



**Universitätsförderung / ETH-Rat Mittel
projektgebundene Beiträge**

Formular "Bericht Gesamtprojekt"

Einreichfrist bis Ende Februar (an SBF und an ETH-Rat, Kopie an SUK)

Berichtsperiode 1.1.2008-31.12.2008

Projekt **Particle Physics in the LHC Era**

Projektleiter/in

Name, Titel Straumann, Professor

Vorname Ulrich

Hochschule/Institution **University of Zurich**

Adresse Physik-Institut, Winterthurerstrasse 190, 8057 Zurich

Telefon 044 635 57 68

Fax

E-Mail **strauman@physik.uzh.ch**

Weitere Personen, die an diesem Fortschrittsbericht mitgearbeitet haben (Name, Funktion im Gesamtprojekt, Hochschule/Institution, Ort)

Dr. Jean-Pierre Ruder, Project Administrator, University of Zurich (address see above)

Datum

Unterschrift Projektleiter/in:

.....

Kritische Stellungnahme zum Gesamtprojekt aus der Sicht der Projektleitung:

A) Inhalt

1. Geben Sie eine kurze Beurteilung des Projektverlaufs: Welche Ziele wurden 2008 erreicht? Welche konnten nicht erreicht werden? Wo steht das Projekt im Verhältnis zur ursprünglichen Projektplanung (Meilensteine)?

Overall, the project has progressed well in its first year, but somewhat slower than planned. Many of the basic elements necessary for implementing the project had to be set up one by one, which took more time than envisaged. Good progress can be reported regarding matching funds from Universities, whereas (unfortunately) this same request has not been asked from the ETH partners.

Several of the goals were reached, while a few of them are still ahead of us. The reasons for this are mainly (1) the delayed start of operations of the LHC, which has shifted to mid-2009, (2) the rejection of the ProDoc request, (3) the underestimation of time needed for the selection of PostDocs, and (4) the late reception of the SUK and ETH-Rat funds in March and April 2008.

Goals reached include:

- the setting up of the administrative structure for running the project: Management Board (10 meetings in 2008), Admission Committee (3 meetings in 2008), Executive Office (starting work in July at a reduced level);
- the selection for scholarships: 6 excellent PostDocs were selected from two calls for application with a total of 52 candidates. They are working on the three LHC experiments ATLAS, CMS and LHCb at all the five partner institutes of the C-15 (for names and justification for selection please refer to the reports from the "Unterprojekte"); the starting dates of the PostDocs have been staggered over a long period: some were able to take up their new duties before the date foreseen in the planning (1 July), whereas others started only very recently. However, the average starting time for the six persons was mid-August;
- the organisation of the CHIPP PhD Winter School in Näfels (teaching): ETHZ (Prof. G. Dissertori) and the University of Zurich (Prof. Th. Gehrman) were the main organizer of the CHIPP PhD School in particle physics in Näfels GL. The school had 38 participants, most of them being Swiss particle physics PhD students plus a few PostDocs from Switzerland and abroad. The main topics were accelerator physics and theoretical aspects of the standard model. National and international lecturers took part in this very successful school (for details see Report from Unterprojekt ETHZ);
- the organisation of two workshops:
 - a) detector R&D in Geneva: The University of Geneva (Prof. M. Pohl) organised and hosted the CHIPP workshop on Detector R&D on June 11-12, 2008. It was attended by 50 participants from all Swiss high energy physics groups. Topics addressed were: the upgrade of the LHC detectors, the

Universitätsförderung – projektgebundene Beiträge

detector work done within the 7th Framework Programme of the European Union, and detectors in the field of astroparticle physics.

b) neutrino physics at ETHZ: Prof. A. Rubbia organized this workshop in November 2008. Around 50 attendees from Switzerland, but also several international guests, followed the sessions led by national and international speakers. The topics dealt with were present and future neutrino physics, as well as lepton flavour physics;

- the co-organisation of a German-Swiss workshop on OCD and electroweak physics: The University of Zurich (Prof. Th. Gehrman) was co-organiser of this binational workshop, aiming at preparing the data taking at the LHC. Fruitful discussions between many Swiss and German experimentalists and phenomenologists fulfilled the goal of the meeting, judged as very successful by the organiser. A second workshop followed in Bad Honnef;

- lectures: EPFL has initiated a series of special theory lectures for physics at LHCb with good attendance by PhD students, post-docs and senior staff.

