





24 juin 1998

## MEMORANDUM

A : CHEFS DE DIVISION  
J. ALLABY - F. BOURGEOIS - M. BUHLER-BROGLIN -  
M. DELLA NEGRA - J-CL GOUACHE - P. JENNI -

De : J.-M. Dufour

Objet : Contrôle pour l'exportation d'équipements pour le LHC

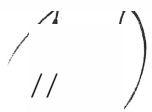
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Je vous adresse, en accord avec le Directeur général, le compte rendu de la réunion qui s'est tenue à Berne le 8 avril 1998, au cours de laquelle a été évoqué le Contrôle pour l'exportation, à partir de la Suisse, d'équipements pour le LHC, notamment la question des "biens à double usage", c'est-à-dire ceux qui peuvent servir à usage civil aussi bien que militaire.

Je vous remercie de bien vouloir en prendre connaissance et d'informer les personnes concernées au sein de vos Services.

Vous noterez que les Autorités suisses proposent d'organiser prochainement au CERN une réunion d'information à ce propos.

Je reprendrai ultérieurement contact avec vous à ce sujet.

  
J.-Mt'Dlifouij

cc.: Directeur général  
Directeurs  
H. Atherton  
C. Jarlskog

## **LHC equipment under Export Controls - the question of dual use goods**

### **Summary record of a Meeting held in Bern on 8 April 1998**

#### **I. Persons present at the meeting of 8 April 1998**

##### **From the Federal Administration:**

- Thomas HAFEN, Federal Office for International Economic Affairs (BAWI), Export Control of Strategic Goods
- Eduard BURGER, same Office, Control of Dual Use Material
- Michel PERRINJAQUET, Federal Office of Energy, Nuclear Technology and Security Section
- Jérôme CANDRIAN, Federal Department of Foreign Affairs, Directorate of International Public Law
- Michel GOTTRET, Federal Department of Foreign Affairs, Adviser to the Swiss Delegation to CERN

##### **From CERN:**

- Harry ATHERTON, Office of the LHC Project Leader
- Jean-Marie DUFOUR, Legal Adviser
- Lorenz STAMPFLI, Legal Service

#### **II. Origin and objective of the meeting with the Swiss Authorities**

1. The meeting was a follow-up to the meeting of 10 November 1997 when CERN had inquired about the authorizations necessary for the Indian Centre for Advanced Technology in Indore to purchase a low power helium liquider, needed in the context of LHC collaboration, and whether this apparatus should be considered or not as a "*dual use good*" in the sense of the existing international provisions, i.e. a good which could be equally used for civil or military purposes and therefore submitted to particular export or import controls.

The meeting took place in Bern, with the Swiss Authorities, since Switzerland is the Country where CERN has its statutory seat and through which these provisions might mostly apply. One should not exclude that, in the future, the same steps should be taken with the French Authorities.

This meeting has been also an opportunity to examine whether CERN was or not, as an intergovernmental Organization, subject to these international and national regulations.

At the previous meeting it had been mentioned by CERN that it had delivered an old helium liquifier to VECC, another laboratory in India, and the authorities of the BAWI had requested information on it. CERN had replied indicating that it was 25 to 30 years old and produced 25 Its/hour equivalent to about 86 Watts cooling power. The BERN authorities indicated that this was below the limit foreseen in the law and hence that it would not have been subject to an expert licence. The matter was therefore considered satisfactorily closed.

Another question was mentioned: the attempted delivery by a French firm to India of a high power helium liquefier, apparently blocked by French Authorities which considered it possibly as a "*dual use good*" and hence subject to strict International export controls.

### III. Discussion

A constructive discussion took place during which the participants presented their point of view, which may be summarised as follows:

#### CERN

The way research is done at CERN, accelerators built up and experiments performed was recalled, as well as the "globalisation" process of its activities. In this context, exchange of materials, semi-products, prototypes and apparatus in great number and of various kinds will take place between CERN and its scientific partners, in view of final installation on the CERN machine and experiments.

