percent of total energy consumption by 2015. Of this, natural gas usage could increase to 260 billion cubic meters, with hydropower capacity at 250 million kilowatts, nuclear power at 39 million kilowatts and biomass energy at 110 billion tons of standard coal. China pledged last year to cut carbon dioxide intensity - carbon dioxide emissions per unit of GDP - by 40 to 45 percent by 2020, compared with 2005 levels. Also by 2020, non-fossil energy was aimed to account for 15 percent of the total energy consumption. Nuclear power capacity is planned at more than 75 million kilowatts and hydropower at more than 300 million kilowatts. Biomass energy is expected to reach 240 billion tons of standard coal. Zhou Xi'an, an official from NEA, told the briefing that energy supply and demand kept growing steadily in the first half of this year and would remain stable for the second half. (Source: [China.org](#))

VOICES AND OPINIONS

Chinese vice president calls for more efforts to recruit global experts



Chinese Vice President Xi Jinping said more efforts should be put into a program for recruiting global experts, which was initiated in 2008. The experts should be respected and supported, and should be given a free hand in their work, Xi said. He urged leading Party and government officials across the country to provide decent work and living conditions for the experts. Overseas top-notch professionals were indispensable for China's drive of opening up and reform, he said. The recruitment of the experts was an

inevitable part of scientific and technological development, expansion of the country's talent pool and improved capacity of independent innovation, he added. Xi made the remarks when visiting 70 specialists recruited under the program, who were invited by the Central Committee of the Communist Party of China (CPC) and State Council to the northern seaside resort Beidaihe to holiday. By May this year, 662 people had been recruited under the program, which gives priority to leading scientists who are able to make breakthroughs in key technologies, develop high-tech industries and lead new research projects. Xi hailed the achievements of the program, saying it boosted the emerging industries, improved scientific research and promoted retention of talent. According to the National Medium and Long-term Talent Development Plan (2010-2020) unveiled in June, the government will work out favorable policies in terms of taxation, insurance, housing, children and spouse settlement, career development, research projects, and government awards for high-calibre overseas experts who are willing to work in China. (Source: [People Daily](#))

SCIENTIFIC ACTIVITIES

Health

Switching off Drug Resistance

Synthetic riboswitches can regulate gene expression and reduce antibacterial drug resistance and may increase the lifetime of traditional antibiotics, claim Chinese scientists. Antibiotic resistance is a serious healthcare issue with gene transfer and mutations believed to be the most plausible causes. Antibiotics, such as penicillin, ampicillin, amoxicillin and cephalosporin have found widespread applications leading to increased exposure and in turn increased resistance. In these systems, the main route of resistance is the expression of beta-lactamase. Here, the antibiotic is rendered inactive via a hydrolysis pathway of the beta-lactam ring. The discovery of new antibiotics and resistance pathway inhibitors has so far failed to keep up with the surge in antibiotic resistance. Therefore, researchers have looked at antisense agents, such as RNA, PNA and DNAzymes that combat drug resistance by inhibiting target genes. However, these systems suffer from poor gene expression and have unknown toxicity effects. WANG Shu and colleagues at Chinese Academy of Sciences, Beijing, have turned their attention to riboswitches that are capable of controlled gene expression and have demonstrated that a synthetic riboswitch containing a theophylline-specific aptamer sequence can regulate the expression of beta-lactamase through theophylline-aptamer interactions, sharply reducing the antibiotic resistance of the engineered bacteria. A riboswitch is a portion of an mRNA molecule and contains two parts: an aptamer and an expression platform. The aptamer contains the region that is capable of binding to a ligand and the expression platform modifies the gene expression when the ligand binds to the aptamer. (Further details in source: [CAS](#))

World's First Minimally Invasive Spine Surgery Robot Put into Trial in China

World's first specialized robot system capable of being used in minimally invasive spine surgery was put into clinical trials in Xinqiao hospital in Chongqing on July 11. The robot system with complete independent intellectual property rights was jointly researched and developed by the Third Military Medical University and the Chinese Academy of Sciences, which indicated a new era of domestically produced robots in clinical minimally invasive spine surgery. (Author: Cui Jiawen, People's Daily, July 13, 2010.) (Source: [CAS](#))



