

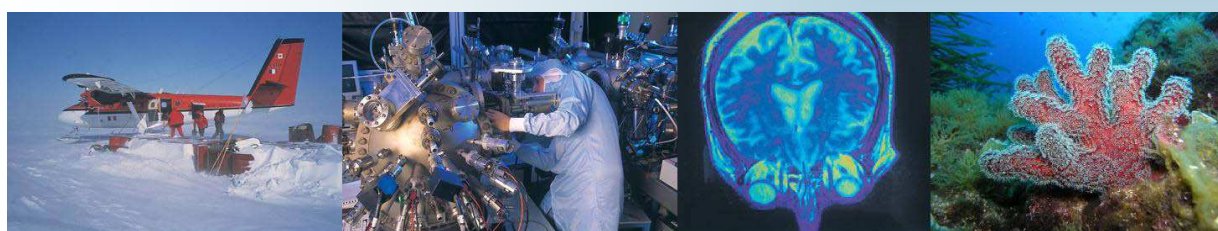
December 2008

Issue # 26



Feast-France Newsletter

Information for Australian French scientific cooperation



Editorial

Dear FEAST-France members,

The great news of the past few days was the signing by His Excellency Michel Filhol, Ambassador of France in Australia, and the Senator Kim Carr, Minister for Innovation, Industry, Science and Research of the Arrangement for **the French-Australian Science and Technology program**. This took place on December 15 and is the continuation of the previous MOU signed 5 years ago. It is under this arrangement that the FAST program, now well-known to most of our readers, can be financed. This financial support is bi-lateral and corresponds each year to about 250 000 AUD from the Australian Government and 150 000 € from the French government.

Both the Ambassador and the Minister have said that this signing is very important to both governments because it is clear that international cooperation in science is one of the major keys to significant progress, discoveries and achievements. Both have also acknowledged that the French and Australian scientific cooperation is of a very high standard and that they are thus particularly happy to contribute to reinforcing such strong research ties.

A copy of the press release sent by the Embassy of France can be found on page 5 and typical illustrations of the significance and advantages of such FAST programs can also be read in this issue.

Merry Christmas and Happy New Year

Professeur Michel Thibier
Conseiller Scientifique

For more information, don't forget to have a look regularly at the Embassy of France website <http://www.ambafrance-au.org>.

In this Issue :

Keynote speaker Donald Martin:

Australian Scientist Awarded Chair of Excellence in Nanosciences

p2

Press Release :

A new Agreement for scientific cooperation between Australia and France

p5

Prestigious award to a French doctoral student involved in a French-Australian cotutelle program

p6

By Marina Kvaskoff

"Sismos à l'Ecole" in Telopea Park School: still recording the Earth shake

p8

By Olivier Ngo

Understanding London dispersion forces in nano-materials

p9

By János Ángyán and John Dobson

Funding opportunities

p11

Editorial Committee:

Michel Thibier (Science & Technology Counsellor, Embassy of France)

Sébastien Languille (FEAST-France Bilateral Liaison Officer, Embassy of France)



Embassy of France in Australia

Scientific section

6, Perth Avenue, Yarralumla ACT 2600

Tel: +61 (0) 2 6216 0139; Fax: +61 (0) 2 6216 0156

E-mail: science@ambafrance-au.org

Website: www.ambafrance-au.org

Key Note Speaker: Australian Scientist Awarded Chaire d'Excellence in Nanosciences

By Donald Martin - Joseph Fourier University - Don.Martin@imag.fr

Donald Martin has been awarded a full Chaire d'Excellence in Nanosciences by the Réseau Thématique de Recherche Avancée (RTRA) «Nanosciences aux limites de la nanoélectronique» in the thème concerné «Le vivant aux limites de la nanoélectronique». This position is for 3 years until 2011 and is based in Grenoble where Donald is enjoying an alpine lifestyle in France. Donald is establishing a laboratory and group at the Joseph Fourier University to conduct research to create an artificial membrane system that controls ion transport in a way that mimics biological cellular processes, and thus allows a biomimetic generation of electrochemical energy. That knowledge will also provide a unique understanding of the optimum means to interface nanostructured electronic devices with biological cells and tissues. The Joseph Fourier University has patented the concept and the project has the acronym MekaNo, which conveys the exciting outcomes of the project to build devices for novel nanoelectronics solutions that are constructed by incorporating the body's natural self-assembly of transporting membranes with more conventional microelectronic packaging.

