EXPERIMENTAL PROGRAMME AND USER ACTIVITIES

1. SUMMARY OF THE USER ACTIVITIES IN 1997 AND 1998

1.1 Operation of Orphée reactor and LLB facility

The reactor Orphée operated 190 days in 1997 and 222 days in 1998. 3834 and 4518 experiment days were realized respectively in 1997 and in 1998 on the 24 scheduled instruments.
These values do not take into account the beam time given to the CRG teams on the following instruments : 2T (Kf Karlsruhe), G4.3 (University of Wien) and G5.2 (INFM, Italy, only for 1998). The CRG time is usually 1/3 of the Orphée operating time (25% for G5.2).
They include the full beam time for G4.4 (managed by ONERA), 5C2 (managed by University of Aachen) and G5.2 (INFM, for 1997).

Remark : The low operating time of the reactor in 1997 is of course due to the replacement of the zircaloy housing core (a square tube which contains the reactor core itself), which required a long shut-down from 13 july to 27 october 1997, i.e. 2 months more than the usual summer shut-down. Since 27 october 1997, the reactor operates with the new housing core very satisfactorily, and the scheduling of users activity could be made as previously planned.
At the Steering Committee of 13 january 1998, our funding agencies (CNRS and CEA) decided, for financial reasons, to decrease the operating time of Orphée from ~ 245 days (average value up to 1996) to 210 days per year, starting from 1998. Nevertheless, a specific authorization to pass this value was given for 1998 and 1999, in order to recover the 20 days shortage accumulated in 1997.

1.2. Instruments

The list and main characteristics of LLB instruments and a layout of their implantation are given in the introducing chapter « Presentation of LLB ».
In Table 1 are summarized the numbers of realized experiments and scheduled beam days, on the different instruments.
The new high resolution powder diffractometer, built in Gatchina, and installed in the guide hall in 1996, was progressively opened to users during the first semester of 1997.
Few instruments did not operate at full time, because of technical problems and/or refurbishment operations. In particular, new electronics and data acquisition programmes were installed on TV (Mibemol, G6.2). The mechanical parts of 5C1 were replaced by a-magnetic materials, necessary to operate the new 8 Teslas cryomagnet.

1.3 User statistics

Table 2 indicates the distribution of beam time per country (based on the location of the laboratory of the main applicant), for experiments realized in 1997 and 1998 respectively.
Around 70% of the total beam time was used by french users in 1997 and 1998, which is slightly more than in 1996. 29-30% was used by foreign users; this number includes 16% for European Union, 5% for CEI (Russia and Ukrainia) and 5% for PECO (Eastern and Central Europe) countries.
Among the E.U. users, those involved in the TMR access programme received 332.5 beam days in 1997 and 359 in 1998 (8.7% and 8.0% of the total beam time respectively).

The distribution of total beam time per scientific domain (Round Table Sessions) was the following :

- 23% for Physical Chemistry and Biology (session A),
- 20% for Structural Studies and Phase Transitions (session B),
- 36% for Magnetism and Superconductivity (session C),
- 21% for Disordered Systems and Materials (session D).

2. BEAM TIME REQUEST AND ALLOCATION

2.1 The present organization

We have kept the new system of round tables and user selection panels put in place in 1996, which aimed to favour long-term projects.

To perform an experiment at LLB, the researcher must first submit a proposal written on a special form, where he explains his scientific interest and describes the proposed experiment. All the proposals submitted at LLB are examined by a peer review Selection Panel, which encounters once a year (at the end of november), and which is subdivised into 4 thematic sessions :

- Physical Chemistry and Biology,
- Structural Studies and Phase Transitions,
- Magnetism and Superconductivity,
- Disordered Systems and Materials Science.

Each session of the Selection Panel comprises typically 9 members (3 of LLB, 3 French non-LLB, 3 non-French). The list of members for the Selection Panel of december 1997 (which selected the experiments to be performed in 1998) is given in Table 3.

The Selection Panels classify the proposals in A, B,C, on the basis of scientific merit :

- A : accepted and to be performed,
- B : eventually performed if beam time available,
- C : rejected.

The applicant is informed by an official mail, of the classification of his proposal and, in case of success, of the allocated beam time. In case of classification C, the reasons are explained to the applicant.

The Selection Panels are preceeded by user meetings, called "Tables Rondes du LLB". These meetings consisted of :
- invited talks (in each "Table Ronde", half a day was devoted to a specific theme, for example "magnetic thin films" in session C, and "fluids near the critical point" in session D);
- presentation of new long-term projects or programmes;
- presentation of recent scientific results obtained at the LLB ("poster" session);
- technical presentations;
- discussions with users.

30 to 40 people participated in the average to each of the four "Tables Rondes".

2.2 Beam time request

The evolution of beam time request since 1990 is presented in Table 4 and the associated figure.

The overall volume and proportion of french versus foreign request remains approximately constant since 1994 (end of ILL shut-down). Within the foreign request, the E.U. part slightly decreases; this is compensated by an increase from non-E.U. countries.

2.3 Analysis of the requests and allocations.

The beam time request and allocation for 1999 (evaluated by the User Selection Panel of november 1998) are summarized per country in Table 5, and per instrument and scientific session in Table 6.

Table 7 gives the overload factor for the LLB instruments, averaged on 3 years (Selection Panels of november 1995, 1996 and 1997) : this is defined as the ratio between the required beam time and the foreseen operating time of the instrument (80% of the operating time of Orphée, the 20% remaining being used for maintenance, repairs, tests, urgent experiments, etc...). The total overload factor is 1.5.

These numbers are practically constant since the refurbishment of the ILL reactor (1995).

2.4 Foreseen modifications of the beam time allocation.

Important modifications of the present system will be introduced at the end of 1999 :

a) Submission of proposals and Selection Panels will be organized twice a year, in autumn and spring (in fact, a second session was already introduced in spring 1999 for the european TMR access programme).

b) A fast access procedure by web for characterization experiments will be set-up on several instruments (in particular powder diffraction).

c) A larger part of the total beam time will be reserved for long-term projects in the form of contractual programmes (with a typical duration of 3 or 4 years), for urgent or innovative proposals, and for industrial-type experiments. These types of proposals must be adressed to the LLB management, who will attribute beam time after external evaluation.