

CONTENTS

EDITORIAL About the Newsletter, PAGE 2.

NEWSLETTER IN BRIEF Portugal joins the ESRF, PAGE 3.
26th Council Meeting, PAGE 3.
34th Meeting of the Science Advisory Committee, PAGE 4.
Recent proposal reviews: results, PAGE 5, R. Mason.
International conference:
«Highlights in X-ray Synchrotron Radiation Research», PAGE 6.

EXPERIMENTS

REPORTS

X-ray diffraction on photonic colloidal single crystals, PAGE 8,
M. Megens, C. M. van Kats, P. Bösecke and W. L. Vos.
Fluctuations of freely-suspended smectic films as observed by diffuse X-ray reflectivity,
PAGE 10, W.H. de Jeu, E.A.L. Mol, G.C.L. Wong, J.-M. Petit and F. Rieutord.
**Structure determination of an organic superconductor by high-resolution powder
diffraction**, PAGE 14, A.N. Fitch, S.O. Svensson, H. Müller, M. Lorenzen and D.G. Xenikos.
Supramolecular organisation of collagen fibrils in human tissues, PAGE 18,
C. Mérigoux, D. Durand, J. Doucet, M. Eugène and O. Diat.
K-edge resonant inelastic X-ray scattering in graphite, PAGE 20,
P. Carra and M. van Veenendaal.
Spin-resolved circularly-polarised resonant photoemission, PAGE 24,
B. Sinkovic, E. Shekel, N.B. Brookes, J. B. Goedkoop, L. H. Tjeng, R. Hesper,
E. Pellegrin, F. M. F. de Groot, S. Altieri, G. A. Sawatzky and S. L. Hulbert.

**RESEARCH &
DEVELOPMENT**

Experimental shape optimisation of bent crystals, PAGE 30,
U. Lienert, S. Hartlaub and A. Freund.

EVENTS

International conference:
«Highlights in X-ray Synchrotron Research», PAGE 32.

*Photography by:
C. Argoud.*

ABOUT THE NEWSLETTER...

The ESRF Newsletter is published three times per year and is distributed free of charge to 7000 laboratories and scientists throughout the world.

If you wish to receive it regularly, please fill out the form below. You will also then receive the ESRF Highlights free of charge each year in the autumn.

The Newsletter, as well as the Highlights and the Annual Report, can be found on the Web at <http://www.esrf.fr>.

The Newsletter is published by the ESRF.

Editor: D. Cornuéjols

BP 220, F-38043

Grenoble cedex 9 (France)

e-mail: information@esrf.fr

Tel (33) 4 76 88 20 25

Dépôt légal : 3^{ème} trimestre

1997. Printed in France by

Repro-Express. Layout by

Pixel Project.

Name:

Company name:.....

Address:.....

PO box:.....

Country:.....

Please send to:

ESRF • Information Office

BP 220 • F-38043 Grenoble Cedex 9 • FRANCE

Fax: +33 76 88 24 18



PORTUGAL JOINS THE ESRF

The government of Portugal has expressed its interest in joining the ESRF as a Scientific Associate with a view to move to full membership once the involvement of the Portuguese scientific community in the ESRF has increased appropriately. The ESRF Council has agreed that an arrangement on the long-term use of synchrotron radiation is made between the ESRF and the government of Portugal and has authorised the Director General to enter into detailed negotiations on this item with the aim of admitting Portugal as a Scientific Associate with effect from 1 January 1998.

The ESRF Statutes stipulate that each Member to the ESRF shall hold at least 4% of the shares. This has led some of the Contracting Parties to form consortia such as Benesync (Belgium, The Netherlands) or Nordsync (Denmark, Finland, Norway, Sweden). However, the ESRF Convention also provides for another option of access suited for countries with relatively small scientific communities, namely "arrangements for long-term use of synchrotron radiation". At the end of 1996, the ESRF Council formalised this option by establishing a model arrangement with so-called Scientific Associates. Portugal is the first of several interested countries to make use of this access possibility.

In preparing for this associateship, a delegation of eighteen Portuguese scientists visited the ESRF on 5 April 1997, followed by the visit of Professor J.M. Gago, the Portuguese Minister for Science and Technology, on 16 May 1997.