La tribune officielle at the inauguration of the Fondation RTRA «Nanosciences» included M. Michel Destot (Député – Maire de Grenoble), M. Philippe Gillet (Directeur de cabinet de Valérie Pécresse, Ministre de l'Enseignement supérieur et de la Recherche), M. Jean-Paul Duraud (Président de la Fondation RTRA), M. Alain Bugat (Administrateur général du CEA), M. Arnold Migus (Directeur général du CNRS), and Pr. Farid Ouabdesselam (Président de l'UJF).

The Chaire d'Excellence is a further strengthening of Donald's active fostering of French-Australian co-operation in nanosciences. This path for Donald commenced in 2002 with his participation in an Australian Trade Mission to France that was sponsored by the French-Australian Industrial Research program (FAIR).



Donald Martin speaking at the inauguration of the Fondation RTRA Nanosciences. The inauguration was held at the Musée de Grenoble on 19 September 2008.

The Australian FAIR delegation visited Grenoble where the vision for Nano2Life was gathering momentum, with champions such as Dr. Patrick Boisseau, Dr. Jean-Marc Grognet and Dr. Françoise Charbit driving the creation of Nano2Life from within the CEA. That sparked the seed for Donald to initiate OzNano₂Life, which became an international partner of Nano2Life. Nano2Life subsequently attracted 8.8MEuro of funding from the EC in 2003 for a 5-year program with a total budget of 15MEuro to build a European Network of Excellence in nanobiotechnology that encompassed 23 European partner organisations from 12 European countries.

The OzNano₂Life program brought together a network of Australian scientists to conduct research in nanobiotechnology in co-operation with European partners. The seeding group of 7 Australian scientists for OzNano₂Life visited Grenoble in 2003 and attended the conference "Nanobiotechnologies II" and participated in a special one-day workshop organised specifically by the CEA to engage those 7 Australians in discussions with key French researchers. Those 7 Australian scientists included Dr Donald Martin (*University of Technology, Sydney*), Prof Matt Trau (*Centre for Nanotechnology & Biomaterials, University of Queensland*), Dr Darren Martin (*The Nanomaterials Centre, University of Queensland*), Dr Peter Innis (*Intelligent Polymer*



La tribune officielle presiding over the inauguration of the Fondation RTRA which was held at the Musée de Grenoble on 19 September 2008.

(Continued from page 2)

Research Institute, University of Wollongong), Dr Maxine McCall (*CSIRO Molecular Sciences, Sydney*), Dr Karlis Gross (*QEI Fellow, Monash University*), and Dr Patrick Hartley (*CSIRO Molecular Sciences, Melbourne*).

From those seeds, the Australian government awarded the OzNano₂Life program 1M\$ of funding in 2004 under the ISL program of Backing Australia's Ability for a 2-year program to conduct research programs and international workshops in nanobiotechnology research.

The core group of Principal Investigators for the OzNano₂Life program included Dr Donald Martin (*Univ of Technol, Sydney*) – *Convenor*, Prof Frank Caruso (*University of Melbourne*), Dr Chris Elvin (*CSIRO Livestock Industries*), Dr Karlis Gross (*Monash University*), Dr Peter Innis (*IPRI, University of Wollongong*), Dr Bob Irving (*Nanotechnology Victoria*), A/Prof Ted McMurchie (*CSIRO Health Sci & Nutrition*), Prof Nikolai Petrovsky (*Flinders University*), Prof William Price (*University of Western Sydney*), A/Prof Joe Shapter (*Flinders University*), Prof Matt Trau (*AIBN, University of Queensland*), A/Prof Nico Voelcker (*Flinders University*), Prof Gordon Wallace (*IPRI, University of Wollongong*), and Dr Patrick Hartley (*CSIRO Health Sci & Nutrition*).



OzNano₂Life seeding group of Australians photographed in Grenoble for the conference "Nanobiotechnology II" in 2003. The group pictured from left-to-right are Dr Karlis Gross, Dr Donald Martin, Dr Patrick Hartley, Dr Peter Innis, Dr Maxine McCall, Dr Darren Martin and Prof Matt Trau.