C-delta Promotes Renal Tubular Cell Apoptosis

A study team led by Li Xiaoning at Wuhan University Zhongnan Hospital found that the raised expression of C-delta in proteinuria makes a killer that induces renal tubular cell apoptosis, which means prohibiting the expression of C-delta in animals' kidney will be able to fence off the injury to renal tubular cells. The finding was published in the July 1, 2010 issue of Journal of the American Society of Nephrology. (Further details in source: [MOST](#))

Food, agriculture and fisheries, biotechnology

Insight on Chocolate Mutation of Silkworms

Chinese scientists at Southwest University Institute of Sericulture and System Biology reported their findings on the chocolate mutation of silkworms in the recent issue of PNAS, which provides an important insight for people to understand the insect's pigmentation patterning. With the support of National 973 Program, LIU Chun and coworkers, in collaboration with Japanese scientists, made a

chain analysis of chocolate mutation of silkworms, based on the findings on domesticated silkworm genome and through positional cloning. (Further details in source: [MOST](#))

Artificial Corneal Endothelium

FAN Tingjun and coworkers at Ocean University of China School of Marine Life started to work on artificial corneal endothelium in the early 2002. Researchers cultured cornea seed cells under an appropriate temperature using amnion as the rack. They began to transplant the artificial cornea in rabbits, cats, and macaques from the end of 2008. As of July 8, 2010, the implanted artificial corneal endothelium has kept New Zealand rabbit's cornea transparent for 391 days, domesticated cats for 209 days, and macaques for 119 days. The cornea lab, in collaboration with Qingdao Yuming Biotechnology, has completed the construction of a class III medical instrument workshop, with a permit to produce class III implants and artificial organs. The lab has also worked with Qingdao Zhonghao Bioengineering to develop a full artificial cornea. So far they have recombined corneal endothelium. Researchers plan to roll out a full artificial cornea and complete the needed animal tests in three or five years. (Source: [MOST](#))

Information and communication technologies

Minimally Invasive Surgery Robot

McroHand A, China's first minimally invasive surgery robot, passed its approval test on July 4, 2010. Jointly developed by Tianjin University, Nankai University, and Tianjin Medical University General Hospital under the financing of National 863 Program and National Outstanding Young Scientists Foundation, the new robot system was developed to perform minimal access surgery over the abdomen section, enjoying a range of technical innovations and inventions. (Further details in source: [MOST](#))

Cloud computing to be core technology for triple-network project

Cloud computing is set to be the core technology for the country's Next-Generation Broadcasting (NGB) networks as well as in the convergence of the country's telecommunications, Internet and broadcasting industries, Economic Information Daily reported, citing a government official. Sun Chuan, deputy head of the technology department of the State Administration of Radio, Film and Television (SARFT), made the remark at a recent seminar on cloud computing, the paper said. Xie Jinhui, vice director of the Academy of Broadcasting Planning of the SARFT, said the triple-network project and the NGB networks are aimed at providing users with more diversified and convenient services. Cloud computing technology can significantly reduce expenditure on data storage, computing and analysis because companies don't need to have expertise in or control over the "cloud" or a complex technology infrastructure. They can avoid costs on hardware, software, and services when they pay a third-party provider for only what they use. China's domestic cloud computing market will reach 300 billion yuan in the coming three years, the paper said, citing research firm International Data Corporation (IDC). Liu Peng, a professor with the Chinese Institute of Electronics' computer subcommittee, told the paper that the application of cloud computing in the triple-network convergence and the NGB would involve many enterprises in such fields as data storage, computing and processing; software development and data transmission; and network collaboration. (Source: [China Daily](#))

China's mobile phone users top 800 mln

China's mobile phone users topped 800 million by the end of June, said Zhang Feng, an official with the Ministry of Industry and Information Technology (MIIT). The country reported 1.1 billion telephone users at the end of June, including 300 million users of fixed-line phones, Zhang said. China's third-generation (3G) mobile phone service subscribers numbered 25.2 million at the end of June, Zhang said. The country will invest about 120 billion yuan (17.73 billion U.S. dollars) in 3G this year, Zhang said. The 3G services allow for video calls between 3G subscribers, and television and Internet access. (Source: [Xinhua net](#))