- the attribution of the CHIPP Prize: The CHIPP Prize for the best PhD student in Experimental or Theoretical Particle Physics (diploma, 3000 CHF, talk during the CHIPP Plenary), is awarded yearly. Organized by Prof. A. Ereditato (University of Berne), the 2008 prize was awarded to Michael Rissi from ETHZ; for the laudatio see report from "Unterprojekt" Berne;

- outreach: CHIPP (through its outreach coordinator, Prof. G. Dissertori, EHTZ) has played a leading role in establishing a group dedicated to the CERN LHC communication in Switzerland. The group is led by ETHZ (personal adviser of the ETH President) and composed of one member per LHC experiment plus the State Secretariat for Education and Science. The group developed an action plan to inform about the Swiss aspects of the research at CERN and at the LHC. A special contribution of ETH-Rat allowed the development of a web page (<http://www.swiss-lhc.ch/>).

In the context of the LHC start-up, CHIPP (through the C-15 project administrator) has prepared a fact sheet brochure in English, German, French and Italian about the Swiss contributions to the LHC detectors, including a layman summary of the LHC and the Swiss contributions (distribution to the press and other interested [political] stakeholders). All C-15 partner institutes have participated in the effort (drafting, cross-checking, translation). The fact sheet is attached to this report;

- matching funds: matching funds have only been requested from the SUK institutes. The Universities of Bern and Geneva have reached the expected goal (120'000 CHF) by either providing fresh money or by adding positions in the group. The University of Zurich has also added positions, but the total contribution for 2008 reached approx. 70'000 CHF.

Goals not reached include:

Universitätsförderung – projektgebundene Beiträge

- the ProDoc request: Coordinated by the University of Geneva (Prof. M. Pohl) a ProDoc proposal for an Educational Module was submitted (as foreseen in the SUK C-15 request). The proposal was rejected by the SNF, mostly on formal grounds. A revised proposal including also research modules is in preparation and will be submitted for the March 2009 deadline.
- PhD activities: due to the fact that the ProDoc request had been turned down, most of the activities around the PhD students had to be postponed (hiring, courses, retreat). However, the CHIPP PhD school in Näfels took place (see above);
- the workshops on (1) performance of the Swiss detector contributions and the common physics analysis, and on (2) usage of the Tier-2 Centre in Manno, both of which had to be delayed due to the delayed start of the LHC operation.

The list of milestones shows that the project overall has taken some delay compared to the milestones as set in the C-15 request:

administrative milestones:

activity	Date planned	Date achieved
CEO appointed	1 Sept 2007	1 Sept 2007
Organisational structure and constitution established	1 Oct 2007	1 Oct 2007
Preliminary webpage ready	1 Oct. 2007	1 Oct 2007
First call for scholarship application	1 Oct. 2007	1 Jan 2008
Advertise admin and IT positions	15 Oct. 2007	Decision: no advertisement, spontaneous application
First deadline for scholarship applications	1 Dec. 2007	1 March 2008
Start admin and IT position	1 Jan. 2008	1 Jul 2008 (part time only)
Teaching coordination with other schools settled	1 Jan. 2008	obsolete (no PRO*DOC)
Lecture programme for the first year defined	1 Febr. 2008	obsolete (no ProDoc)
Start first PhD student	1 Febr. 2008	obsolete (no ProDoc)
Start first lectures	Spring semester 2008	obsolete (no ProDoc)
Start first PostDocs	1 July 2008	1 Apr 2008

scientific milestones:

Activity	Date planned	Date expected
First workshop on LHC physics	June 2008	Jan 2010
First annual report	Jan 2009	Febr 2009
Calibration procedures for Swiss detector contributions established	Dec 2008	Dec 2009 (LHC delayed)
Initial physics results available	Jan 2010	Jan 2011 (LHC delayed)

Universitätsförderung – projektgebundene Beiträge

2. Welches sind die Ziele 2009? Entsprechen sie den geplanten Zielen? Gibt es Veränderungen in der Projektplanung?

Due to the rejected ProDoc application and the delayed LHC start, activities associated with the PhDs and with the LHC data analysis can not be undertaken as originally planned in the 2007 C-15 request. Some of them will have to be re-scheduled, others will probably have to be cancelled.

The following goals have been set for 2009:

- PostDocs already hired: integration in the detector commissioning, data taking and physics analysis (all year);
- 3rd round of PostDocs (Q2/2009): advertisement, evaluation and selection of up to three additional PostDocs. Profile: strong interest in LHC physics, detector hard- and software, plus a strong know-how in IT; strong collaboration and cooperation with the Manno Tier-2 centre for all Swiss LHC participations is sought;
- cooperation C-15 - CSCS Manno: improve the utilisation and make closer connections / links with the supercomputing centre Manno (LCH Tier 2 Centre) (Q3/2009);
- full implementation of the administrative organisation (Q1/2009): full insertion of the Project Administrator, first closure of the financial accounts, first annual report;
- submission of the revised and completed ProDoc application for PhD students (Q1/2009): the revised request contains research and educational modules and takes into account the comments and suggestions received regarding last year's application;
- preparation for hiring several PhD students (in anticipation of a positive ProDoc decision);
- continue and organize workshops in particle physics:
 - a) Higgs Boson Phenomenology, University of Zurich, Q1/2009;
 - b) Astroparticle Physics, EPFL, Q2/2009;
- preparation of 2010 activities:
 - a) Workshop on High Energy Frontier, University of Zurich, Q1/2010;
 - b) CHIPP PhD School 2010, Ascona, Q1/2010: main topic: neutrino physics, experimental methods and detectors;
- outreach (all year): foster public awareness of the Swiss LHC contribution (contribution to a travelling exhibition, LHC PR actions [lead ETHZ], Swiss Industry Day), on the Swiss Particle Physics