The OzNano₂Life program conducted 6 international collaborative research programs, each with an ISL-funded postdoctoral scientist, in collaboration with partners in the European Union, Canada and the U.S.A. through a strong connection with the EU-funded Network of Excellence in nanobiotechnology (Nano2Life). In addition to the Nano2Life Network of Excellence, OzNano₂Life partner institutions included Centre d'Énergie Atomique (CEA-Léti, France), Univ.

of Münster (Germany), University of Lyon 1 (France), University of British Columbia (Canada), University of Chicago (U.S.A.), and Tyndall Research Institute (Ireland). Over the 2-year funded life the OzNano₂Life research programs produced more than 90 research outputs including a book, patents, chapters in other books, peer-reviewed journal publications, and conference presentations.

Whilst there has always been several Australian prominent Australian scientists maintaining individual collaborations with French scientists, the funding of the OzNano₂Life and Nano2Life programs developed a momentum for French-Australian co-operation in nanobiotechnology and nanosciences. This momentum was consolidated in Australia since 2004 with a series of OzNano₂Life workshops which brought several international scientists together with Australian scientists in the field of nanobiotechnology. There was a strong French flavour to that mix, with the inaugural OzNano₂Life workshop held at the French Embassy in Canberra and opened by H.E. Patrick Hénault, Ambassador of France at that time. The continuing support for OzNano₂Life by the NSW government and the French Embassy was highlighted in the workshop held at the NSW Parliament House where official presentations were made by Mr John Aquilina, Speaker of the Parliament, H.E. François Descoueyte, Ambassador of France at the time, and Mr John Murray, President of AFAS (NSW).

The French-Australian co-operation in nanobiotechnology has been strongly supported by several Science Attachés to the French Embassy, including M. Alain Moulet, Prof Robert Farhi and currently counsellor Prof Michel Thibier who have played critical roles in co-ordinating the French-Australian co-operation in science and technology.

The growth of a general networked structure in Australian nanosciences has been exponential since 2003, with the formation of the Australian Nanobiotechnology Network under the leadership of Prof Chenupatti Jagadish and funded by the ARC. The FEAST organisation continues to grow and support the co-operation of Australian scientists generally with European scientists.

However, it is pleasing to consider that the French character to this growth continues to be sustained by the support of the French and Australian governments for AFAS, AFCRIA. It is also significant that the Australian Academies, especially ATSE and championed by Prof Greg Tegart, continue to develop and foster co-operation through between Australian, French and European scientists in the nanosciences.

(Continued on page 4)

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Although the initial programs of Nano2Life and OzNano₂Life have now reached the end of their scheduled funding life-times, this is not the beginning of the end. The Nano2Life and OzNano₂Life programs initiated the co-ordinated momentum for much of the growth in nanobiotechnology in co-operation between France and Australia. The maturing of nanoscience R&D in France is assured by the establishment of organisations such as Minatec in Grenoble and French government support of the Pôles de Compétitivité, CEA, CNRS and the RTRA. Similarly, Australian R&D in nanoscience is well-served by the maturing of centres such as the AIBN, NanoVic, Centre for Nanoscience and Nanotechnology, and the ARCINN in addition to the strong presence of the CSIRO. Opportunities such as the Chaire d'Excellence awarded to Donald Martin, the increasing success of Australian scientists in participating in the EC programs and the strengthening of the FEAST, AFAS and AFCRIA organisations augur well for the continued growth of French-Australian co-operation in the nanosciences.



Some of the participants at the inaugural OzNano2Life workshop held at the French Embassy on 15-16 November 2004. Clockwise from front, Dr Donald Martin (back to camera), Dr Bob Irving, Mr Matt Gredley, Dr Chris Elvin, Dr Peter Innis, Prof Robert Farhi (obscured), Dr Karlis Gross, Dr Joe Shapter, Dr Wayne Leifert, Dr Simon Moulton, Prof Nikolai Petrovsky, Mrs Heather Dyne, Prof Michael Cortie, Prof Gordon Parkinson, Ms Lynne Hunter.



Press Release : A new Agreement for scientific cooperation between Australia and France

The long established scientific cooperation program between Australia and France is already of a very high standard in many scientific domains such as: physics, medicine, agronomy, environment amongst others. The previous arrangement that provided rules for scientific cooperation was due to conclude this year, however the French and Australian governments wished to formally renew the agreement to demonstrate their interest in this program and to contribute to its future impact.