Submarine Robots with Artificial Mussels

A research team headed by Prof. GUO Shuxiang at Harbin Engineering University mastered the core technology to build a mini submarine robot in 2008. The robot is equipped with artificial mussels able to converse electric energy to mechanic energy, allowing being driven at a low voltage. Able to turn around and swing, the artificial mussel enjoys numerous merits. The bionic robots can be employed to detect water pollution, clean narrow pipes, collect underwater data, and assist clinical operations. They can also be employed as a team to work on different tasks. (Further details in source: [MOST](#))

Largest Domestic Data Center

Runze International Information Port, the largest data center park in the country, was inaugurated at the National Sustainable Development Experimental Park in Langfang, Hebei Province, to house G4 internet data storage and cloud computing centers. The park will be divided into 6 major sections: computer section, value-added service, industrial innovation, administrative service, project R&D, and functional service. Phase I project will be completed and put into operation in May 2011. (Further details in source: [MOST](#))

Nanosciences, Nanotechnologies, Materials and new Production Technologies

Important Breakthrough in Theoretical Research on Catalysis

Researchers from Dalian Institute of Chemical Physics, Chinese Academy of Sciences made breakthrough in research on material structure and CO oxidation through collaboration with Sunrise Power Group. The new concept, interface-confined effect, gave people a picture of strong adhesion between ferrous oxides and metal substrates, playing a guiding role in creating the new nano catalytic system. The report was published on Science, May 28. It was the first report in the world on the application of CO removal in relation to fuel cells. The breakthrough was highly valued by C&E News of the US and Chemistry World of the UK as a successful example of catalysis research from modeling to theoretical analysis and to application. (Source: [MOST](#))

Environment (including climate change)

Global Warming Brings Peace and Happiness

A study correlating economic and political changes in China's Middle Kingdom has found that warmer climate benefited society. By contrast, a fall of temperature of 2C was correlated with conflict and famine. "The collapses of the agricultural dynasties of the Han (25-220), Tang (618-907), Northern Song (960-1125), Southern Song (1127-1279) and Ming (1368-1644) are closely associated with low temperature or the rapid decline in temperature," say the academics led by the Chinese Academy of Sciences in Beijing. (Further details in source: [CAS](#))

China's Wars, Rebellions Driven by Climate: Study

Two millennia of foreign invasions and internal wars in China were driven more by cooling climate than by feudalism, class struggle or bad government, a bold study argued. Food shortages severe enough to spark civil turmoil or force hordes of starving nomads to swoop down from the Mongolian steppes were consistently linked to long periods of colder weather, the study found. In contrast, the Central Kingdom's periods of stability and prosperity occurred during sustained warm spells, the researchers said. Theories that weather-related calamities such as drought, floods and locust plagues steered the unravelling or creation of Chinese dynasties are not new. But until now, no one had systematically scanned the long sweep of China's tumultuous history to see exactly how climate and Chinese society might be intertwined. Chinese and European scientists led by ZHANG Zhibin of the Chinese Academy of Sciences in Beijing decided to compare two sets of data over 1,900 years. Digging into historical archives, they looked at the frequency of war, price hikes of rice, locust plagues, droughts and floods. For conflict, they distinguished between internal strife and external wars. At the same time, they reconstructed climate patterns over the period under review. "The collapses of the agricultural dynasties of the Han (25-220), Tang (618-907), Northern Song (960-1125), Southern Song (1127-1279) and Ming (1368-1644) are closely associated with low temperature or the rapid decline in temperature," they conclude. A shortage of food would have weakened these dynasties, and pushed nomads in the north -- even more vulnerable to dips in temperature -- to invade their southern, Chinese-speaking neighbours, the authors argued. A drop of 2.0 degrees Celsius (3.6 degrees Fahrenheit) in average annual air temperature can shorten the growing season for steppe grasses, which are critical for livestock, by up to 40 days. "When the climate worsens beyond what the available technology and economic system can compensate for, people are forced to move or starve," they said. The study found more droughts and floods during cold periods, but the factors that contributed most directly to wars and dynastic breakup were soaring rice prices and locust infestations. The Roman and Mayan empires, they noted, also fell during cold periods. ZHANG and colleagues speculated that periodic temperature shifts roughly every 160 or 320 years were related to natural climate changes, namely fluctuations in solar activity and in Earth's orbit and axial spin. The team said the findings demonstrate that climate change can lead to unrest and warfare. "Historians commonly attribute dynastic transitions or cycles to the quality of government and class struggles," according to the paper, published in the British journal *Proceedings of the Royal Society B*. "However, climatic fluctuation may be a significant factor interacting with social structures in affecting the rise and fall of cultures and dynasties." But the historical evidence they found points to global cooling, not to global warming, as the culprit. The scientists were cautious about making projections for the future. In 2007, the UN's Intergovernmental Panel on Climate Change (IPCC) said that man-made warming this century will lead to worse droughts, floods, harsh storms and sea level rise, with the potential to inflict hunger and misery on millions. (AFP) (Source: [CAS](#))

