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*Photography by:  
C. Argoud, S. Claisse  
and C. Jarnias.*



*Professor Stirling (left) explaining the research carried out on BM28 - the British XMAS CRG beamline - to Sir M. Jay, British Ambassador to France during his visit to the ESRF in November 1998.*

## NEW DIRECTOR GENERAL FROM 1ST JANUARY 2001

The ESRF Council has appointed Professor William G. Stirling as Director General of the ESRF to succeed Yves Petroff from 1st January 2001, for a period of five years.

Professor Stirling is Professor of Experimental Physics (Condensed Matter Physics) at the University of Liverpool. His current research interests include X-ray investigations of the magnetic structures and phase transitions of magnetic materials (bulk, thin films and multilayers), which are among the core activities of the ESRF. Professor Stirling

has worked on these synchrotron experiments at ESRF, NSLS, HASYLAB and Daresbury. In collaboration with Professor M.J. Cooper of the University of Warwick, Professor Stirling directs the UK CRG beamline, XMAS.

Bill Stirling is well acquainted with the Grenoble research environment since he worked at the ILL from 1973 to 1987 and was a member and chairman of the ILL Scientific Council from 1992 until 1997 and subsequently has served on the ILL Steering Committee.



## HUNGARY JOINS THE ESRF

10 February 2000

On Thursday 10 February 2000, an arrangement was signed in Grenoble between the Department of Scientific Affairs of the Hungarian Ministry of Education and the ESRF concerning the scientific use of synchrotron radiation at the ESRF by Hungarian scientists. The signature took place at the occasion of the 10th ESRF Users' Meeting. The arrangement was signed by Professor Gábor Náray-Szabó (Head of the Department of Scientific Affairs of the Hungarian Ministry of Education) and by Professor Yves Petroff

(Director General of the ESRF). Also present during the signing ceremony was Professor Denes Lajos Nagy, Chairman of the Hungarian Synchrotron Radiation Committee. The arrangement came into effect on 1 July 2000 and has been concluded for a duration of two years. It is expected that during this period it will be replaced by an arrangement on the long-term use of synchrotron radiation with a consortium CENTRALSYNC, assembling scientific organisations from the Czech Republic, Hungary and Poland.

K. Witte



*Professor Gábor Náray-Szabó (left)  
and Professor Yves Petroff (right)*

## ESRF HOSTS ITS 10<sup>TH</sup> USERS' MEETING

10 February 2000

The ESRF hosted a very successful series of meetings around the 10th Users' Meeting last February. On 8 and 9 February, a workshop on Fast Structural Changes was coordinated by Heinz Graafsma. The aim of the workshop was to investigate the possible scientific progress that could be made if current detection limitations were overcome. The Plenary day (Thursday 10 February) was followed by two workshops, one on Self Organisation at Surfaces and Interfaces, coordinated by Detlef Smilgies, and the other on Challenging Problems in Structural Biology coordinated by Soichi Wakatsuki and Gordon Leonard. Each of them attracted approximately 100

participants, and this helped to ensure that the total number of participants over the five days exceeded 400. Since this was the tenth Users' meeting - although "Users" meetings actually started before any beam appeared - the Users' Organisation decided to offer a prize of 10 000 FF, twice the usual amount, to the winner of the Young Scientist Award. Richard Neutze, who currently works at the University of Uppsala, won the prize this year. He presented results covering picosecond biology, picosecond chemistry, and simulations of the potential for femtosecond X-ray imaging. The Plenary session talks also included four other highlights from ESRF-based research. Eric Dooryhee described

the fascinating detective work done on tiny amounts of cosmetic eye-shadow taken from ancient Egyptian artefacts; Anders Liljas surveyed the crystallographic studies of ribosomes and ribosomal subunits; Rainer Luebbbers discussed inelastic nuclear scattering studies of  $\alpha$  and  $\epsilon$  iron at pressures up to 42 GPa, and Carlo Meneghini described XAFS work on doped perovskites displaying colossal magnetoresistance. Over seventy posters were presented in a lively afternoon session. This was followed by a preview of the CD-ROM on synchrotrons and synchrotron radiation by Dominique Cornuejols. Recent results from the Medical Beamline were featured in a short talk by Bill Thomlinson, who shared a brief session in which industrial users from Unilever, L'Oréal and Aventis discussed the value of synchrotron radiation studies to their Research and Development. Our thanks to all those who helped make these days such a success.