This Arrangement was signed on December 15, 2008 by the French Ambassador, His Excellency Michel Filhol and Senator Kim Carr, Minister for Innovation, Industry, Science and Research.

The Ambassador indicated that "the French government is very pleased about the success of the French-Australian Science and Technology Program (FAST) which has been the source of much valuable scientific collaboration and has allowed cooperation programs to be established and extended over time". For example, over the past few years at the University of Western Australia, a FAST project has been set up by a team who have been cooperating with the animal physiology laboratories of INRA for more than 30 years and this has enabled their collaborative teamwork to be extended and reinforced.

The FAST program has allowed many French and Australian researchers to visit their partner laboratories, such exchanges are critical to the accomplishment of any common scientific program. Some scientists are accorded associate professor status in their partner laboratory, for example, in nanotechnology an Australian professor became an associate of the Grenoble University in France and in the area of modelling, a French professor is now an associate at ANU.

Senator Kim Carr emphasised his interest in international research and innovation cooperation and expressed his satisfaction with the scientific collaboration being undertaken with Europe and in particular with France.

Over the past 5 years, the FAST program has funded 65 projects financed jointly by the French government (Department of Foreign and European Affairs and the Department of Higher Education and Research) and the Australian government (Department of Innovation, Industry, Science and Research).

A recent survey conducted by the French Embassy has shown that researchers selected to participate in this program are very satisfied with their experience.

To find out more about the FAST program, visit <http://www.ambafrance-au.org/spip.php?rubrique105>.

Canberra, le 15 Décembre 2008.

Prestigious award to a French doctoral student involved in a French-Australian cotutelle program

By Marina Kvaskoff - University Paris XI (Orsay) - University of Queensland - kvaskoff@igr.fr

L'OREAL - UNESCO 2008 Award "For women in science": Marina Kvaskoff, is this year, one of the very few recipients of this prestigious Award "For women in Science". She is a French doctoral student, involved in a French-Australian Co-tutelle program, enrolled both at the *Université de Paris XI* (Orsay) and at the University of Queensland.



It is on the 17th November at the *Palais de la découverte* in Paris that took place the ceremony for the 2008 L'Oréal-UNESCO Awards "For Women in Science". For the second subsequent year, the L'Oréal Foundation delivered 10 research awards in France to highlight young female PhD students who wish to start a career in the field of science. This French national programme is in keeping with the partnership between the L'Oréal Foundation and the UNESCO, the international scheme "For Women in Science" that rewards since 1998 scientific women whose talent is worldly recognised.

The scholarships, of an amount of 10 000 € each,

have been delivered by a scientific jury chaired by the President of the French Academy of Sciences, Professor Jules Hoffmann. The objective of the scholarships is to promote scientific education in young women in order to encourage them to start a career in science. The awards also aim to allow young female scientists to make themselves known and to render their research work visible, and ultimately to help them reaching high level positions in research.

I had the chance and the honour to be awarded one of these scholarships this year. I am a doctoral student, and I am enrolled in a French-Australian Cotutelle PhD. Cotutelle is a relatively recent doctoral programme that allows to work in two different laboratories, in two different countries, and to be awarded a double doctoral degree at the end of the PhD. Since October 2006, I am enrolled both at the *Université de Paris XI* (France) and at the University of Queensland (Australia). My attachments are at the Inserm ERI 20 Team, Institut Gustave Roussy (Villejuif, France) where I am supervised by Dr Marie-Christine Boutron-Ruault, and at the Cancer and Population Studies Group, Queensland Institute of Medical Research (Brisbane, Australia) where my work is directed by Dr David Whiteman. My project was financially supported by the French Embassy in Australia and the Australian Academy of Sciences through a FEAST-France Cotutelle travel grant in 2007.

My fields of study are Public Health and Epidemiology. Epidemiology is the study of the distribution and the determinants of health outcomes and diseases in human populations. One of the aims of this discipline is to identify risk factors for diseases using epidemiological and statistical tools.

My PhD project focuses on the determinants of the risk of cutaneous melanoma, and more specifically on the role that hormonal, nutritional and genetic factors may play in the risk of this cancer. Indeed, it is speculated that there may be an association between certain reproductive and hormonal factors (such as pregnancy-related factors, age at menopause, use of hormonal treatments, history of benign gynaecological diseases...) or some dietary factors (such as alcohol consumption, intake of antioxidants...), and the risk of cutaneous melanoma. However, the results that have pre-

(Continued from page 6)

viously been found in the literature were conflicting and did not allow to draw firm conclusions. Also, more work needs to be done to better understand potential gene-environment interactions in the aetiology of cutaneous melanoma. To investigate these potential risk factors, I work on two large databases.