After having checked the Swiss Regulations, CERN has received the impression that the helium liquefier above-mentioned did not fall under a category of sensitive goods with export control.

However, CERN wishes to examine generally with the Host State Authorities how the deliveries from and to its scientific partners all around the world could be implemented, with due respect to the



international export controls in force on one side, but without impeding the scientific programme of CERN and its partners on the other side.

Hence, CERN would like to know from the Federal Authorities whether problems with export of sensible goods could not be avoided by setting up a light mechanism, to exchange information between Bern and CERN in this matter.

### **The Federal Administration**

Like other States, Switzerland has accepted International Conventions and Control Measures for sensitive goods, to advance world-wide disarmament, and has incorporated them into its internal Regulations (particularly, Ordonnance sur le contrôle des biens, OCB, of 25 June 1997 and Ordonnance sur les définitions et les autorisations dans le domaine atomique, O atomique, of 18 January 1984).

According to these Regulations, extensive export controls of sensitive goods are in force and may entail penal sanctions in case of non-compliance. But the prior objective of the Federal Authorities is to prevent transgressions and in this context, they are always ready to give advice whether goods fall or not under the exports controls.

Exports originating from CERN will also fall under the international controls, but Host State Authorities have the duty to ensure that the scientific research activities of CERN are not impeded through untoward heavy bureaucratic procedures. CERN technology will apparently be less crucial, as export of technology or data being already in the public domain is exempt from the international controls.

As far as nuclear materials from and to CERN are concerned, export controls already function satisfactorily, and hence, similar practical solutions might be elaborated now for *dual use goods*, on the line of the 1997 Regulations (OCB).

Moreover, the same OCB provides for flexible control methods as the granting of global export licenses and it will be possible to find also an *ad hoc* solution for CERN.

The Federal Authorities agree on the suggestion made by CERN to try to set up a convenient mechanism ensuring that export of sensitive goods from CERN was carried out according to the rules; moreover, they propose to come at CERN, to brief the officials in charge with the supply operations on the regulations in force.

A remark was made regarding CERN visitors coming from countries that need particular attention from the point of view of disarmament policy. Mr. Gottret said that such problems were dealt primarily by the Swiss Embassies and the other Swiss Authorities competent for visas.

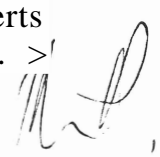
#### IV. Conclusions

The following conclusions were agreed upon :

- CERN, as an international Organization, is in principle subject to international provisions concerning International Disarmament Conventions and Control Measures, since these provisions are applied by most of the members of the international Community and in particular by the CERN's Host-States.

However there is no incompatibility between CERN's scientific activities and these provisions, as the latter explicitly guarantee scientific research for peaceful purposes.

- Therefore, CERN will implement its scientific co-operation projects while taking into account these international rules, in particular those concerning "*dual use goods*".
- With the help of the Swiss Host State Authorities, an *ad hoc* regime for export facilities for CERN in relation with its scientific partners will be defined.
- Contact exists and will be continued between the technical experts of the Federal Administration and of CERN and will be completed with an information meeting at CERN on the control of *dual use goods*. This information will be provided by experts of the Federal Office for International Economic Affairs (Bern).





**Summary of discussion:**

**DCs Meeting with Federal Councillor Ruth Dreifuss  
(Head of the Swiss Federal Department of Interior)  
on 10 June 1994**

CAH

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Present: R. Dreifuss  
H. Ursprung, State Secretary for Research  
J. Vemet & M. Bourquin, Swiss Delegates to CERN Council  
C. Risch, Adviser to R. Dreifuss  
J-F. Conscience, Adviser to H. Ursprung

CERN: Ch. Llewellyn Smith  
P. Jenni  
G. Hentsch

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On the occasion of the DG's courtesy call to Federal Authorities in Berne, a discussion took place on LHC and the participation of Swiss teams in its experiments. The main substantive points are summarized below:

L. Referring to the *date* on which funds would be needed for the research teams participating in the LHC experiments, the DG clarified what appeared as a misunderstanding: these funds would be needed as early as 1996, - not ~~1998~~ (which was the date when funds from non-Member countries would be needed for the LHC machine itself).