Sino-Nepal Joint Expedition to Koshi River Basin

Initiated by CAS Project Geo-Surface Processes and Regional Adaptation to Climate Change in Himalaya Region”, a seven-day field expedition to Koshi River Basin was conducted during July 2nd to 9th, 2010. Ten experts from China, Nepal and International Centre for Integrated Mountain Development (ICIMOD) went on this expedition. Experts traveled along the upper Koshi Basin, investigated the use of land resources, water resource, hazards, biodiversity and regional economic development of Boqu River and Pengqu River in Xigaze, Tibet. Moreover, experts visited the Geological Hazards Observation Station located in Zhangmu Town, Nielamu County and Qomolangma Station for Atmospheric and Environmental Observation and Research, CAS located in Tashi Dzong Village, Tingri County. In this fieldtrip, experts traveled from subtropical climate zone at altitude 1700 meters to cold mountainous areas at altitude 5300 meters in North Himalaya and accomplished this field mission finally. This field mission received full support from Tibet Science and Technology Department. (Source: [CAS](#))



Sino-Swiss Academic Exchanges Opens New Realms for Alpine Ecology Research



More than 20 professors and postgraduates from the University of Zurich, Beijing University and the Northwest Institute of Plateau Biology, Chinese Academy of Sciences (NWIPB) joined a Summer School Program from June 28 to July 9 held by NWIPB in the Haibei Station. The Summer School Program originated from a joint investigation in Tibetan alpine grassland conducted by Prof. Bernhard Schmid from the University of Zurich and Prof. HE Jinsheng with NWIPB in July of 2009. During the program, students conducted investigations in the field of the Haibei Alpine Ecosystem Research Station located in typical alpine grassland of the Qinghai-Tibet Plateau, which stimulated them to take different research interests in ecology. Through taking courses and cooperative teams, students studied the distribution characteristics of *Potentilla fruticosa* shrubs, the effect of ant nests on the surrounding plant diversity, etc.. (Further details in source: [CAS](#))

Enhanced Global Change Study

A major national research program was kicked off to study global change on July 9, 2010 in Beijing. 19 major projects were launched, including a study of the typical warming periods in the past 2000 years and associated impacts, climate environment change in China since the last glacial period and its impacts on human population in the arid and semi-arid areas, Southern Ocean-Indian Ocean ocean-atmosphere process and its impacts on East Asia and global climate change, and impacts of climate change on China’s food production system and associated adaptation. The new global change study initiative will build up China’s adaptability to global climate change, raising China’s influence in the area, enhancing China’s strength in studying global change, providing scientific evidences for securing a sustainable socioeconomic development, and rendering consultation and suggestions for China being part of international climate change talks and environment diplomacy. (Source: [MOST](#))

Sino-U.S. Scientist Team Completed Field Investigation to Northern Tibetan Plateau

As part of the plan of the major international cooperation project "The Asian monsoon - Environmental Evolution and Growth of the Tibetan Plateau," a Sino-U.S. scientist team completed field investigation to northern Tibetan Plateau, and returned to Institute of Earth Environment, CAS. The field investigation focused on the northern Tibetan Plateau, including the Fenghuoshan group, Yaxicuo group, Wudaoliang sediments, as well as their chronology and deformation features. The team also collected samples from Cenozoic



strata, and water & sediment samples from modern rivers and lakes at different heights. "The Asian monsoon - Environmental Evolution and Growth of the Tibetan Plateau", a Sino-U.S. project led by Prof. AN Zhisheng from Institute of Earth Environment, CAS and Prof. Peter Molnar from University of Colorado at Boulder, is jointly supported by China's National Natural Science Foundation of China (NSFC) and National Science Foundation (NSF) of the United States and plans a major focus on understanding how high terrain like Tibet affects the hydrological cycle of eastern Asia, of China in particular, but also of other surrounding areas affected by monsoon rainfall. The focus is not limited just to precipitation, but also address feedbacks between precipitation and vegetation, as well as what might be called the opposite of precipitation, loess deposition, for dust must be lofted from arid regions. (Further details in source: [CAS](#))