In France, I use data from E3N (Etude Epidémiologique auprès de femmes de la Mutuelle Générale de l'Education Nationale), a cohort of 100,000 French women from the National Education System who were born between 1925 and 1950, and who were followed up since 1990. My work in the Inserm ERI20 Team is about the relationship between reproductive and hormonal factors and the risk of cutaneous melanoma, and also on the potential association between diet and melanoma risk. Regarding hormonal factors, a first aspect of my work has been to study the link between benign gynaecological diseases and melanoma. Results from this analysis provided evidence for an association between endometriosis and melanoma, as well as for a link between melanoma and uterine fibroma¹. Regarding endometriosis, a correlation of genetic factors was speculated, and our results suggested evidence for this hypothesis in a subsequent study about the risk of endometriosis in relation to phenotypic factors (i.e. hair and skin colour, number of moles and freckles, and skin sensitivity to sun exposure)².

In Australia, I work on data from the Q-MEGA (Queensland Study of Melanoma: Environmental and Genetic Associations), a follow-up survey of four population-based samples of melanoma pa-

tients in the State of Queensland, comprising 3,471 subjects³. My interests in this study are to explore the distribution of risk factors for cutaneous melanoma according to some genetic variants, familial risk, and anatomical site of the disease, and this is the focus of my current research in Australia.

This collaboration between the Inserm and the Queensland Institute of Medical Research allows me to work within two research teams that are worldly recognised in their respective fields. On the one hand, I have the chance to benefit from the expertise and the remarkable data of the Inserm ERI20 regarding the study of cancer in relation to hormones and nutrition; and on the other hand, I can learn advanced research approaches in the study of melanoma within the Queensland Institute of Medical Research, which has developed a high expertise in the study of this cancer over the decades and has highly contributed to increase the available knowledge on this disease.

On the personal ground, this experience is incredibly enriching. I am very glad to have had the opportunity to travel during my doctoral studies, and to have the chance to take in different methodological approaches in two different contexts and environments. I also discovered a different culture, improved my English language, and met many interesting people, professionally and personally, and the experience is not finished yet. This is part of the educational process and is something that you can never be taught at University. In this sense, Cotutelle program is an extraordinary opportunity to broaden one's horizons and to open up one's future options.

¹Kvaskoff M, Mesrine S, Fournier A, Boutron-Ruault MC, Clavel-Chapelon F. Personal history of endometriosis and risk of cutaneous melanoma in a large prospective cohort of French women. *Arch Intern Med* 2007; 167:2061-2065 (Impact Factor: 8.4)

²Kvaskoff M, Mesrine S, Clavel-Chapelon F, Boutron-Ruault MC. Endometriosis risk in relation to naevi, freckles, and skin sensitivity to sun exposure: the French E3N cohort. Submitted, June 2008

³Baxter A⁺, Hughes M⁺, Kvaskoff M⁺, Siskind V⁺, Shekar S, Aitken JF, *et al.* The Queensland Study of Melanoma: Environmental and Genetic Associations (Q-MEGA). Study design, baseline characteristics, and repeatability of phenotype and sun exposure measures. *Twin Res Hum Genet* 2008;11(2):183-96 (Impact Factor: 1.5) ⁺These authors equally contributed to this work and were listed in alphabetical order

The French Science and Technology Fortnightly

(FST Fortnightly),

is a newsletter, published every two weeks. The contents cover all fields of research, and are intended to provide information about French progress in these fields.



To subscribe and receive every two weeks the FST fortnightly you can send an email at

science@ambafrance-au.org.

The latest issue of French Science and Technology (#62) is also available at: <http://www.ambafrance-au.org/spip.php?article2249>.

The BestOZ,

the "Bulletin Electronique pour la Science et Technologie en Australie" provides regular news, in French, about Australian research. It is published every two months, and is available in pdf format.



To read the BestOz, simply visit the following web page: <http://www.ambafrance-au.org/spip.php?article547>.