Although the Portuguese government would have preferred full Membership in its own right, a share of 4% was not realistic given the present size of the Portuguese scientific community. Therefore, the status of Scientific Associate was chosen as a first step towards joining the ESRF. Meanwhile, the ESRF Council will start to discuss the question as to whether a reduction of the threshold for Membership to below 4% should be considered in the long term, e.g. after the end of the construction period (1988-1998).

In order that the community of users in Portugal can take full advantage of the ESRF it is planned that the ESRF and the Portuguese



Pr. J.M. Gago, Portuguese Minister for Science and Technology, in discussion with Pr. Petroff, ESRF Director General.

community set up a joint scientific committee. Its role would be to give advice to the Portuguese authorities on the development of research in Portugal related to the ESRF and on the allocation of national research funds in the areas where synchrotron radiation is an important research tool.

26TH COUNCIL MEETING

The 26th meeting of the ESRF Council was held in Grenoble on 10 and 11 June 1997. This time, the most eagerly awaited decision came under «Personnel matters»: the Council decided to offer Y. Petroff an extension of his appointment as **Director General** by three years, i.e. up to 31 December 2000.

The Council's approval of an arrangement with **Portugal** to become Scientific Associate as from 1 January 1998, is commented above.

The Council approved the establishment of a **Spanish**

Collaborating Research Group beamline at the ESRF, thus bringing the number of CRG beamlines to nine (with altogether 13 independent run stations).

The **financial planning** presented by Management which, for the coming years, provides for an increase of Members' contributions in line with the assumed inflation index (i.e. implying constant purchasing power) was only taken note of. The Council asked Management to prepare an alternative proposal to the 1998 budget, providing for 390 million French francs of new Members'

contributions (= same amount as 1997).

The Council (re-)appointed **Chairmen (and Vice-Chairmen)** of the

- Audit Committee / Administrative and Finance Committee: J.F. Conscience, (U.M. Grassano),
- Purchasing Committee: G. Luijckx, (S. Romo),
- Science Advisory Committee: R. Fourme, (M. Fuess),
- and, with effect from 1 January 1998, of the Council: G. von Klitzing, (P. Zinsli).

34TH MEETING OF THE SCIENCE ADVISORY COMMITTEE

On 15 and 16 May 1997, the Science Advisory Committee (SAC) met for the first time in its new composition (cf. ESRF Newsletter N° 27, p. 3).

As has now become regular practice, on the first half-day of their meeting the members of the SAC heard a series of presentations from ESRF staff and CRG members on recent scientific results and technical achievements (e.g. on the availability of high-energy photos up to 1 MeV, microdiffraction, X-ray optics and the solution of protein structures by using the MAD technique).

During the meeting proper, the SAC

- discussed Management's report and, in this context, was impressed by the continuous development of undulators and the prospects of the last one of the 30 ESRF beamlines (inelastic scattering)

whose construction will begin mid-1997;

- recalled the SAC's recommendation for a beamline 31 for low-energy applications, which is currently suspended due to budget and manpower constraints;

- appreciated the activity of the ESRF Users' Organisation, which was well presented by its present chairwoman, Sakura Pascarelli, as being very positive and allowing a smooth and efficient operation of the ESRF;

- studied the proposal for a Spanish multi-purpose CRG beamline and recommended the Council to approve this project while at the same time recommending more coordination between the then 10 materials science-oriented CRGs;

- discussed reports from the Review Committees on the last round of beam time applications and recommended

rules for the management of long-term applications for beam time which must be well justified by their nature and quality and,

- in the framework of the review of beamlines, noted the actions resulting from previous reports, discussed three new reports from beamline Review Committees and established a plan for further reviews. The recommendations of these review panels will form the basis for refurbishment and improvement of beamlines.

Finally, the SAC nominated a Chairman (R. Fourme) and a Vice-Chairman (H. Fuess) (subsequently appointed by the Council) and recommended the Council to involve the SAC in the selection procedure of the Director General and the Research Directors.

THE DIRECTOR GENERAL OF THE ESRF IS ASSISTED BY FOUR DIRECTORS:
THE MACHINE DIRECTOR, TWO RESEARCH DIRECTORS AND THE DIRECTOR OF ADMINISTRATION.
FOR THE PERIOD FROM 1 OCTOBER 1998 ONWARDS, THE ESRF IS SEEKING TO RECRUIT ITS

DIRECTOR OF ADMINISTRATION

The function

The Director of Administration is charged with the organisation of the administrative work related to the operation of the company. This includes all administrative and legal connections with outside companies, institutes and corporate members of the ESRF. He/she advises the Director General, the other Directors and the Heads of the Technical Services and Computing Services Divisions on administrative, procedural and legal matters.