Universitätsförderung – projektgebundene Beiträge

community (Hamburg Hafengeburtstag with Switzerland is invited as the guest country), and on general outreach activities (European Physics Master class, CERN based events, public lectures) including educational aspects (links to high-school teachers, pupils);

- matching funds (all year): continue the efforts (especially at University of Zurich)

- advertisement of the CHIPP Prize 2009 (Q2/2009), evaluation of the candidates and award of the prize.

B) Finanzen

3. Wie beurteilen Sie gesamthaft die Verwendung der Bundesgelder?

The funds for 2008 have been used slower than anticipated, the factor for the individual partnering institutes lying between 37% and 89%. This is mostly due to the different starting times of the PostDocs at the respective partnering institutes, the salary differences of the PostDocs, and the somewhat slower build-up of the PostDoc community. In addition, the Project Administrator has started work on 1 July only and with a reduced working time.

The expenditures associated with the project lead (central administration, accounting, Betriebsmittel, conference costs, etc.) have been distributed in the accompanying financial reporting form to all the project partners (20% each).

4. Werden allfällige hohe Überträge Ihrer Meinung nach im nächsten Jahr verwendet oder sollte das Gesamtbudget angepasst werden?

The carry-over from 2008 will be used to compensate shortfalls in later years (see planning table "Overall planning: revenue and expenses" attached). This is caused by:

- the late starting time of the PostDocs (average: mid-August) coupled with a contract duration of 3 years, shifting the spending to later years, with a peak in 2009/2010;

- the PostDoc salaries (calculated individually by each project partner in line with the respective University/Institute guidelines) are higher than estimated in the request of 2007;

- the Project Administrator will compensate the reduced working time of 2008 during the first half of 2009 in order to reach the 50% level over the whole 12-months period (July 2008 - June 2009).

Therefore, the overall funding level for the project should not be reduced.

Universitätsförderung – projektgebundene Beiträge

5. Gemäss Verfügung des SBF und des ETH-Rates ist die Projektleitung verpflichtet, für jede wesentliche* inhaltliche oder finanzielle Änderung die Zustimmung der Schweizerischen Universitätskonferenz einzuholen.

Wollen Sie der SUK einen Antrag vorlegen?

ja
nein (weiter bei Punkt 6)

Bitte formulieren Sie hier Ihren Antrag:

The project leader would like to submit two requests:

- Request 1: the funds for 2009 (as well as the funds for later years) should be attributed to the five project partners in line with the real requirements instead of distributing the funds uniformly among them. This measure will avoid large deficits and surpluses at the partnering institutes.

- Request 2: the distribution of the funds to the different credit lines should be adapted. The experience of year 1 shows that the vast majority of expenses are related to salaries, whereas almost no "Betriebsmittel" were used; moreover, the "Tagungskosten" were overestimated by a factor of 2. The adaptation requested should be done retroactively for 2008 as well as for the years to come.

=> The corresponding financial details are outlined in the attachment called "Antrag der Projektleitung C-15 an die SUK".

6. Bemerkungen:

1. The fact that the ProDoc request had been turned down has a major impact on the project. Even if the second try (in 2009) is successful, PhD students will barely be able to start work before 2010, which means that the intended cross-fertilisation between PostDocs and PhD students will be much smaller than planned (and hoped for). In addition, the possible 2010 start of such ProDoc students is already very close to the end of the project, which casts some doubts about the chances of really finding good people. In order to not lose the education and research element of the project, big efforts have been made (and will continue) at the level of the PostDocs (see section 1 and 2 above) to compensate somewhat the unfortunate absence of PhD ProDoc students.

2. Without a high-level Project Administrator, it would be impossible for the project leader to handle the project administration and reporting requirements properly. The central role of the leading university in a true collaboration project like the C-15 is a difficult task, as the individual rules, guidelines and orders from the 5 partners and the two funding agencies are not always in line with each other. It is suggested to reflect about possible remedies of this unwanted side effect of the Swiss federalism for the future.

* Dies sind grössere Verschiebungen von Mitteln (SBF und/oder ETH-Rat) zwischen den Rubriken oder Verschiebungen zwischen den Institutionen.