“Sismos à l’Ecole” in Telopea Park School: still recording the Earth shake

By Olivier Ngo - Telopea Park School - olivierngo@hotmail.com



An educational seismic station was installed last July in Telopea Park School / Le Lycée Franco-Australien de Canberra (see Feast-France Newsletter, Issue #24). Our station is part of an international network called “Sismos à l’Ecole” numbering 45 stations installed in schools in metropolitan France, the overseas departments and territories, and French high schools abroad. The original and innovative idea of this project is to record seismic activity around the world in order to feed an online database which serves as a starting point for educational and scientific activities within schools.

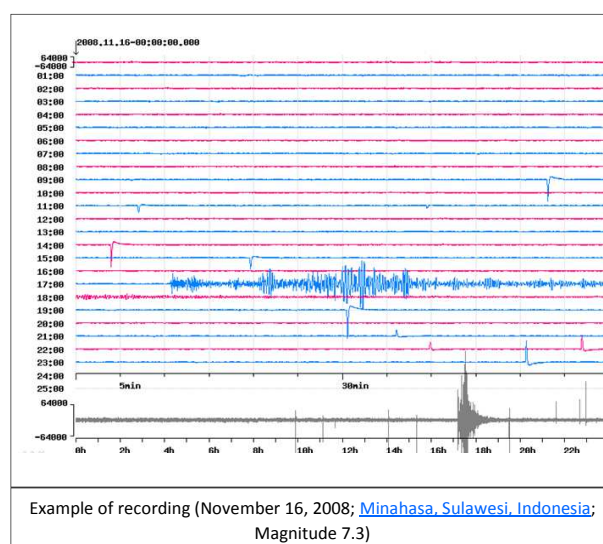
Many things have happened in relation to our station since last July. The first challenge to overcome was to put our device online, thus connecting us to the rest of the network and making our data available to the rest of the world. Our recordings can now be viewed on the following page:

<http://canb.telopea.act.edu.au>

The initiator and coordinator of the project at the international level, Mr Jean-Luc Berenguer, came to hold a three-day workshop for the Telopea Park School teachers and to give a presentation to our scientific partners and supporters last August. Mr Berenguer’s visit was made possible by the generous contribution of the AFAS (Australian French Association for Science & Technology) which covered the cost of the airfare.

At the beginning of November, Olivier Ngo, manager of the Canberra station, attended a workshop in southern France along with the managers of the other stations. The purpose of this workshop was to share pedagogical activities about seismology and to strengthen links within the network. For instance, Telopea Park School is currently working on a common project with the station located on Reunion Island.

The data recorded by our station are now regularly used in our classes to emphasize the notions of our curriculum (seismic waves, seismic wave speed, research of the epicentre, earth deep structure, shadow zone, etc.). Working on genuine data recorded with a device installed within our school, thus visible to our students, helps them to grasp many scientific concepts and understand the importance of experimentation in science.



The “Sismos à l’Ecole” network is still expanding and new stations should soon be installed in the Asia-Pacific area, especially in zones directly hit by earthquakes, such as Japan and Indonesia. This will enable us to interact on a regular basis with other schools in our region and to emphasize the aspect of education of future citizens about seismic risks.

Link to the latest article about our project published on the AEFE-Asie website (in French): <http://www.aefe-asie.net/>



Telopea Park School
Lycée Franco-Australien de Canberra



Understanding London dispersion forces in nano-materials

By **János Ángyán** - Nancy-University, France - Janos.Angyan@lcm3b.uhp-nancy.fr
John Dobson - Griffith University, Australia - j.dobson@griffith.edu.au

Anyone who has spent much time in tropical countries has probably seen a gecko climbing up a smooth wall or even running, upside down, across the ceiling. These small nocturnal lizards manage these amazing feats by virtue of millions of tiny hairs on the underside of their toes, hairs that come into intimate contact with the surface on which the gecko is moving (see Figure 1).

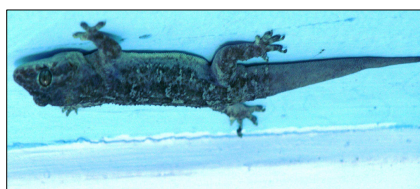


Figure 1. Gecko on a ceiling sticking by van der Waals forces. (Photo by J. Dobson)

Inspired by these phenomena, scientists have recently developed an ultra-strong re-useable glue by assembling a forest of carbon nanotubes, which act like synthetic gecko-hairs [1].

