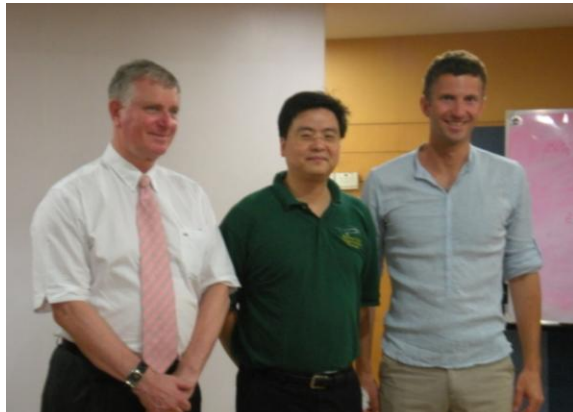


# EU Science and Technology Fellowship Programme China

News In Brief No.22 (August 2011)

## The lead expert and the office manager of the STF team visited Xi'an and Lanzhou



Left to right: Mr. Clemens Smolders, Prof. Cao Junji and Benjamin Guinot

The Lead Expert, Mr. Clemens Smolders and the STF office manager, Ms. HE Tingting visited Xi'an to meet with the STF 2 Fellow, Benjamin Guinot and his supervisor, Prof. CAO Junji at the CAS Institute of Earth Environment, as well as Mr. HE Changzhong, deputy director of Department of International Cooperation & Exchange of Xi'an Jiaotong University, to discuss the upcoming networking event in Xi'an from 31 October to 2 November.

They also visited the Office of International Cooperation and Exchange and the Institute of Dunhuang Studies in Lanzhou University in Gansu Province, to discuss a visit to Dunhuang and its famous Mogao Grottoes.

They were very pleased with the hospitality received by each institution and they look forward to the next phase of the preparations.

## China aims to draw more EU scientists

By Xiao Xiangyi (China Daily European Weekly)

China's efforts to improve its achievements in science is propelling other nations to further enhance their scientific ties with the nation.

Though China and the European Union (EU) began scientific Cooperation some time back, till now the balance was loaded heavily in favor of the EU with more and more Chinese scientists studying and undertaking research activities in the EU. Very few Europeans actually come to China for research activities.

But the changing global paradigm is likely to swing the pendulum in China's favor, as the nation plans to invest nearly 2.5 percent of its gross domestic product (GDP) on science and technology by 2020.

"Europe understands the huge potential for scientific research and is keen on working closely with nations that are important in the area of science and technology. In this regard there has been an increase in the level of research in China, as it slowly improves in standard. The EU now feels more than ever that it should further bolster its connections with China," says Clemens Smolders, lead expert of the **EU Science and Technology Fellowship Programme China (STF)**.

Keep reading:

<http://www.chinadaily.com.cn/china/2011weneurope/2011-06/24/content>

This article was published by China Daily European Weekly, June 24-30, 2011, Page 3.



Igor Cersosimo, an Italian researcher at Tsinghua University studying climate change, says he would like to stay longer in China. [China Daily]

## From the Fellows and Their Chinese Hosting Institutions

**STF2 Fellow, Carole Rodon (Lab for Cognition, Langues, Langage, Ergonomie (CLLE-LTC), University of Toulouse, France / Institute of Sociology, Shanghai Academy of Social Sciences, China):**



Carole Rodon, German Pavilion, Shanghai Expo, June 2010

To paraphrase Josephine Baker\* en français dans le texte, I would say I have two loves: My home country and Shanghai! It is such a pleasant experience to live in that city. I like the city in itself, the perfect balance between one taste for an ultra modernism and one willingness to not erase the spirit of the ancient Shanghai as in the former concessions ... It's like two different ways of life between which you can switch depending of your mood. And, I like people from Shanghai. I always have good exchanges with people there, always willing to help if I need, often open to talk about themselves and their own country. They are also always curious about my country, more particularly about our Caucasian type, my husband, our blondy-blue-eyes of 3-years old son and I 哈哈. Later, I discovered this is not just about Shanghainese but about Chinese people, like in Beijing for instance. I am not saying that I don't get seriously lost sometimes, in translation, in culture, in reactions etc...but even that finally, to be honest, I like it a lot ;-). More particularly because I'm a social psychologist, the way people think, behave, mutual influence etc. with the balance of the culture, this is what stimulates me. So to confront myself in situ to a different culture it's not only exciting but also inspiring for my research work. Of course it is