The Director of Administration leads the Administration Division (36 posts) and is responsible for the establishment and operation of its budget, and for the recruitment and supervision of its staff.

In relation to the operation of the company, he/she is responsible for:

- advising the Director General on and co-ordinating proposals for the

company's annual budget and staffing plan,

- advising the Director General on the formulation of medium-term financial and staffing estimates,

- supporting the Council, its Administrative Committees and any sub-committees and working groups concerned with administrative matters that are set up by the Council,

- development of administrative systems,

- liaison with the Unions and the elected representatives of the staff,

- any other tasks or responsibilities which may be assigned by the Director General.

Qualifications and experience

The successful candidate should have:

- professional qualification in economics, law or science,

- well-developed conceptual and organisational skills,

- experience in a similar post,

- working knowledge of English and some French (any other European language would be an asset).

The successful candidate will have the full support and assistance of the Directorate as well as substantial independence in the fulfilment of his/her tasks.

The contract is to begin on 1 October 1998 and will be for a period of up to five years.

Individuals wishing to apply their conceptual skills, knowledge and experience in the operation of the ESRF should send their written applications by 1 October 1997 to the:

Chairman of the ESRF Council
BP 220
F-38043 Grenoble Cedex 9
France

RECENT PROPOSAL REVIEWS: RESULTS

Scientists interested in carrying out experiments on ESRF beamlines submitted a total of 678 applications for beam time for the recent 1 March deadline. They were applying for beam time on the 27 ESRF and 5 CRG beamlines which will be scheduling user experiments between July and December 1997. Following the meetings of the Review Committees at the ESRF late in April, 294 proposals were selected and allocated a total of 3759 shifts of beam time. The distribution of proposals submitted and allocated, by scientific area, is as **Table 1**:

<i>Review Committees</i>	<i>Proposals submitted</i>	<i>Proposals accepted</i>
<i>Chemistry</i>	102	41
<i>Hard Condensed Matter:</i>		
<i>Elect. & Magn. Properties</i>	104	55
<i>Hard Condensed Matter:</i>		
<i>Structures</i>	165	66
<i>Life Sciences</i>	155	69
<i>Methods and Instrumentation</i>	28	17
<i>Soft Condensed Matter</i>	68	25
<i>Surfaces and Interfaces</i>	56	21
Total	678	294

Table 1

Slightly more than 43% of the applications were successful this round when averaged across the different scientific areas; this compares with a mean success rate of 45% over previous rounds.

The number of shifts requested and allocated, per Review Committee, are shown for the current proposal round in **Figure 1**. **Figure 2** shows the number of shifts allocated compared with shifts requested, per scheduling period, since the beginning of operation with users in September 1994. It should be noted that the second scheduling period during each year is slightly shorter than the first, so that there are proportionately fewer shifts allocated and scheduled for user experiments during the second half of each year.

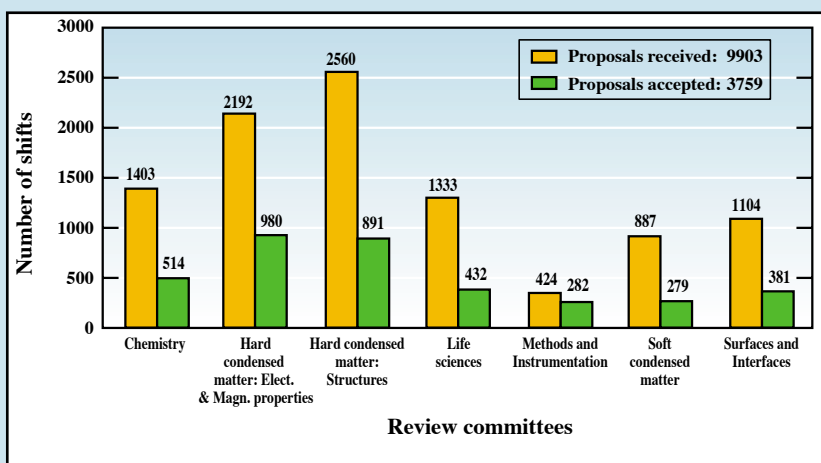


Fig. 1: Number of shifts of beam time requested and allocated, per Review Committee, for the scheduling period July to December 1997.