A major part of the force that causes carbon nanotubes (or gecko hairs) to stick to the substrate is the dispersion force, which is a universal attractive force between fluctuating charge distributions. In particular London dispersion forces are due to the coupling of spontaneous quantum fluctuations of the electrons, and as an important contribution to the weak intermolecular forces, sometimes it is also termed as the van der Waals (vdW) force.

The same type of vdW force drives the self-assembly of tiny nanostructures, a process which it is hoped will one day revolutionize the electronics and optics industries by allowing the packing of electronic, mechanical and

optical components to an unprecedented density, thereby increasing speed and processing ability.

vdW forces also occur between atoms and molecules, the building blocks of everyday materials. There they are weaker than most types of chemical bonding force, and are quite difficult to predict accurately from theory. High-level quantum chemical calculations are currently able to analyse vdW forces between atoms and small molecules, but a detailed study of larger structures still presents great difficulties. From the discussion above it is clearly important to understand in detail the vdW forces involved in the self-assembly of nanostructures that, while small compared with everyday objects, may still contain hundreds, thousands or millions of atoms.

It is this problem that inspired a group of French and Australian theoretical physicists and quantum chemists to join forces in a FAST project entitled "Collaboration between chemists and physicists to study Van der Waals interactions". This collaboration involves 2 French (Nancy-University and Paris VI) as well as 3 Australian universities (Griffith Brisbane, RMIT Melbourne and ANU Canberra).

Understanding of weak intermolecular forces between electrically neutral atoms and molecules was in fact one of the first challenges to early quantum theory. It was London who succeeded in giving an interpretation to these universal attractive forces in terms of the correlation between quantum fluctuations of electron distributions. It means that spontaneous oscillations of the electronic charge lose their

independence at become coupled to the oscillations of their neighbours. This coupling is realized in such a way that the total energy is always lowered by an amount which depends on their distance and on the magnitude of the spontaneous oscillations. London was able also to provide a simple mathematical formula to relate the excess potential energy gained by such an interaction between two atoms: it decays with the sixth inverse power of their distance and roughly proportional to their polarizabilities. London's formula is usually considered as a universally valid model to explain dispersion forces between extended bodies. For instance, it is a widely accepted hypothesis that on the basis of pairwise additive R-6 contributions it is possible to deduce effective power laws between objects like solid surfaces, thin plates or wires.

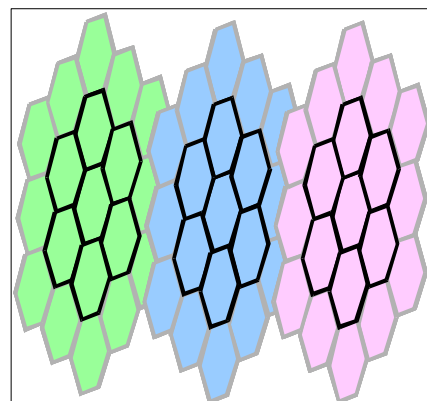


Figure 2. A trio of interacting graphene sheets.

However, one of the FAST participants recently showed [2] that this simple procedure could fail for electrically conducting nanostructures such as metallic nanotubes and the recently discovered graphene sheets, a strictly two-dimensional form of carbon. (See Fig 2.)

(Continued on page 10)

(Continued from page 9)

Hence a new approach is needed for the detailed prediction of vdW forces in nanostructures such as these, a category that includes many of the building blocks of new generations of nano-devices.

To this end, during September 2008, three French (J. Ángyán, A. Savin, J. Toulouse) and seven Australian participants (J.F. Dobson, T. Gould, I. Snook, M. Per, P.M.W. Gill and D. Crittenden) met for two weeks at Griffith University, Brisbane, to come to grips with this tricky theoretical and mathe-

matical problem. We reviewed available theory and challenges, and assembled a list of 12 specific areas and/or theoretical approaches where we expect to make progress in our continuing collaboration. This list includes for example “range-separated hybrid (RSH) methods” developed by the French workers, whereby the bare Coulomb force between electrons is divided into a short and a long-ranged part, with the long-ranged part treated by methods specially tailored to vdW physics [3]. Another approach contributed by the Australian side, and possibly to be combined with the RSH approach just out-

lined, was a scheme to evaluate the polarizability of electrons in a semilocal fashion, providing a more microscopic generalization of the well-known Lifshitz theory for macroscopic objects.