Energy

Largest Offshore Wind Mills into Operation

Shanghai East Sea Bridge 100-megawatt offshore wind turbines, the largest of its kind in the country, were put into operation and became part of the local power grid on July 6, 2010. The proprietary 34 3-megawatt wind turbines are designed with an installed capacity of 102 megawatts. The electricity generated from the East Sea Bridge wind mills will be first fed to the Shanghai Expo area. The operation of the marine wind mills will save Shanghai 100,000 tons of coal a year, with an annual CO2 emission reduction by 200,000 tons. (Further details in source: [MOST](#))

Huge solar station starts operation in Shanghai

The world's largest stand alone integrated photovoltaic (BIPV) project started transmitting power to the grid in Shanghai in another move showcasing China's commitment to reduced carbon emissions. The 6.68-megawatt solar system can produce 6.3 million kilowatt-hours (kwh) of electricity per year to meet the needs of 12,000 Shanghai households. It will cut coal consumption by 2,254 tons, while reducing carbon emissions by 6,600 tons. Chief engineer of the Ministry of Railway Zheng Jian said China will further encourage BIPV implementation at railway stations, which serve as an ideal vehicle to promote the technology. (Further details in source: [Xinhua.net](#))

New nuclear plant to land in Guangxi

China Guangdong Nuclear Power Holding Corp will start work on a nuclear power plant in Guangxi Zhuang autonomous region later this month. Guangxi Investment Group will partner China Guangdong in the Fangchenggang Nuclear Power Station. The State Council gave the green light for the project on

July 15, according to Lou Yun, a China Guangdong spokesman. The new plant will have six pressurized water reactors with an installed capacity of about 1,000 megawatts (mW) each, said Lou. (Further details in source: [People Daily](#))

PNNL, Chinese Researchers Begin Cooperative Clean Energy Work

PNNL is part of a joint U.S.-Chinese team embarking on projects in three separate research areas to accelerate the development and deployment of coal conversion, emissions capture and carbon storage technologies. Laboratory directors from the Department of Energy's Pacific Northwest National Laboratory in Richland, Wash., and the National Energy Technology Laboratory in Morgantown, W.Va., met with researchers from the Chinese Academy of Sciences in Beijing to kick off the new clean energy technology research effort in June. The projects are the first activities to come out of a 2009 memorandum of understanding among the three organizations. As part of the MOU, the research team, called the Clean Energy Partnership, will perform research projects in three areas. (Further details in source: [CAS](#))

China-Europe Energy Conference

The 6th China-Europe Energy Conference, co-sponsored by the Chinese Ministry of Science and Technology and the EU, was held July 6-7, 2010 in Shanghai. WAN Gang, Chinese Minister of Science and Technology, and Günther Oettinger, EU Energy Commissioner, made their remarks at the opening ceremony. WAN spoke about the deployment made by the Chinese government in developing and diffusion energy efficiency and emission reduction technologies and associated accomplishments. He thought highly of the energy cooperation between China and the EU, and wished the collaboration would go further and deeper, including strengthening joint basic researches in the area, escalating investment and collaboration in the area of new and high technologies, accelerating the spin-off of energy findings, and facilitating clean energy technology transfer. Oettinger made a positive response to WAN's remarks, saying that he would promote the energy cooperation between China and the EU, and render due contributions to securing the needed energy supply and mitigating the impacts of climate change. Participants discussed technological and industrial collaborations in three major areas, including renewable energy, intelligent power grid, and clean automobile, based on the topics of adaptation to climate change impacts through energy efficiency and emission reduction, and nurturing new strategic industries in the post financial crisis period. After the conference, European participants visited Chinese businesses in Jiangsu Province. (Source: [MOST](#))

China starts up first fourth generation nuclear reactor

Chinese scientists have succeeded in testing the country's first experimental fourth generation nuclear reactor, an expert said. The successful start up of the China Experimental Fast Reactor (CEFR) marked a breakthrough in China's fourth generation nuclear technology, and made China the eighth country in the world to own the technology, Zhang Donghui, general manager of the CEFR project, told Xinhua. China's existing 11 nuclear power generating units all use second generation of nuclear power generation technology. The country started the construction of its first third-generation pressurized water reactors using AP1000 technologies developed by US-based Westinghouse in 2009. Compared with the third generation reactors which have an utility rate of uranium of just one percent, CEFR boasts an utility rate of more than 60 percent. A new recycling technology called pyroprocessing is also used to close the fuel cycle by separating the unused fuel from most of the radioactive waste. "The