The next Users' Meeting will be held on Monday 19 February 2001.

M. Cooper



*Dr Richard Neutze,  
who received the 10<sup>th</sup>  
Users' meeting Young  
Scientist Award.*



## BEAM INSTABILITY WORKSHOP

13/15 March 2000

60 participants from 19 laboratories from around the world attended the workshop from Monday through to Wednesday, 13 to 15 March. The subject of beam instabilities concerns most machines and there have been huge developments in understanding the controlling techniques for these instabilities over the past ten years. The workshop was therefore an excellent opportunity to get up-to-date on these critical issues and to raise a number of questions of interest to the ESRF, for example, understanding instability mechanisms, use of feedback, minimisation of impedance... The workshop was organised into plenary sessions in the morning and working group discussions in the afternoon. The two working groups dealt with "high intensity per bunch" and "multibunch". The workshop was a frank success and several proposals were forthcoming: the establishment of mailing lists,



crossed participation from several facilities for measurements of common interest, benchmarking the impedance of a few typical components with modelling software, installation of

a test impedance in a machine, standardisation of key hardware elements etc.

**D. Goodhew**

Proceedings of the workshop are available on-line:  
<http://www.esrf.fr/machine/myweb/machine/Workshop/BIW/BIWhome.htm>.

## REVIEW OF THE LATEST PROPOSALS FOR BEAM TIME

785 new applications for beam time arrived at the User Office for the March 1st deadline. Proposals came from labs in Europe, the USA and Japan, and from as far afield as Brazil, Korea and South Africa. A total of 12 529 shifts of beam time were requested for the current scheduling period, from August 2000 to mid February 2001.

The distribution of proposals across major scientific areas for this review round is shown in the figure

below. The nine Review Committees which met on 27 and 28 April 2000 selected 364 proposals (46.4%) which were allocated beam time totalling 5 904 shifts.

**R. Mason**

Surfaces and Interfaces	8 %
Chemistry	14 %
Hard Condensed Matter:	
Elect. & Magn. Properties	16 %
Hard Condensed Matter:	
Structures	19 %
Materials Eng. & Environmental Matters	11 %
Life Sciences	16 %
Methods and Instrumentation	7 %
Soft Condensed Matter	9 %





## ESRF WORKSHOP FOR INDUSTRY: POWDER DIFFRACTION ON PHARMACEUTICALS

29 March 2000

The ESRF was pleased to welcome a dozen participants for the workshop dedicated to the characterisation of pharmaceuticals by powder diffraction. The aim of this meeting was to give the participants an opportunity to discover the facilities of the ESRF and its potential in this important and highly specialised domain. Participants came from major European companies, such as Servier, Novartis, Glaxo Wellcome, Boehringer, Pierre Fabre and Laboratoire Fournier, as well as from smaller companies or university laboratories working in this field.

The programme began with scientific presentations: P.F. Lindley, Research Director, presented an outline of the ESRF, in which he explained the production of synchrotron light and the interest of the third generation sources. He also showed the reliability of the beam, an important parameter

for industrialists, and described the different beamlines and their status. Then, A. Kvik, Head of the Diffraction Group, and A. Fitch, scientist in charge of BM16, gave two presentations dedicated to the description of ID11 and BM16 beamlines and their use in the study of pharmaceutical powders. They explained that the brightness and high resolution of the ESRF beams allow more information to be extracted from powder diffraction than when using a classic X-ray laboratory source. The ESRF powder diffraction setups permit the measurement of the utmost high-resolution data for solving crystal structures, for quantitative phase analysis or real-time studies. Such precision is of prime importance in the study of polymorphism, stability during storage and structural changes that are induced either by temperature, hydration and other physico-chemical parameters, or after industrial processes

like milling, drying, grinding and tableting. Important also is the ability to make a highly accurate comparison of the crystalline forms of a generic drug with that of its original form. Finally, of great interest to the participants was the possibility of determining the crystalline structure from small crystals with dimensions as small as 10  $\mu\text{m}$  instead of powders, which considerably increases the chance of success.