Jenni explained that the date 1996 resulted from the assumption that the machine could be commissioned by 2002 (if everything went well), and that some 4 to 6 years were required for the construction of the detector, plus one year for its installation.

Ursprung explained that there would be some *formal* difficulties in getting funds available as early as 1996, because these were not included in the request for scientific credits now submitted to the Swiss Parliament for the period 1995-1998.

2. Ursprung also foresaw some *political* difficulties in justifying requests for what would appear as "extra funds" (whereby a distinction should be made - with regard to funding sources - between Universities and polytechnical high-schools, the latter having their own budgets):

Considering that 50 MSF went to Universities for HEP, plus 38 MSF to CERN budget, parliamentarians (and political circles in general) would wonder why 88 MSF per year were not sufficient, and would ask for instance:

- why all interested Swiss teams were not all together participating in a single LHC experiment;
- why their participation could not be funded out of the annual budget (ca. 3W MSF) of the Swiss National Fund (FNSRS);

- why part of their detector(s) could not be built and financed out of the PSI's constant budget, - particularly in the case PSI would renounce (as might happen) building a synchrotron radiation source: then resources would be available.

All this made HEP vulnerable to attacks from other sectors of research.

Bourquin stressed that FNSRS's mission was foremost to fund the existence of the University groups, which constituted in the long run a considerable amount, whereas the LHC detectors would require a time-limited but supplementary financial effort which was beyond the normal means of the Universities. He also reminded that out of the 50 MSF/year devoted to HEP in Switzerland, a good 20 MSF went to teaching, not research.

3. Mrs. Dreifuss remarked that she failed to see how the total cost of the Swiss Universities' participation in LHC experiments could much differ depending on whether they would participate in one or in both. She asked how much was needed for the Swiss participation in ATLAS?

Tenni explained that ATLAS regrouped some 1'400 physicists, of which 60% came from Member States and 40% from non-Member States. A reasonable level of financial participation from the Swiss teams would be some 20 MSF over 6 years, corresponding to ca. 5% of the total cost of the detector, a proportion well attuned with Switzerland status and size.

Mrs. Dreifuss expressed the hope that Ursprung might find ways to accommodate for Swiss needs in ATLAS (This sounded almost as an instruction). Turning to the LHC machine, she asked how much CERN expected to get from non-Member sources.

4. The DG explained where the matter stood: in the USA, the Drell sub-panel had made clear recommendations in favour of a US participation in the LHC machine and experiments. No decision was yet made, but signs were favourable. He figured that the USA might consider an order of magnitude of some 400 M\$ over the construction period of LHC. The Japanese had recently indicated their wish to participate but were reluctant to name any figure; the good surprise was that they intended to provide cash. Canada was positive. Russia and India were prepared to participate in kind, in the tune, respectively of 60 MSF and 12,5 M\$ equivalent.

Ursprung seemed a bit skeptical and remarked that Gibbons (Scientific Adviser to the US President) had not mentioned LHC in his recent statements.

On his part, the DG alluded to the meeting of the Carnegie Group in Tokyo (11 June), where the Science Ministers of the G-7 would meet, with LHC on their agenda, - and pointed out that Gibbons would be among them.

5. Mrs. Dreifuss inquired on the exact nature and scope of the Council to be made by CERN Council in June.

Vernet outlined the decision procedure: firm decision this June to go ahead with the Project, followed by a review, in 1997, of the financial planning and of the final construction schedule, depending on the level of participation of the non-Member States. The DG added that solutions would also have to be worked out to cope with cash-flow difficulties likely to arise



from fitting an irregular profile of expenditure in the frame of a practically constant budget.

6. Mrs. Dreifuss concluded that the difficulties ahead were no doubt real, but she promised that Switzerland would do its utmost to contribute to their solution and to facilitate the realization of the LHC Project.

