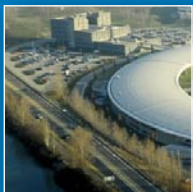




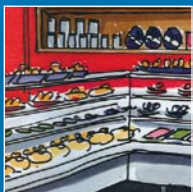
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William Stirling, Director-General

Synchrotron radiation with William Stirling

William Stirling has reached the end of his second term as Director-General of the European Synchrotron Radiation Facility (ESRF). Eight years after taking office, as the Synchrotron turns 20, we talk to a key British figure in Grenoble's scientific community who appreciates the value of collective effort.

What do you see as the key achievements at ESRF during your terms of office?

First of all the growth in our activity, reflected in a 30% to 40% increase in the number of publications since 2001. Experiments carried out on the Synchrotron now give rise to 1,500 publications a year. We are also receiving ever increasing numbers of research applications. Of the 2,000 or so files we receive annually, only half are selected after a difficult appraisal process.

The growth in activity has not resulted in a substantial increase in our budget and I should like to congratulate the teams at ESRF for the flexibility they have displayed in this respect and their remarkable commitment in keeping pace with these changes.

We have established structural biology partnership with ILL, EMBL, UJF and IBS. The launch of this centre of excellence, which is almost unique worldwide, is a fine achievement, testimony to our ability to pool our efforts.

What are the prospects for further development?

Nano-science and technology are constantly developing, leading to major changes. The partners of ESRF have always given thought to preparing the future and under the ESRF Upgrade Programme we are preparing to invest a further €100m over the next seven

years to keep up with the changes over a 10 to 15-year timeframe ... Which is actually just round the corner.

This will enable us to extend the experimental hall, for example, to set up longer beamlines with smaller beams. When ESRF was first built the beams were about 0.5mm across. They are now down to a micron and will soon only measure a few nanometres!

Furthermore, taking our cue from what we did for structural biology, other partnerships are on their way in fields such as soft matter, advanced materials or even intense magnetic fields.

How does ESRF now stand globally?

ESRF is one of the finest scientific tools in the world. Our lines and accelerators are among the most powerful and reliable in existence. It is to a large extent thanks to the entire ESRF workforce that we can now offer such homogeneity and reliability.

ESRF is also one of Europe's finest achievements. For one thing because its budget has remained steady over the years, and for another because the ESRF partners have provided for the future, which is crucial to maintain our global rank.

Lastly the diversity of the workforce is an exceptional asset, a source of riches and strength. It makes us different too, giving us an edge over other research centres.

> UPDATES <

Wheelabrator Allevard extending its plant at Le Cheylas

Wheelabrator Allevard has officially opened a major extension of its abrasive shot production plant at Le Cheylas, between Grenoble and Chambéry. With this €8m investment the world leader for metal abrasion and stone cutting products aims to boost output capacity by 40%.

The Cheylas plant first opened in 1961 and has been playing a key role in metallurgy in Grenoble-Isère ever since. With its research centre, it is also a major driving force for innovation.

Wheelabrator currently operates 22 factories in 20 countries worldwide. The extension of the Cheylas unit is testimony to the substantial growth achieved by the firm. It reported about €500m revenue in 2008, almost twice as much as five years ago.

Sofradir buys Electrophysics

Sofradir, which specializes in the design and manufacture of cooled infrared detectors for applications in defence, aerospace and industry, has announced the acquisition of Electrophysics, an American manufacturer of infrared equipment specializing in portable thermal imaging devices and light-intensification modules for night vision.

The takeover will enable Sofradir and its subsidiary Ulis to speed up development in North America, where the market is currently thought to be worth €700m.

Sofradir and Ulis delivered 40,000 infrared detectors in 2008, over two-thirds of which were exported. Their main customers are the US Army, Thales, Sagem, Selex, Alcatel Alenia Space and the European Space Agency.

ST and Inria promoting global excellence in Montbonnot

France's National Institute for Research in Computer Science and Control (Inria) and STMicroelectronics have signed a strategic partnership agreement on tomorrow's embedded systems. The aim is to anticipate and meet the challenges of tomorrow by providing the market with concrete solutions. STMicroelectronics will be streamlining technology innovation by developing and integrating new software on its chips. Inria will gain hands-on access to research problems related to key challenges and industrial issues.

This partnership, of national importance, is the result of longstanding cooperation between Inria and ST, in particular as part of the Minalogic competitive cluster. They have now decided to step up collaboration to stay at the cutting edge of global research ... in Rhône-Alpes.