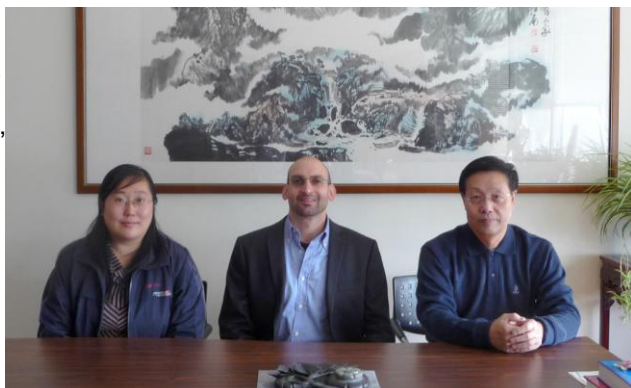
possible to drive social psychological research work about Chinese people without being continuously in China, but I am convinced that doing this kind of research work while I am living there in China, let me consider other social psychological factors I otherwise wouldn't think about. In other words, it drives me to another level of creativity, the basis of a research activity. In that way, the STF fellowship is particularly relevant.

*\* indeed, I am not quoting a renowned researcher!*

### **STF2 Fellow, Filippo Bedani (University of Amsterdam, the Netherlands / Dalian Institute of Chemical Physics, Liaoning, China):**

When I first got to know about the STF Programme, what made me curious about it was not just the idea of experiencing a different and fast-changing world, but also the chance of "taking a break" from science, which the six-month full-immersion Chinese language course would provide. This part of the Programme, thanks also to some travels we did around China, has been really interesting and enjoyable. Early enough one realizes that the idea of learning Chinese in six months is rather far-fetched. Yet, - once getting over from the initial disappointment! - one also finds out that six months are enough to achieve some basis, which are now revealing really helpful. It goes without saying that, in order to keep these bases "alive" and finally build on them, the efforts should continue. Luckily, for the moment, I do not mind doing that!

About six months ago, after the end of the language course, I moved from Beijing to Dalian and I am now "back" to science. My field of research is protein analysis by means of chromatographic techniques. As expected, it took a while to adapt to the new reality but, finally, the experiment has started and is (slowly but surely!) producing some first results. As known, proteins are extremely important compounds as virtually no process within cells occurs without their direct involvement. Therefore, their analysis is also relevant to many fields, and between them proteomics, food chemistry, pharmaceutical and life sciences. As proteins are very difficult to analyze as intact compounds, the most common approach to determine their structure, as well as to identify them, consists in (1) "breaking them apart" and (2) analyzing the resulting fragments (= peptides). The first step can be carried on in a solution but this approach is slow, requiring several hours to complete. Alternatively, this step can be performed in enzymatic (micro) reactors. When using this second approach not only the "breaking apart" time can be dramatically reduced but also the whole process can be automated. Main idea of my project is that of combining in the same experimental set-up several enzymatic (micro)reactors having different properties. In this way, more information about the protein structure can be potentially obtained. Thanks to the good quality of the equipment in the lab and to the good collaboration so far established with my colleagues, I am confident that the scientific part of the project will also lead to some good result.



*Left to right: Prof. Zhang Lihua (Full Professor in Analytical Chemistry), Filippo and Prof. Yukui Zhang (Full Professor in Analytical Chemistry and Member of the Chinese Academy of Sciences)*

### **Filippo Bedani's supervisor: Prof. Zhang Lihua, Full Professor in Analytical Chemistry**

The group of 'Separation and characterization of biomolecules' focuses the research on the development of new materials, methods, techniques and platforms for both qualitative and quantitative analysis of proteomes. Various functional materials, including protein/epitope imprinting polymers, core-shell nanoparticles, mesoporous materials, and monoliths, were prepared, to achieve the selective or universal enrichment of proteins or peptides. To perform on-line proteome digestion, immobilized enzymatic reactors were developed to shorten the digestion time from 12 h by the traditional in solution digestion to a few minutes, enabling the direct hyphenation with separation and identification systems. To improve the detection sensitivity of mass spectrometry (MS), various chemical derivatization techniques were applied, to improve the ionization capacity of peptides. Furthermore, integrated multidimensional platforms for both



*Filippo Bedani (left) and Mr. Clemens Smolder in the lab*

qualitative and quantitative proteome analysis were established, composed on multidimensional liquid chromatography for protein separation, on-line protein denaturation, reduction, digestion and isotope labeling by specially designed sample pretreatment devices, high resolution and high throughput peptide separation by nano reversed phase liquid chromatography with ultra-long and ultras smaller inner diameter monolithic columns, and peptides identification by various MS/MS techniques. All the above-mentioned strategies have been successfully applied into the analysis of cells, tissues and body fluids.