The beamlines most heavily in demand this round were ID16, for X-ray inelastic scattering, ID12B, the Dragon with polarisation selectivity, ID10, the Troika beamline, and ID2, which combines SAXS and biocrystallography applications.

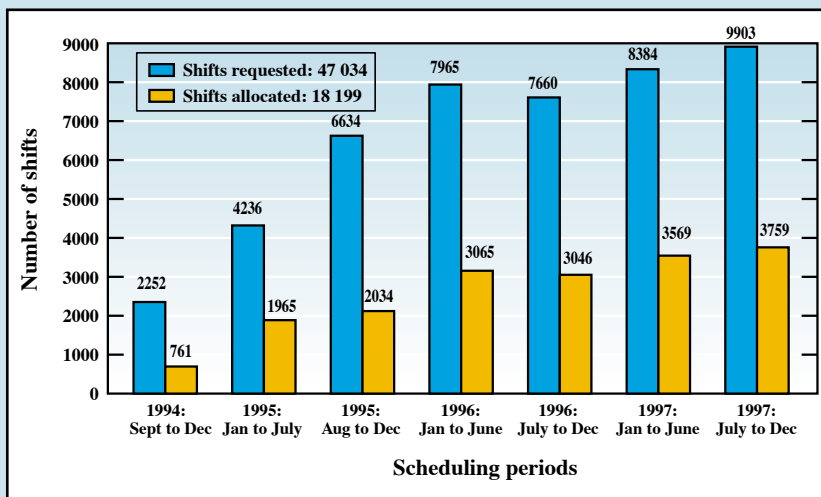
Prospective users are advised that the next deadline for proposals, for beam time between January and June 1998, is

Fig. 2: Total number of shifts of beam time requested and allocated, per scheduling period, September 1994 to December 1997.

1 September 1997

Further details, including beamlines open for experiments and applications for long term projects for the next scheduling period, will be available from July on the World Wide Web at the ESRF address: <http://www.esrf.fr>.

R. Mason





INTERNATIONAL CONFERENCE
HIGHLIGHTS IN X-RAY SYNCHROTRON RADIATION RESEARCH
17 - 20 NOVEMBER 1997

IN CONJUNCTION WITH
ESRF USERS' MEETING
21 NOVEMBER 1997



ORGANISED BY THE ESRF AT ATRIA WORLD TRADE CENTER, GRENOBLE

LIST OF INVITED
 SPEAKERS AT THE
 MAIN CONFERENCE

(AS OF 20 JUNE 1997)

Some additional speakers may be scheduled for these sessions in the next few months.

D. Andrault (Paris)
 J. Baruchel (Grenoble)
 B. Batterman (Ithaca)
 M. Blume (Brookhaven)
 U. Bonse (Dortmund)
 E. Burkel (Rostock)
 P. Carra (Grenoble)
 C-T. Chen (Hsinchu)
 M. Cooper (Warwick)
 J. Daillant (Saclay)
 S. Doniach (Stanford)
 S. Ferrer (Grenoble)
 J-M. Filhol (Grenoble)
 E. Gerdau (Hamburg)
 D. Gibbs (Brookhaven)
 J. Goedkoop (Grenoble)
 J. Gronkowski (Warsaw)
 G. Grübel (Grenoble)
 W. Hendrickson (New York)
 E. Kisker (Düsseldorf)
 P. Loubeyre (Paris)
 H-K. Mao (Washington)
 R. Martin (Urbana)
 A. Momose (Saitama)
 M. Parrinello (Stuttgart)
 A. J. Ryan (Manchester)
 G. Sawatzky (Groningen)
 J. Schneider (Hamburg)
 F. Sette (Grenoble)

S. Sinha (Argonne)
 A. Snigirev (Grenoble)
 P. Spanne (Grenoble)
 M. Stamm (Mainz)
 J. Trümper (Garching)
 S. W. Wilkins (Melbourne)

LIST OF INVITED
 SPEAKERS AT THE
 STRUCTURAL BIOLOGY
 SYMPOSIUM ON
 19 - 20 NOVEMBER

(AS OF 20 JUNE 1997)