CEFR is safer, more environment-friendly, and more economic than its predecessors," Zhang said. (Source: [Global Times](#))

China shows strong resolve to develop clean energy: ITER

China had shown its commitment to developing clean energy through its strong support for an international alternative energy program, the International Thermonuclear Experimental Reactor or ITER, the head of the program's China office, Luo Delong said. "China's active participation in the international nuclear fusion project reflects the country's determination to promote the development of clean energy," Luo said. "It is also in line with China's long-term energy strategy," Luo said. Luo said China had made great efforts in helping establish the organization and the country would inject about 10 billion yuan (\$1.4 billion) to the project, about 10 percent of its total cost. China would also undertake nearly 10 percent of the project, producing various components and transporting them to Cadarache, southern France, where the ITER's reactor units would be constructed, he said. (Further details in source: [Global Times](#))

Transport (including aeronautics)

China establishes first aviation industry fund

A ceremony marking the establishment of the China Aviation Industry Fund and its cooperation with Tianjin municipal government was held in Tianjin on July 6, during which a series of investment and cooperation agreements was signed. The fund, which plans to raise 20 billion yuan, is China's first aviation industry fund and will be the largest industry fund in the country. The fund is set up by the Aviation Industry Corporation of China (AVIC) and China Construction Bank as China's first investment fund for the aviation industry and related fields. It will be managed by a company composed of subsidiaries of AVIC and the China Construction Bank. (Further details in source: [People Daily](#))

Chinese auto makers quicken energy-efficient vehicle development

Chinese automakers have begun to ramp up efforts to develop hybrid autos, a move which industry experts said is crucial for China to transform from being a "big nation" to a "powerful nation" within the auto industry. In the ongoing seventh China Automobile Fair in northeast China's Jilin Province, China FAW Group Corporation said the Besturn B50 plug-in hybrid vehicle, which employs multiple energy-saving techniques, would be available to consumers soon. Grappling with high emission challenges and maintaining sustainable development is essential for Chinese auto makers to sharpen their competitive edge against their global rivals, said Gao Bo, director with the Science and Information Department of the research center in China FAW Group Corporation. Analysts pointed out that developing a new energy automobile is the first choice for resolving emission problems, but a more feasible way is to advance technological innovation to prompt traditional vehicles to become more energy-efficient. (Further details in source: [People Daily](#))

High-speed rail links to be doubled by 2012

China will spend 800 billion yuan (US\$120 billion) as part of an ambitious plan to double its high-speed rail network by 2012, the Ministry of Railways said. The sum will be invested to lay more than 6,000 km of new high-speed tracks across the country, pushing the total length of high-speed railways to 13,000

km by 2012, Yu Bangli, chief economist with the Ministry of Railways, said at a press conference. China is now home to more high-speed rail lines - 6,920 km long for trains running at 200 to 350 km per hour - than any other country in the world. He Huawu, the ministry's chief engineer, said that China will set a new record by running trains at 380 km per hour on the Beijing-Shanghai link, which scheduled for completion before 2012. The 380 km-per-hour train is self-developed based on imported tech platform. He also said that under no circumstances did China "force" foreign companies to transfer their high-speed technologies to China. Instead, China has made its contribution by innovating and improving on the technologies, he said. With 946 patents on its high-speed railway, moreover, China now wants to export its own high-speed technology, and many countries - including the United States, Russia, Brazil and Saudi Arabia - have expressed interest. According to Zheng Jian, the ministry's chief planner, China's advantages lie in two areas. "We have mastered a full set of technologies, and have the advantage in construction time and cost," he said. (Further details in source: [China.org](#))