After a guided tour of the facilities, the Industrial Co-ordinator gave a brief final presentation. He described the various access modes to the ESRF that are offered to the industrialists and gave an outline of a future service for powder diffraction on pharmaceuticals.

Following this workshop, the ESRF has received requests for analysis from half a dozen companies.

**J. Doucet**

## OPEN DAYS

20-21 May 2000

The ESRF, ILL and EMBL opened their doors to the public on the 20 and 21 May. Almost 1400 visitors came to

discover the three research facilities. They were not disappointed as the staff who participated in these open days did

their best to make it a very enjoyable and interesting occasion for all. In fact some of visitors who came on Saturday were so enthusiastic that they asked whether it was possible to come back on Sunday as well. The programme proposed at the ESRF permitted visitors to discover the various animated areas at their own pace, and, for some, half a day did not seem to be enough for a complete visit. After discovering the storage ring from the roof of the tunnel, our visitors were invited to learn about the secret of the resistance of spider silk on ID13, to admire the protein structures studied on ID14 and to listen to the explanations given by the staff of the Medical Beamline (ID17).

**C. Argoud**

*Visitors gathering around the scale model of the ESRF.*





## WORKSHOP ON THE STRUCTURE AND DYNAMICS OF THE LIQUID AND GLASSY STATES

22/23 May 2000

On Monday 22 and Tuesday 23 May, the ESRF played host to a workshop on "The Structure and Dynamics of the Liquid and Glassy States: X-ray and complementary methods". Approximately 80 participants united by a common interest in the science of structurally disordered condensed matter systems, enjoyed a workshop programme of 20 oral presentations and a lively poster

session with over 30 high quality contributions. Throughout this event, emphasis was placed on active audience participation and the programme was thus constructed to give ample room for lively scientific discussion and debate. It was pleasing to note that through the additional sponsorship provided by the Liquid Matter Network of the UK Engineering and Physical Sciences Research

Council and the Gruppo Nazionale di Struttura della Materia of the Italian Consiglio Nazionale delle Ricerche, a considerable number of young scientists, students and postdocs were able to attend this event. In fact, young scientists accounted for approximately 25% of the total workshop participants.

The scientific conclusions drawn from this workshop were wide ranging and highlighted several of the possibilities now raised by the powerful instrument suites of third generation synchrotron sources. However, perhaps the most important message that the participants were urged to take away with them, was that progress in this complex field of research can only be made through a holistic experimental approach - in particular (and by no means exclusively) through the combination of neutron, X-ray and computational methods.

**D.T. Bowron**



*Dr Paul-Erich Zinsli,  
New Chairman of the  
ESRF Council.*



## PAUL-ERICH ZINSLI, NEW CHAIRMAN OF THE ESRF COUNCIL

Since January 1, 2000, the ESRF Council has been chaired by Dr. Paul-Erich Zinsli, from Switzerland, who was elected by Council for a period of two years at its 31st meeting on June 7 and 8, 1999. He succeeds Georg von Klitzing, Chairman in 1998 and 1999.

Paul-Erich Zinsli, 56, has been Head of the Swiss Delegation to the ESRF since 1988 and Vice-Chairman of the ESRF Council from 1998 to 1999.

He is a physicist by training and

did research in gamma-ray detectors, time-resolved and low-temperature spectroscopy and molecular dynamics at UCLA and at the University of Bern. In 1980 P.-E. Zinsli joined the Federal Office for Education and Science in Bern where today he is the Deputy Director. His responsibilities cover research policy and planning as well as the financial support of national research institutions, of international organisations (CERN, ESO, ESRF, ILL, ...) and of international programmes (EU-Programmes, COST).

In international organisations, P.-E. Zinsli represents Switzerland e.g. in the Steering Committee of ILL, in the OECD Global Science Forum and in EU Fusion Research Committees.

The new Vice-Chairman of the ESRF Council is Robert Comès, Director of the Laboratoire pour l'utilisation du rayonnement électromagnétique (LURE).