> FEATURE <

Rexam Pharma becomes a partner of Eli Lilly



© Rexam

From left to the right: Mrs. Josiane Savarin, Director, customer services (Lilly), Mr Mike Jones, Director, Global Device Manufacturing (Lilly), Mr Marc Haemel, Managing Director (Rexam Pharma), Mr. Patrick Margier, Mayor of La Verpillière

The Rexam Pharma site in La Verpillière, Isère, has become the European supplier for the American pharmaceuticals firm, Eli Lilly and Co, manufacturing sub-assemblies for a new insulin-injection pen stylus. A 3,800 sq m extension to its existing premises is under construction and it will be used exclusively for producing the new

device. The new infrastructure represents a sizeable investment and will house a series of automated machines: injection presses, marking machines and an assembly line using ultrasound soldering technology.

Until now the Grenoble-Isère factory specialized in manufacturing drug delivery systems such as inhalers for asthma or injection systems enabling self-administration. The partnership between the world's second largest producer of medical packaging and the number 10 in pharmaceuticals is the result of collaboration that started in 2005 when the factory was purchased by Rexam Pharma, which is based in Britain.

The new agreement between two world leaders, with very different but complementary core trades, should ultimately lead to the creation of some 50 jobs at La Verpillière. The new facility is scheduled to start industrial output in 2009.

European ICT experts visit Grenoble



© European Commission

Viviane Reding, launching ICT'08

The National Institute for Research in Computer Science and Control (Inria), the Minatec Centre for Micro and Nanotechnology Innovation, and the Centre for Software and Smart Systems (Pils) opened their doors to participants attending ICT 2008 in Lyon at the end of November.

The ICT fair is Europe's largest gathering to focus on information and communications technology R&D. It is staged every two years by the European Commission and hosted by the country currently presiding the Union. The fair brings together leading players in digital technology (researchers, company directors, political decision-makers, etc.), the aim being to set the European agenda for ICT research and innovation, and present the relevant projects sponsored by the Seventh Framework Programme. Some 4,500 delegates attended in 2008.

It is consequently hardly surprising that ICT 2008 should have chosen to present work underway in Grenoble, a major European centre for innovation in micro and nanotechnology, IT and embedded software. This unusual combination, with its research centres, industry and universities, has achieved excellence and international recognition, enabling Grenoble-Isère to rise to the challenges posed by smart miniaturized chips.

> SPOTLIGHT <

Grenoble, at the core of the European research space

What do ESRF, ILL, EMBL and Iram have in common? All four advanced research facilities are models of international cooperation. It was Grenoble's exceptional scientific environment that enabled them to settle here and it is still attracting researchers from all over the world.

A little background

The Institut Laue Langevin (ILL) was set up in 1967 by Heinz Maier-Leibnitz, a German physicist, and by Professor Louis Néel, of France. They wanted to give their respective countries an extremely powerful source of neutron flux for the exploration of matter. In 1973 the United Kingdom joined the two partners. At the time ILL was something of a precursor in cooperation on European research. The European Molecular Biology Laboratory (EMBL) followed suit, moving into the Grenoble science park after signing an agreement with ILL in 1975.

In the 1980s Grenoble was chosen as the site of the future European Synchrotron Radiation Facility. The presence of ILL explains this choice, as neutron techniques and synchrotron X-radiation are largely complementary: "There was a snowball effect," says William Stirling, the Director-General of ESRF.

The eastern side of the city has plenty going on too. The Institute of Millimetric Radio Astronomy (Iram), was established in Saint-Martin d'Hères in 1979 at the instigation of France's National Centre for Scientific Research (CNRS), the Max Planck Gesellschaft, of Germany, and the National Geographical Institute (IGN), of Spain.

Exceptional firepower

The facilities on the science park are exemplary for their European cooperation. Thanks to their international governance they enjoy exceptional firepower, putting them in the front line of global research. Year in, year out, they attract some 10,000 researchers from all over the world to carry out observations in matter or nuclear physics, or indeed biology. But Iram also makes considerable use of international cooperation to play a vital role in astronomy. Its observation instruments (a telescope near Granada, Spain, and an interferometer in the French Alps, near Gap) are among the best in the world in the millimetric range.



EMBL

© D.R. / AEPI

Many Grenoble-based research projects have yielded decisive results, reflected in particular in the award of three Nobel prizes for physics: Rudolf Mössbauer in 1961, Louis Néel in 1970 and Klaus von Klitzing in 1985.

To maintain their global prominence the four European research centres need to make every possible use of available synergies. Witness the launch, in 2006, of the Partnership for Structural Biology (PSB), a centre of excellence that is virtually unique, bringing together ILL, ESRF, EMBL and Université Joseph Fourier. Another, more recent example is the decision to invest €100m to maintain the technological edge needed to carry out quality research.