AE  
11. VI - W

Printed By: Guy Hentsch 4/12/94 17:25  
From: Guy Hentsch (4/12/94)  
To: Christopher Llewellyn Smith  
CC: Claire Earnshaw, MAURICE JACOB  
BCC:  
Priority: ASAP

Page: 1

Date sent: 2/94 16:28

CH

Date: 4/12/94 Time: 1656 From: Guy Hentsch

Subject: Swiss position

Guy to Chris / cc Claire & Maurice:

Gottret informs me as follows -

1. Federal Dept of Interior has presented proposals for Swiss participation in EU research programs; they provoke some controversy in Swiss scientific and parliamentary circles; meetings will take place next week in Berne on these matters, but it seems that these "turbulences" will not affect CERN interests, - neither the regular Swiss contribution, nor its special contribution to LHC. End March, Swiss physicists convincingly presented their case to Finance Dept at high level (Nr. 2), whose reaction was positive. Therefore, For. Aff. Dept has given its OK to the proposals of Interior Dept: they felt the situation was favorable and that it was best to lie low and not awake sleeping dogs.

2. Swiss delegation at CC 15 April will be able to give positive expression of intent, as proposed (although Gottret asked : "Why 2 declarations?"). Swiss prepared to have intermediary 1997 step fully spelt out, including condition that special contributions from Host States be pledged by then. Switzerland will be ready for sure in 1997.

3. Indeed, full package for CERN regular budget, participation to experiments and special contribution for LHC machine will be submitted to Federal Council end of April. Contrary to previous apprehensions, the intended figure (still undisclosed) will not be lower than initially envisaged. Gottret is more optimistic now than at mid-March FC mtg.

4. DG's visit to Berne to meet both Cotti and Dreifuss is tentatively proposed for 9 June. But depending on outcome of this week's mtgs at CERN, there may be a need for earlier date (Cotti alone then available). Amb. Nordmann to discuss all this when meeting DG next week. But Gottret hardly sees a possibility that DG's visit can take place in time for next week's discussions in Berne on Swiss participation in research programs EU.

Guy.



## Memorandum

Geneva, 23 February 1994

To: Prof. Ch. Llewellyn Smith  
From: G. Hentsch & M. Jacob  
Object: **Visit 22 February in Berne**

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### *Description*

We travelled to Berne, accompanied by Prof. E. Heer, Delegate to Council. We had first a working meeting with:

- Mr. Michel Gottret, Section of international affairs in Direction for International Organizations (Dept, of For. Aff.) and member of the Swiss delegation in FC, and
- Mr. J-Pierre Ruder, Section of specific research fields in Federal Office of Education & Science (Dept, of Interior).

We then paid a courtesy call to:

- Ambassador François Nordmann, Director for International Organizations (Dept, of For. Aff.), and
- Minister Jürg Leutert, Vice-director and his deputy.

The latter took us to lunch, with Gottret and Ruder.

The **four main topics** discussed were:

- (a) Spain arrears
- (b) staff matters (WG Fiumi)
- (c) Ministerial conference for LHC approval
- (d) Swiss special contribution to LHC

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Gottret stressed that to build LHC on a healthy basis, it was important to settle first the question of the arrears in the payment of the MS contributions, and to restore stable relations with CERN staff.

### **(a) SPAIN**

Swiss diplomacy had not been active on the Spanish question since last May, as CC had agreed on a mandate to DG and Council President to negotiate with Madrid.

But - probably as a reaction to the recent letter of the DG to the Delegates on Spanish situation, and because of similar developments at ESA - the Swiss had just been approached by the UK, with the suggestion that both Host States intervene in Madrid on behalf of all MS. Berne did not think this choice ideal, as Spain held some grudges against Host States.

Berne was about to counterpropose that a formal démarche be undertaken in Madrid by the Ambassadors of the countries holding the présidence and vice-presidence of Council (i.e.: France, Germany and NL). This should happen before 9 March (tentative date of DG + Pres, trip to Madrid).