*Note: STF Lead Expert Mr. Clemens Smolders visited the Dalian Institute of Chemical Physics on July 18<sup>th</sup>. (<http://www.euchinastf.eu/?q=node/165>)*

## From Our Readers:

### [Kavli Institute for Astronomy and Astrophysics \(KIAA\) at Peking University](#)



As one of 15 high-profile international research institutes under the umbrella of the Kavli Foundation, the Kavli Institute for Astronomy and Astrophysics (KIAA) at Peking University aims at promoting basic research of the highest international standards in China. In a setup that deviates from the scientific and management structure of most Chinese university departments and institutes, daily scientific and administrative life at the KIAA is organised according to well-established international models. In addition, an advisory committee composed of senior scientists from around the world advises as regards proposed academic, workshop and visitor programmes and offers assistance with major issues such as those related to research direction, review of proposed faculty appointments, and performance evaluation. The newly established institute, which saw completion of its modern, refurbished building in the lush northern part of the campus of Peking University in late 2008, hosts both mainland Chinese and Taiwanese, as well as other international (British, Dutch, German, Italian, Japanese, Spanish and US) faculty and postdocs. It is designed to be a forum for global scientific exchange, an incubator of innovative projects, and a training centre for international postdocs and students. To this aim, the KIAA and its faculty organise a variety of academic activities and programmes to stimulate research and promote interdisciplinary interactions, in close collaboration with Peking University's well-respected Department of Astronomy.

The Kavli Foundation was founded by Norwegian physicist and industrialist Fred Kavli in December 2000. Dedicated to the advancement of basic sciences for the benefit of humanity, the Kavli Foundation supports scientific research in the fields of astrophysics, nanotechnology and neuroscience.

Since the founding of the first Kavli Institute for Theoretical Physics at the University of California at Santa Barbara in December 2001, the Kavli Foundation has thus far funded 15 Kavli institutes at major universities in the United States, Europe and China. The institutes are led by world-class scientists. Amongst them three are Nobel laureates while others are members of eminent organisations, including the American National Academy of Sciences, the American Academy of Arts and Sciences and the Royal Society of the United Kingdom. The Kavli Foundation also honours scientific achievement and promotes public understanding of scientists and their work through high-profile Kavli prizes in these fields.

You can refer to an article about the Kavli institute which appeared in *Physics world* <http://kiaa.pku.edu.cn/~grijs/physicsworld-kiaa.pdf>

*This article is provided by Prof. Richard de Grijs of Kavli Institute.*

## A Short Briefing

By Dr. Alasdair Jelfs, Managing Director of Merck Chemicals (Shanghai) Co., Ltd.

It was a lucky chance for me to meet Prof. David Evans in the Great Hall of the People at the launch of International Year of Chemistry in China on 9 April 2011. David and I had briefly overlapped as postdocs in Bristol University in 1986 and fate had brought us, he through an academic career, me through a business career with Merck KGaA to live in China from the mid-nineties and then to this chance meeting in Beijing. David introduced me to the EU STF program, which despite Merck's network in the EU and China, I had not heard of before. I think this is an inspiring concept because after 25 years of doing business in and around China, I am convinced that it will be a technological powerhouse from now on, in addition to being the world's second biggest economy, soon to reach the number one position. Scientific links between China and the EU are therefore important for both blocks, for their academic institutions and for scientists. Anybody joining the EU STF program is making an excellent choice particularly the fellows who take the challenge to learn a language and to know a culture which will be so important in the future. If I was 30 years younger, I hope I would make such an inspired choice!

For Merck, as a research driven pharmaceutical and chemical company, the program and the people who make it we also of great interest.

In China, I am responsible for the chemicals businesses, from Liquid Crystals where we lead the world in designing and blending molecules to optimize the performance of LCDs, effect pigments which brighten everyone lives with vivid colors for automotive paints to printing, plastics and cosmetics to security applications to our Merck Millipore where we are one of the top 3 providers of tools for life science. You probably know our reagents and high purity water systems. We also provide products for Bioscience, Biomonitoring and chemicals and process equipment for pharmaceutical and biopharmaceutical production. We spend 15% of our revenue on R&D and are always looking for talented motivated scientists in R&D, in case you want to take the challenge as I did, to go in the direction of business. Like many technology companies, China is our major focus, but we have a worldwide spread with strong roots in both the US and Europe.

*If you want to know more, please feel free to contact Shirley Zhu, Manager of Corporate Communications from Merck Chemicals China in Shanghai, via [shirley.zhu@merckgroup.com](mailto:shirley.zhu@merckgroup.com) for further information.*



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The EU STF China is designed to build bridges between the EU and China in the Science & Technology domain. It promotes the mobility of EU researchers to the Chinese research and development area.