A unique melting pot

Operating in complementary fields these instruments bring together physicists, chemists, biologists and so on. Gathered in one place this mass of researchers, from various horizons, along with the staff of the facilities, meet and exchange. New projects are thrown up, seemingly improbable synergies develop: "Such diversity is hard to gauge but it certainly exists and it constitutes an extraordinary strength," Stirling says, adding: "There's something special in Grenoble, a particular atmosphere that has always benefited ESRF."

This melting pot draws additional energy from the presence of students, PhDs and interns in large numbers. Training people to use the instruments is a major chal-



ESRF

© D.R. / AEPI

lenge for the centres, a priority reflected in the decision by ILL, ESRF and EMBL to take part in the European Hercules school which trains young researchers in the use of major instruments.

Europe and advanced research have set their sights on the future in Grenoble-Isère.

Large instrument profile

- **ILL**
 - Established: 1967
 - Founder countries: Germany, France, United Kingdom
 - Other member countries: Austria, Belgium, Spain, Hungary, Italy, Poland, Czech Republic, Sweden, Switzerland
- **EMBL**
 - Established: 1974
 - Implantation à Grenoble: 1975
 - Headquarters: Heidelberg (Germany)
 - Members: Germany, Austria, Belgium, Croatia, Denmark, Spain, Finland, France, Greece, Ireland, Iceland, Israel, Italy, Luxembourg, Norway, Netherlands, Portugal, Sweden, Switzerland, United Kingdom
- **ESRF**
 - Established: 1988
 - Members: Germany, Belgium, Denmark, Spain, Finland, France, Italy, Norway, Netherlands, United Kingdom, Sweden, Switzerland
 - Scientific associates: Austria, Hungary, Israel, Poland, Portugal, Czech Republic, Slovakia
- **IRAM**
 - Established: 1979
 - Members: Germany, Spain, France

> TIME OFF <

Heritage, fine food and graphic novels at Sainte-Cécile convent

This autumn the convent of Sainte-Cécile, at the heart of Grenoble's historic centre, became a rallying point for lovers of heritage, reading and fine food. This unusual combination was brought about by the Grenoble-based publisher Glénat, which will be celebrating 40 years of existence next year, and by Maison Pignol, one of Lyon's leading cake shops and caterers. The two organizations have moved into a former convent, previously occupied by the Order of the Bernardines

and the French army, serving just recently as a night club, cinema and theatre.

Editions Glénat, to whom France owes the mythical Titeuf comic character, had several aims, when it decided to move into a district well known for its antique dealers. It wanted to bring together the firm's entire workforce

under one roof, but also to create a unique centre for heritage and the arts. The convent has been painstakingly restored and decorated under the guidance of France's Directorate of Historic Buildings.

Jacques Glénat, the CEO of the eponymous firm and a keen cook, was keen to associate the venue with a leading light in local cuisine, boosting its attractiveness and originality. Pignol Sainte Cécile officially opened on 7 November, in what was once the convent's chapel. Occupying a total of 450 square metres, the restaurant, tea room and shop, with their contemporary design, enjoy a prestigious setting. Maison Pignol, a veritable institution in Lyon, already operates several restaurants and shops in neighbouring Rhône.

A visit not to be missed ... and *bon appétit!*



© Alain and Dominique Vavro



First page of the leaflet presenting the "automated flautist" by Vaucanson (Paris, 1738) (Coll. & picture © Musée Dauphinois)



Vaucanson

or the rediscovery of man and machines

In Grenoble, but also Lyon and Paris, Jacques Vaucanson (born Grenoble 1709, deceased Paris 1782) will be in the spotlight next year for the third centenary of his birth. A series of events will be paying tribute to this emblematic Enlightenment figure who designed automata such as the flute player or the digesting duck, artificial beings capable of behaving like living creatures. He also made a lasting contribution to reorganizing the silk industry in France, prefiguring the industrial era.

The festivities will include conferences, encounters, exhibitions and entertainment. There will be a whole series of scientific and cultural events, coordinated by the Tricentenary Organization Committee, under the aegis of the Maison des Sciences de l'Homme-Alpes and in partnership with Musée Dauphinois (Grenoble) and Musée des Arts et Métiers (Paris). The programme will also be drawing on a network of players and partners (Université Pierre Mendès France, Université Stendhal, Grenoble City Council, Greater Grenoble Urban Council, the Isère Departmental Council and the Rhône-Alpes Regional Council) proof in itself of the many disciplines on which Jacques Vaucanson touched and the enduring importance of his work.

At a time when relations between humans and machines are the focus of increasing interest and many are keen to achieve greater synergy between hard and human sciences, the anniversary of Vaucanson's birth is a perfect opportunity not only to rediscover the remarkable diversity and modernity of his work but also, above all, to extend the scope of dialogue between disciplines.



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