Berne would also suggest (via diplomatic channels) that the Research Ministers of the "Big Four" in Brussels (F, G, I & UK) discuss the matter with their Spanish colleague on the occasion of their meeting in Brussels on 4 March.

Berne will keep us abreast of these developments.

We also learned that ESA Council had just agreed to a 14% reduction of Spain's contribution to the basic programme, instead of 40% demanded by Madrid.

### **(b) STAFF MATTERS**

Gottret was reasonably satisfied with the outcome of the meeting of the Fiumi WG held "extra muros" on TRACE matters, on 16 February. He found most useful the encounter the WG had beforehand with the DG, and was glad that DG succeeded in bringing about the réintroduction of the other international Organizations as a term of comparison for salary levels.

For the Swiss, the following principles were clear and must be upheld:

Council remains sole master of the final decision on salaries, etc..., while information and consultation (which precede decision) must be tripartite, but they should not be labelled "negotiations". This did not preclude that Staff and Management present an agreed "package" to Council, but the main point of the so-called "Vernet procedure" was that Council should have the last word.

Gottret reported that Fiumi thought that Staff Association (at least Borghini) understood that his WG wanted to sort out and agree on the intended tripartite mechanisms independently from Staff and Management in a first phase. Gottret hoped that the staff demonstration on 16 Feb. was just a concession Borghini had to make to his troops.



### **(c) MINISTERIAL CONFERENCE FOR LHC**

Both Ambassador Nordmann and then Minister Leutert over lunch, focused on this third topic, - which the Swiss seem to take much to heart. Vernet had mentionned it at the very end of the CC meeting in December, but his statement is not reflected in the draft Minutes (?!).

The Swiss are still groping for the exact format of such a ministerial meeting (either to "up-grade" a Council session, or to organize something more special), - but they consider it important to "seal" the LHC decision at ministerial level, with two main purposes in mind, - namely:

a) to strengthen the formal aspect of the individual votes, to emphasize the collective character of the decision and the corresponding financial pledge from the MS,

b) to outline and agree on the legal form in which to embed the participation of outside partners (US, Japan, etc.), in other words: to work out some guidelines for, and agree on the main targets of, the negotiation to be conducted by CERN.

We stressed that such a Conference should indeed acknowledge agreement to build LHC, and not be preparatory to approval. Minister Leutert confirmed that this was the way he meant it.

Berne is now in the process of sounding out the other MS on this idea: UK and Italy have responded positively, recommending that it be not scheduled too early, Belgium and NL are more reluctant, Austria and Sweden fully concur, Germany is in favour, but date must take elections into account, France is more reserved.

The Swiss will probably ask to put this question on agenda at CC meeting on 17 March, and expect that other delegations will be prepared to express an opinion. They might wish to settle it at the LHC special session on 15 April.

Berne is ready - should this be agreeable - to act as the "puissance invitante" for such a conference, - alternatively to co-host it with France. Facilities are available in Geneva (Centre International de Conférences - CICG, near Place des Nations). CERN's logistical support would be appreciated.

As to time, Berne hesitates between June (to coincide with Council Session on 24 June), and late September (after CC 29 September) to coincide with 40th Anniversary.

They are very keen to discuss this matter further with you on the occasion of your visit to Berne (for which a date will be proposed soon: end of March/beginning of April).

**(d) SPECIAL SWISS CONTRIBUTION TO LHC**

Clearly, the Swiss are not ready to go beyond what they said last December: the principle of a special contribution stands firm, - but its amount is undecided (the figure of 80 MSF is much too high in any case and should not be mentionned); similarly, the nature of this contribution (civil engineering vs high-tech components) is still under review.

In any event, the special contribution will be treated separately from the funding of the Swiss participation to the LHC detectors. (We still feel that the combination of both could approach 80 MSF).