Virus structures
 L. Liljas (Uppsala)
 M. Rossmann (West Lafayette)
 D. Stuart (Oxford)

Time-resolved crystallography
 J. Hajdu (Uppsala)
 K. Moffat (Chicago)
 I. Schlichting (Heidelberg)

DNA-replication, transcription, translation and repair
 S. Burley (New York)
 S. Cusack (Grenoble)
 L. Pearl (London)
 T. Richmond (Zürich)
 T. Steitz (Yale)

Membrane proteins
 N. Isaacs (Glasgow)
 H. Michel (Frankfurt)
 J. Rosenbusch (Basel)
 T. Schirmer (Basel)

In this anniversary year, the ESRF is organising an international conference in recognition of the pioneering work performed since the first observation of synchrotron radiation in 1947 and the remarkable results achieved.

It will emphasise the new impetus given to this research by the third generation synchrotron radiation sources in the X-ray range, in fields such as magnetism, high pressure, structural biology, imaging and topography, and soft condensed matter.

The scientific programme from Monday 17 - Thursday 20 November is made up of plenary lectures given by invited speakers on the above mentioned topics. These lectures will be followed by poster sessions in the late-afternoon. In parallel, a Structural Biology Symposium will be held on Wednesday 19 - Thursday 20 November and the annual Users' Meeting follows on Friday 21 November.

If you wish to receive the third circular of the Main Conference and Users' Meeting, which includes registration and accommodation forms, and you have not already requested further information, you can still complete the pre-registration form that can be found on the web at <http://www.esrf.fr> or contact the Conference Secretariat.

**Deadline for early registration:
 15 September 1997**

In addition to the Main Conference, satellite meetings are also being organised. Registration for these workshops is done using the SR50 and Users' Meeting registration form. If you have already ticked the relevant boxes on the pre-registration form you will receive information on these workshops automatically.

For specific information concerning the programme of each workshop you should contact:

Magnetism & X-ray Scattering

C. Vettier.
e-mail: SR50@esrf.fr
In e-mail start subject with: MXS

Imaging & High Resolution Diffraction on ID19

J. Baruchel.
e-mail: SR50@esrf.fr
In e-mail start subject with: ID19

Crystallography at High Pressure using S.R.

D. Häusermann.
e-mail: SR50@esrf.fr
In e-mail start subject with: HP

CONTACT:

Conference Secretariat • ESRF • BP220 • F-38043 Grenoble Cedex (France)
 Tel: +33 (0)4 76 88 26 80 • Fax: +33 (0)4 76 88 21 60 • E-mail: SR50@esrf.fr • <http://www.esrf.fr>



VACANCIES AT THE ESRF ON 24 JUNE 1997

	Ref	Subject	
SCIENTISTS (5-year contracts)	2203	Troika beamline	Experience: Previous postdoctoral experience with synchrotron radiation is essential.
	2117	XAFS experiments in the energy dispersive mode	
	2167	XAFS experiments on BM29	
	2157	Microfocus beamline (ID13)	
POST-DOC (2-year contracts)	PDID24	XAFS experiments in the energy dispersive mode	
	PDID26	X-ray fluorescence excitation spectroscopy on dilute systems	
	PDID10B	Troika II beamline	
	PDID9	Time resolved protein crystallography (ID9)	
STUDENTS (2-year contract, renewable 1 year)	CFR206	Conditioning of the time structure of synchrotron beams by X-ray optics	
	CFR209	X-ray diffraction topography and phase contrast imaging investigations of SOI-structures and SOI-based circuits	
	CFR210	Multi-wavelength anomalous dispersion (MAD) methods in macromolecular crystallography	
	CFR211	High resolution diffraction studies of powders	
ENGINEER	CDD/BPRW	Software engineer	
TECHNICIANS	1513	Radiation protection	
	6563	Draftsman/woman specialized in buildings	
	5505	Software technician	
	CDD/GN	Diagnostics technician (m/f) 8 to 9 month-contract	
	2540	Beamline technician	
ADMINISTRATIVE	2531	Secretary	

*If you are interested,
please send us a fax
(+33 (0) 4 76 88 24 60)
or an e-mail
(peritore@esrf.fr)
with your address,
and we will provide
you with an
application form.
You can also print
out an application
form on the World
Wide Web
<http://www.esrf.fr>*