Agenda item 7: Swiss Roadmap Update 2020

- We need to update the CHIPP Roadmap:
  - Inform stakeholders (SERI, SNF, Parliament etc.) to secure future funding (ERI dispatch 2025-2028)
  - European Strategy of Particle Physics
- **This will have to be a team effort of the whole CHIPP Board!**
  - SCNAT defines process and will provide support (M. Türler, MAP Platform)
- Goal is to converge by **end of 2020**

› Swiss Academy of Sciences (SCNAT) › Research infrastructures

Roadmaps for research infrastructures

On a mandate of the Confederation, SCNAT develops roadmaps for scientific research infrastructures. These will form the basis for the Swiss Roadmap for Research Infrastructures (RIs). This roadmap of national and international RIs of interest for Switzerland is used to decide which large research facilities deserve federal support.

CMS particle physics detector on the Large Hadron Collider at CERN. (Image: Maximilie…

The State Secretariat for Education, Research and Innovation (SERI) prepares every four years the Swiss Roadmap for Research Infrastructures. This provides a basis for decision-making on the investment of federal funds in research facilities of national interest. The Roadmap is integrated into the ERI Dispatch, which the Federal Council then submits to Parliament for approval.

On request by the SERI, SCNAT develops discipline-specific roadmaps for the natural sciences. These point out which research infrastructures will be necessary in the future and prioritise them from a scientific point of view. The SERI will evaluate the roadmaps for the various fields together with other actors and will decide which research infrastructures are to be included in the 2023 Roadmap and then, possibly, in the ERI Dispatch 2025–2028.

History

This report was requested by the Forum of Particle Physics in May 2003. The Working Group contributing to this report was: A. Bay, A. Blondel, A. Clark, Z. Kunszt, P. Minkowski, F. Pauss, A. Rubbia, M. Spira, U. Straumann, and J.-L. Vuilleumier, with additional important contributions from J.-P. Derendinger, R. Durrer and K. Gabathuler.

The report was approved by the CHIPP Board in February 2004.

In May 2003, the Swiss Particle Physics Forum commissioned a study of the status and outlook of particle physics research and education in Switzerland. This publication is the Report of the Working Group appointed to make that study.
The Forum was replaced by a Swiss Institute for Particle Physics (CHIPP) in October 2003. The CHIPP Board endorsed this report in February 2004.

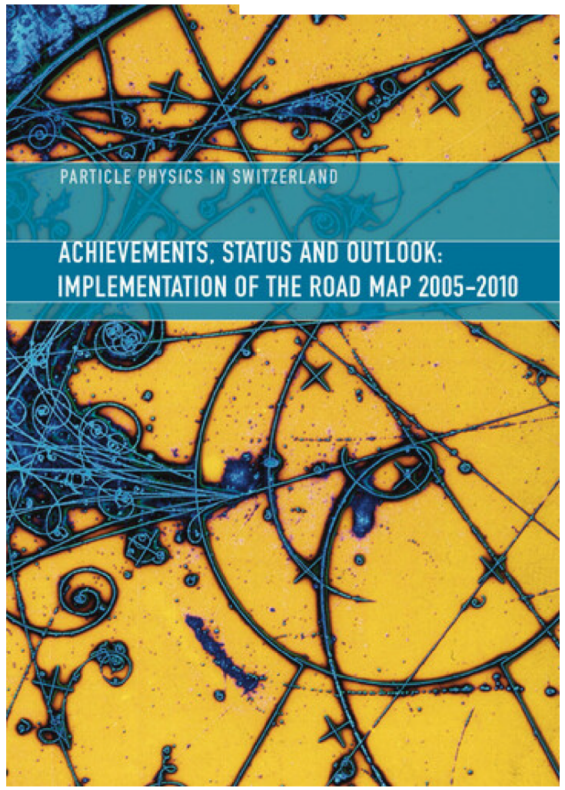
Authors: CHIPP
Pages: 105

May 2003 – February 2004

Bern, April 11, 2011

Text edited by L. Baudis, A. Eredita to and M. Pohl with contributions from the CHIPP Board.

Approved by the CHIPP Board on April 11, 2011, in a unanimous vote with one abstention.



In its Board Meeting of August 2009, CHIPP decided to undertake a critical review of the actual implementation of the Road Map, summarized in the present document. CHIPP encourages Swiss representatives to organizations writing or updating their Road Maps in the relevant domains.

Authors: CHIPP
Pages: 24

August 2009 – April 2011

Agenda item 7:
Scope and Audience of Roadmap Document

1) Parliament, SNF, SERI:

- Inform “bottom up” the **SERI Roadmap for Research Infrastructures** compiled in 2023 in preparation of the **ERI Dispatch 2025-28**
- Concentrate on **2025 to 2028**
- Wish for **continuous update** (4 year cycle)

2) 1) plus Swiss particle physics community, greater public

- Define the **long term priorities** of the field - focus on the next **15 years**
- Incorporate the ESPP update
- CHIPP pillar 1 Whitepaper periods
  - Near-term future **2019–2024**: current and next ERI/FLARE periods
  - Midterm future **2025–2035**: HL-LHC phase up to the end of the LHC program
  - Long-term vision beyond **2035**

Identify two (overlapping) scopes and several relevant time scales (~now, 2025-28, beyond 2030)

⇒ Write a document that (at least for now) encompasses (1) within the broader framework of (2)