Currently the participants are working at their home institutions to develop the various approaches identified in Brisbane. We are scheduled to meet again in France during the summer of 2009.

[1] L. Qu, L. Dai, M. Stone, Z. Xia and Z. L. Wang, *Science* 322 (2008) 238.

[2] J.F. Dobson, A. White and A. Rubio, *Phys. Rev. Lett.* 96 (2006) 073201

[3] J.G. Ángyán, I.C. Gerber, A. Savin and J. Toulouse, *Phys. Rev. A* 72 (2005) 012510.

Funding opportunities

Chaires internationales



de recherche Blaise Pascal

The State and the Ile-de-France Region are establishing new International Research Chairs to accommodate highly qualified, internationally acclaimed, **foreign research scientists** in all scientific fields : exact sciences, life sciences, humanities and social sciences, applied sciences and new technologies.

Each Chair allows the foreign scientist to be hosted **for 12 full months, possibly spread over 2 years**, in one or more well-known Higher Learning or Research Institutions **in Paris/Ile-de-France** that are focused on a particular scientific project and are able to provide the suitable environment, equipment and means required.

The global financial amount attributed to each project can go up to **200 000 €** which includes among other things, salaries, social charges, taxes, accompanying expenses. The candidates are required to give about ten lectures (pedagogical program to be joined), will have to deliver an activity report and to organise a public seminar at the end of the period.

A multi-disciplinary jury, in association with the French Institute, will select 5 applicants for **2009** based on the scientific interest of the project for Ile-de-France Region, on its interdisciplinary characteristic and the quality of the application.

The applications must be received before **28 January 2009**. The foreign candidate may be hosted in Ile-de-France as early as September 2009.

Applications by female candidates are highly encouraged.

The applications must be filled jointly and presented by a person in charge of the laboratory receiving the candidate. The following documents are compulsory and must be presented in triplicate :

- [Registration form](#)
- [Financial form](#) : to evaluate financial requirements
- an activity and research project
- a pedagogical program
- a CV and a list of recent publications
- a letter of motivation from the hosting laboratory
- a letter of agreement from the Director of the hosting Establishment

Website: <http://www.chaires-blaise-pascal.org/uk/>

CEMAGREF, Postdoctoral contracts offers



The Cemagref is a scientific and technological public research institute under the dual aegis of the French Research and Agriculture ministries. It employs 1,350 people, including 950 engineers and researchers based in 9 sites across France.

Within the scheme initiated by the ministry in charge of Research, Cemagref offers in 2008 thesis and Post doc-

toral contracts. All the scientific topics of the institute are involved.

For more information and application form you can visit the French Embassy website at

www.ambafrance-au.org/article.php3?id_article=1588

Marie Curie International Research Staff Exchange Scheme (IRSES)

The Marie Curie International Staff Exchange Scheme is a new type of action first implemented in 2008, that aims to strengthen research partnerships through staff exchanges and networking activities between European research organisations and organisations from countries with which the Community has an S&T agreement or are in the process of negotiating one, and countries covered

by the European Neighbourhood policy. Compared to existing Marie Curie actions, which provide mobility possibilities to individual researchers, this new action will provide support to research organisations to establish or reinforce long-term research cooperation through a coordinated joint programme of exchange of researchers for short periods.

Please find all information on:

http://cordis.europa.eu/fp7/dc/?fuseaction=UserSite.PeopleDetailsCallPage&call_id=174

Feast-France Forum

You can post your message about practical information, grants, opportunities within France and Australia, etc...

You can visit the Feast-France forum at : www.feastfrance.org.



Seventh framework Programme

The objectives of the FP7 have been grouped into 4 categories: Cooperation, Ideas, People and Capacities. For each objective, a specific programme corresponds to the main areas of EU research policy. For more information and to know how to participate in FP7 you can visit the official FP7 website at:

http://cordis.europa.eu/fp7/home_en.html.

International scientific cooperation : useful websites

-> [EGIDE](http://www.egide.asso.fr)

(<http://www.egide.asso.fr>)

-> [Australian researcher's mobility](http://www.mobility.org.au)

(www.mobility.org.au)

-> [European researcher's mobility](http://ec.europa.eu/eracareers)

(<http://ec.europa.eu/eracareers>)