China will have 16,000 Kms of high-speed railways in 10 years

The total operational length of China's high-speed railways is expected to exceed 16,000 kilometers by 2020, Ministry of Railways Chief Economist Yu Bangli said on July 28. Currently, China has 6,920 kilometers of operating high-speed railways, and more than 10,000 kilometers are under construction. There are about 1,000 high-speed trains running on a total of 11 high-speed railway lines in China with an average train occupancy rate of nearly 102 percent, maintaining a thriving passenger flow, according to the Ministry of Railways. The length of China's operational railways will exceed 110,000 kilometers by 2012 and 120,000 kilometers by 2020. Furthermore, the length of newly-constructed high-speed railways will reach 13,000 kilometers by 2012 and more than 16,000 kilometers by 2020. (Further details in source: [People Daily](#))

Socioeconomic sciences and the Humanities

Chinese aging population reaches 167M: report

The Chinese aging population (refers to senior citizens over 60 years of age) of 2009 had reached 167 million, accounting for 12.5 percent of the country's total population, a report released by the China National Committee on Ageing on 13 July said. The aging number last year is 0.5 percent up from that of 2008, with 7.25 million more aging people. The report also shows the average life expectancy in China has surpassed 73, and 18.99 million people are over 80 years old. (Source: [China Daily](#))

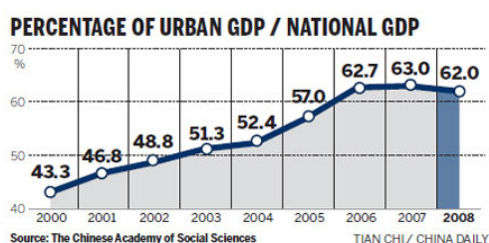
Livable China needed to keep elites at home

The population of overseas Chinese numbers 45 million, which means China has the largest overseas population of any nation in the world, according to an announcement by the Overseas Chinese Affairs Office on June 16. China's third mass emigration wave, which occurred in the past ten years, was dominated by the migration of students, savvy investors and skilled workers. The most popular destinations are Europe, the United States, Australia and Canada. Some scholars say the rich, not the intellectuals or skilled workers, make up the majority of the current emigration. They leave China with their wealth and children and then come back to make money. There are different reasons for migration, but it is indeed a signal that can not be ignored given the huge of outflow of wealth and elites. (Further details in source: [People Daily](#))

80% believe academic threshold exists

According to an online survey conducted by China Youth Daily Social Survey Center, 80.1 percent of the 1,718 participating netizens believe that an academic threshold definitely exists in our modern society, China Youth Daily reported. The survey showed that the top three fields that most care about academic credentials are job recruitment, professional title evaluation and promotion, with 86.0 percent, 81.7 percent and 77 percent. The survey also found that 72.7 percent of Chinese agreed that highly educated people received social respect; and 81.6 percent admitted they themselves attach great importance to educational background, only 2.8 percent disagreed. As for the reason well-educated people received more respect, experts attributed this to a "love affair with academics," which is commonly found in Chinese. For most of them, well-educated means better opportunity. (Source: [China Daily](#))

Urbanization expected to fuel economy



Accelerated urbanization can keep the country's economy on the fast track for another 15 to 20 years, as more than half of its population will live in cities and towns by 2015. The country's urbanization rate will hit 52 percent in 2015 and grow to 65 percent by 2030, the annual report on urban development by the Chinese Academy of Social Sciences (CASS) showed. By the end of last year, the urbanization rate already hit 46.6 percent, with 620 million people living in cities and towns, the CASS reported. "There are still many problems in the process, such as unbalanced development between the urban and rural areas, widening income gaps, lack of spatial planning and over-expansion of large cities, all of which need to be solved urgently," said Li Guoping, director of the China center for urban management research under Peking University. More attention will be given to the improvement of migrant workers' living standards, construction of environmentally friendly cities and building of city clusters in the next five-year plan, the CASS reported. (Further details in source: [Global Times](#))

Space

Interview: China contributes to space-based information access a lot: UN official

The United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) said China plays a large role in providing technical support to national and regional organizations that they will have access to and use space-based information to mitigate the negative impact of global climate change. The UN-SPIDER will officially open its third office in Beijing, China where it will effectively coordinate its entire program in ensuring the access to and develop the capacity to use all types of space-based information to support the full management of disaster management cycle. (Further details in source: [Global Times](#))