**K. Witte**



## 32ND AND 33RD MEETINGS OF THE COUNCIL

1/2 December 1999 and 5/6 June 2000

**At its two most recent meetings, the Council decided several items of importance for the scientific and organisational future of the facility.**

### **Scientific matters and arrangements with third parties**

As reported earlier, the ESRF has rebuilt its Multiple Wavelength Anomalous Dispersion (MAD) beamline (BM14) at an insertion device location (ID29). The Council endorsed Management's proposal for transforming beamline BM14 into a CRG beamline with a view to keeping it in operation as a MAD beamline for protein crystallography, and recovering its construction costs for the beamline refurbishment budget. Given that two groups were interested, one from Spain and one from the UK, the Council endorsed a collaborative agreement between these two groups: for a transition period of two years, during which a further bending magnet beamline for macromolecular studies will be installed, the Spanish and the UK CRGs each obtain 50 % of the beamtime at BM14; afterwards the normal distribution of 1/3 for ESRF users and 2/3 for CRG users will be re-established at each of the two new CRG beamlines.

The Council noted the planned transfer of the powder diffraction facility from BM16 to an insertion device which will permit an increase in performance and, at the same time, provide the second bending magnet beamline for the above mentioned CRG groups mentioned above.

The Council agreed that medium-term arrangements on the use of the ESRF may be concluded with institutes from Poland and Hungary for a period of two years, along the lines of the arrangement concluded with the Institute of Physics of the Czech Academy of Sciences (the arrangement with Hungary was signed on 10th February 2000 and came into effect on 1st July 2000). It approved the

extension for a further five years of the contracts with the Collaborating Research Groups SNBL, D2AM, GILDA and IF, concerning the operation of the beamlines BM1, BM2, BM8 and BM32 respectively.

With a view to a better continuity in the staffing of the beamline teams, the Council raised the maximum number of permanent scientific appointments from 30 to 35. In addition, the Council agreed that some flexibility be introduced between the numbers of posts for fixed-term scientific appointments (beamline scientists, post-docs, thesis students, altogether about 120).

### **Legal, procedural and financial matters**

The Council noted the scientific use made of the ESRF over the six recent allocation periods, concluded that there was a significant and lasting imbalance between scientific use and contributions, and decided with a qualified majority (the Nordsync delegation voting against) that corrective measures were appropriate. To prepare such corrective actions a working group has been established (which had its first meeting on 14 September 2000).

Based on its industrial policy statement of June 1999, the Council adopted new guidelines for the use of the ESRF by industrial companies and new guidelines for licence agreements.

The new French legislation concerning the reduction of the working time had led to in-depth discussions between Management and staff on the work organisation. The Council endorsed by majority the agreement on the implementation of the 35-hour week legislation that the Director General had signed with two Unions, and confirmed at this occasion that, in accordance with §12.1 of the ESRF Statutes, a close link should be maintained between the salaries of the ESRF staff and those of the French Commissariat à l'Energie Atomique.

The Council took note of the final accounting of the construction period (1988-1998) and of the final adjustments of contributions between France, Germany, Italy and UK resulting therefrom. It approved, with the Italian delegation abstaining, the budget for 2000, providing for an expenditure of 436 245 kFF (66 505.12 kEuro) in payments and requiring Members' contributions of 404 000 kFF (61 589.40 kEuro).

The Council asked Management to remove the contribution of the Scientific Associate Portugal towards previous construction costs from the income figures in the budget and the medium-term financial estimates but appealed to Delegations to maintain their shares in these Portuguese back payments on their accounts for a possible later user with a view to an expansion of the experimental programme. It took note of the correspondingly revised medium-term financial estimates for the period from 2001 to 2005 and agreed the principles for the utilisation of additional income (e.g. from the sale of BM14 and BM16) embodied therein (i.e. re-investment into the beamline programme).

### **Appointment of Directors and Chairpersons**

The Council

- elected Robert Comès as its Vice-Chairman for the period from 1st January 2000 to 31st December 2001;
- appointed William G. Stirling as Director General for the period from 1st January 2001 to 31st December 2005;
- approved that the appointment of Director of Research from 1st October 2001 (in succession to Christof Kunz) to 30th September 2006 be offered to Francesco Sette;
- approved job descriptions and adopted procedures for seeking candidates for appointment as Machine Director from January 2002, as Director of Administration from February 2002 and as Director of Research (succession of Peter Lindley) from June 2002.

**K. Witte**