W. Javel      AB

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**Hôte permanent: Direktor Gerhard M. Schuey**, Bundesamt für Bildung und Wissenschaft, Bern

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6 juin 1998

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\* Commission électorale / \*\* Commission de gestion  
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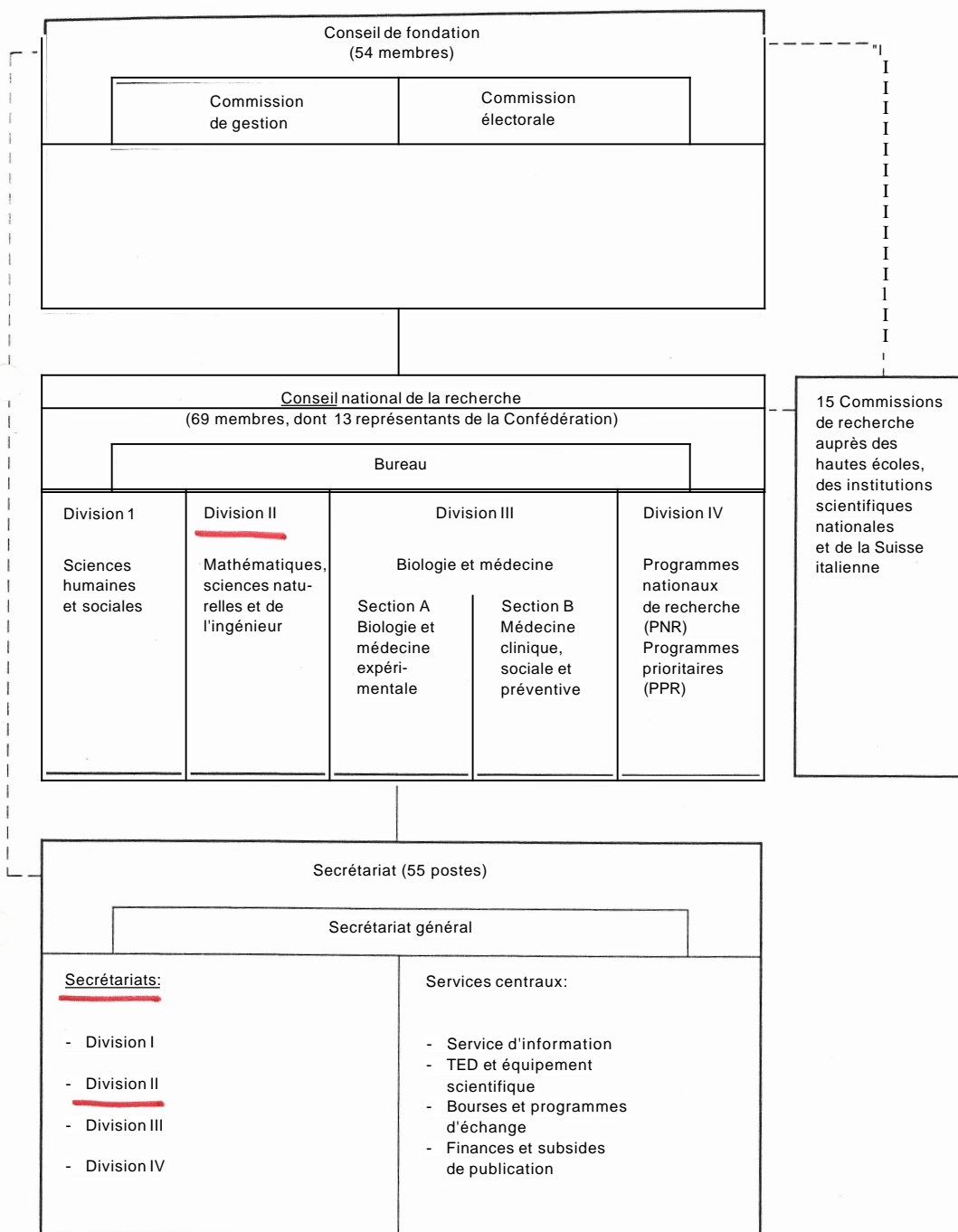
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(Suite nominative des membres des organes voir pages 5 à 13)