China, EU strengthen space technology co-op to monitor climate change

China and the European Union have strengthened their cooperation in space technology to better monitor climate change and improve the ability to prevent and control natural disasters. At a conference entitled "Let's Embrace Space" , held by the EU pavilion at the Shanghai World Expo, Reinhard Schulte Braucks, head of Unit Space Research and Development, European Commission, said air pollution is a common problem facing the entire world. He said China and the EU should strengthen cooperation and act to improve air quality monitoring. Further, China' s Ministry of Science and Technology and the European Space Agency are conducting a cooperation project-DRAGONESS, which is China' s largest international cooperation project in the field of earth observation. The project includes joint scientific research, sharing data, technological training and an exchange of scholars. (Further details in source: [Xinhua net](#))

Science team to study data from China's first lunar probe

China's space agency has set up a committee of 123 leading scientists to consider how the country might apply the vast amount of data acquired by China's first lunar probe. The project had resulted in data about the distribution and content of important elements on the moon, such as uranium, thorium, potassium, aluminum, silicon, iron and titanium, said the State Administration of Science, Technology and Industry for National Defense. China launched its first lunar probe Chang'e-1, named after China's mythical Moon Goddess, on Oct. 24, 2007 in southwestern Sichuan Province. The probe ended its 16-month mission on March 1, 2009, when it hit the lunar surface. The administration said in a statement that China was making "periodic" progress in processing, analyzing and studying the data from the probe, and the "world class" map of the moon's entire surface. The map, produced by a stereo camera using a charge-coupled device (CCD) on the probe to form images, was highly accurate, said Ouyang Ziyuan, chief scientist of China Lunar Exploration Project. The probe had also provided researchers with data on the microwave radiation temperatures of the lunar regolith, the powdery soil layer on the moon's surface, which was significant to identify the thickness of the regolith and the rare gases within it, said Ouyang. (Further details in source: [Xinhua net](#))

China to launch high-resolution mapping satellite

China's first high resolution, stereoscopic mapping satellite for civilian use will be launched during the second half of 2011, the State Bureau of Surveying and Mapping said. The satellite is expected to "provide steady and reliable data sources for surveying and mapping on the scale of 1:50,000." ZY-3 is to provide mapping to be used in wide-ranging sectors such as disaster prevention and reduction, water conservancy, agriculture, forestry, environmental protection, urban construction and planning, communications and national defense. The bureau is also working with the China Aerospace Science and Technology Corporation on the research and development of the next generation of satellites after the ZY-3. (Further details in source: [China.org](#))

People

More Funds for Information Study

According to a Memorandum of Understanding jointly signed by the Chinese National Natural Science Foundation and the Royal Society of Edinburgh, the two signatory parties will jointly finance the exchanges of research personnel based on the joint research projects between China and Scotland area. The Royal Society of Edinburgh will provide a financing package up to 6,000 pounds to a joint

research project on an annual basis, mainly as Chinese researchers' living expense in the UK and British researchers' airfare to China. Chinese National Natural Science Foundation will finance Chinese researchers' international airfare to the UK, and British researchers' living expense in China. In 2011, both sides will finance the projects in the area of information science. The exchange project has started to take applications, with October 8, 2010 as the deadline. The application shall be submitted to National Natural Science Foundation West Europe Division. The results will be published online at the end of December 2010. (Source: [MOST](#))

Research infrastructures

Underwater Robot Joins North Pole Expedition

A robot recently joined China's fourth North Pole expedition on the "Xue Long" arctic expedition ship. This signifies that China's independently-developed underwater robot has entered the practical application stage. The underwater robot, also known as the autonomous and remote underwater ocean environment monitoring vehicle, was developed by the Shenyang Institute of Automation under the Chinese Academy of Sciences. This underwater robot joined China's third North Pole expedition in 2008 and successfully completed field testing. The goal of the expedition is to further investigate the Arctic Ocean's rapid ice-changing mechanism, observe relevant sub-glacial processes and provide evidence for the ocean's ice-changing trend forecast. (People's Daily Online) (Source: [CAS](#))

Hydrothermal Vent and Cold Seep Data Collector

Scientists at the Lab of Marine Geology and Environment under the Chinese Academy of Sciences have developed an instrument able to measure the temperature, salinity, and pressure of deep sea hydrothermal vents and cold seeps. The subsurface buoy is able to descend to the target hydrothermal vent or cold seep in line with the preset program, or under an external instruction, measuring temperature, salinity, and pressure at deep sea hydrothermal vent and cold seep using the aboard sensors, and sending the collected data back to the control center. (Further details in source: [MOST](#))

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