(Tableau de l'examen des requêtes: voir page 3 de la couverture du rapport)

Fonds n  
de la rec

41<sup>e</sup> Rapp

Du 1<sup>er</sup> janvier au 3

Approuvé par le C

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	Académie suisse des sciences médicales
	Académie suisse des sciences humaines
	Académie suisse des sciences techniques
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	EXPERIMENT	Uni. BS	Uni. BE	UNI. FR	Uni. GE	Uni. LA	Uni. NE	Uni. ZH	ETH -Z	EPF -L	PSI	Tot al
SPS	Newmass (NA 52)		7									7
	Nomad (WA 96)					10						10
	Photons and charged Part, from Heavy Ion (WA98)				7							7
	Direct $\gamma$ (UA6) (Analysis)					3						3
LEAR	Cristal Barrel (PI 97)							3.5				3.5
	CP Lear (PSI 95)	7.8		3					8		3	20. 8
	Pbar-P $\rightarrow$ Nbar N (PS 206)				**							
	Pbar Lyman, Balmer H lines (PS 207)						-k-fr					
LEP	L3	2.6			11. 5	6			20		4	48. 1
LHC	CMS	1.3						0.2	20		5	31. 5
	ATLAS		3		6.5							9.5
	LHC-B					1					0.5	1.5
	ALICE				0.3							0.3
CERN R&D	RD 2 Tracking/ Preshower Detector		**		**							
	RD 5 Muon trig								**			
	RD 19 Si Micropattern Det,							★ ★	**	**		
	RD 21 B-Phys Topological Trigger					**						
	RD 30 Optical. Trigger					2						2
DESY	HI							5.8	8		2.5	16. 3
SLAC	p & n polar, structure functions (E1 43)	7										7
BNL	Rare K decay (E865)	1.3						1.2			3	5.5
PSI	Muons and Pions rare decays							10. 6			6.5	17. 1
	Nucl-Nucl.				5.1						0.5	5.6
	Pionic Hydrogen Atoms						3		**		1	4
Saclay	T] rare decays							0.4				0.4

CIA



	EXPERIMENT	Uni. BS	Uni. BE	UNI. FR	Uni. GE	Uni. LA	Uni. NE	Uni. ZH	ETH -Z	EPF -L	PSI	Tot _al
Non Acce lerator	Dark Matter detector		6									6
	Double p decay						9					10. 3
	$\nu e \rightarrow \nu e$ (Bugey)							1.3				
	AntiMatter Spectrometer				1.6							1.6
	Time Correlation in primary cosmic rays			**								
	<b>Total</b>	20	16	3	32	22	12	23	55	0	26	209

### CH-HEP Resources

			Particle Physi cists				Nucl. Physi cists
	Nber Physi- cists	Perma- -nents Prof+ PD	Post doc	Grad, studen ts	Grants Sal. excl.		
Uni. BS	20	3	7	10	735.00	*	9
Uni. BE	16	6	4	6	581.40		
Uni. FR	3	1	1	1	131.40	*	18
Uni. GE	32	10	11	11	1'093.40		
Uni. LA	21	4	6	11	597.60		
Uni. NE	12	2		5	242.00		
Uni. ZH	23	4	7	12	663.00		
ETH-Z	55	11	26	18	1'286.60		
EPF-L	0				0.00		
PSI	26	3	14	9	2'422.60	*incl. contrib. exprmt	9
Total	208	44	81	83	7'753.00		36
Fraction	17.1%				17.9%		

	Grants Salaries excluded  KFrS	Physicists. Total	Grants / Phys  KFrS/Phys
Part. Phys.	7753	208	37.27
Nucl. Phys.	674	36	18.72
Condensed Matter	12'188	390	31.25
ANDO	22'656	384	59.00
Theory		208	
TOTAL	43'271	1'228	35.29