- Possibly in stages - 1) is due end of year, at SERI by March 2021
- Update **pillar whitepapers** if more detailed discussion is needed (Roadmap is a high level document)

Swiss Institute of Particle Physics

Agenda item 7: Roadmap Outline

Generic structure of discipline-specific roadmaps

The Swiss Academy of Sciences (SCNAT) received a mandate from the State Secretariat for Education, Research and Innovation (SERI) to support the scientific community in the elaboration of discipline-specific roadmaps to be delivered by the end of March 2021. Based on the existing roadmaps on particle physics, astronomy and space science, the following generic structure is proposed for the new roadmaps to be written. This proposal shall be considered simply as a guideline and can be adapted to the specific needs of the scientific fields. The order of the sections is also indicative and was chosen here to put in front the most important information. It is also possible to prefer a more classical structure with the authors and the table of contents given first, while the findings and the recommendations come at the end. The numbers of pages per section are a very rough estimation leading to an overall document of between 40 and 80 pages. This is about the right size to aim at in a text with final layout and including some figures and pictures to ease the reading. The actual text information shall therefore be substantially shorter to leave blank areas in the final layout and space for illustration. For inspiration about how it could look like and the level of detail in the text, please refer to the roadmaps mentioned above and available on the MAP website[1].

Swiss Institute of Particle Physics

Agenda item 7: Roadmap Outline

Executive Summary and Overview

Proposed generic structure

1. **Executive summary** (1-2 pages)

   Summary of the scope, the national and international landscape, the future trends and the major challenges in the field. Identification of the major findings and recommendations.

2. **Findings and recommendations** (2-4 pages)

   More specifically identify here a series of findings and related recommendations. These can be already imbedded in the various sections of the document and listed again here for easier overview and reference. Simplistic example:

   Finding 1: Infrastructure XYZ is essential for our community in the field ABC, but it will no more meet the international standards in 5 years.

   Recommendation 1: There is the need for a major upgrade of this facility or the building of a new infrastructure serving the whole Swiss community.

3. **Foreword** (1-2 pages)

   Describe the process that led to this roadmap and its endorsement by the community. Explain how you tried to reach out to the whole community.

4. **List of authors** (1 page)

   Provide the list of the authors with affiliations and possibly separating the main editors from other contributors. Possibly add here thanks for support received for the layout work, etc.

5. **Table of contents** (1-2 pages)

   Include a table of contents with page numbers. Possibly with in addition a list of figures and/or of tables, but this is probably only useful for a really long document.

Scientific Core Mission and Embedding

Purpose & scope (1-3 pages)

Clarify what is very generically meant by the overall field (e.g. “biology”), because this is not necessarily obvious to the target audience. What are the main scientific questions and challenges in this field? What is the objective of the document and the point of view adopted (very inclusive or more focused)? Clarify the separation with nearby disciplines (i.e. what is or is not covered here). State whether or not there was an attempt to prioritize the needs of specific infrastructures and how this is reflected in the document.

The present Swiss landscape (5-15 pages)

This section will be very specific to each field. It can be subdivided into research topics and/or per methodology (theoretical versus experimental, laboratory versus field study, and so on). Alternatively, it could be per geographical location, if there are well defined topics covered by different institutions. It shall be as much as possible inclusive of all the community to leave nobody out. It shall also show what are the major topics in Switzerland, which institutes are leaders in specific research areas, and possibly also what is less developed yet (especially if a new infrastructure is foreseen to fill this gap). How strong is the Swiss network: how much do the scientists of different institutes collaborate together? What are the main infrastructures used? Are they accessible to researchers from other institutions?

Major successes (2017–2020) (1-3 pages)

If relevant, one could identify in this section major recent (within the current ERI 4-year period) Swiss scientific achievements (are there any NCCR, NRP, awards, special EU funding, etc?). It can also be the building of a new infrastructure, the Swiss participation to an international organisation, etc.

The international context (2-6 pages)

Explain the main trends and the evolution of research in the field in Europe and in the world. How does Switzerland position itself in this global landscape: are we at the forefront or a small player? Add something on international collaborations: are there many large collaborations or is the research done in smaller groups?

). **Synergies with other scientific fields** (2-6 pages)

Are there synergies with other disciplines (e.g. biology with chemistry, or physics, or medicine, etc.)? Are you benefitting from advances in other fields (e.g. computing, imaging/analysis tools)? Are you using common infrastructures (e.g. SLS at PSI)? Is there transdisciplinary research being pursued?

+ explain CHIPP and its functions

Swiss Institute of Particle Physics

Agenda item 7: Roadmap Outline

Vision for the Future 2025-28 | and 2030+

Outlook

13. **Vision for the future** (6-12 pages)

    Explain how the landscape is foreseen to evolve until 2025-2028. What are the future trends and the development opportunities. What fields of research are getting more momentum and what is rather to stay constant or get less interest in the future? Are there game-changing new technological possibilities to be expected (e.g. Big Data, artificial intelligence, new imaging/analysis capabilities, etc.)? Are there new infrastructures already being built in the years to come? Are there new international collaborations foreseen? Where shall Switzerland reinforce its position, follow-up new international trends, etc.?

14. **Development of national infrastructures (2025-2028)** (2-8 pages)

    On the basis of the previous sections, what are possible developments (in some cases even essential needs) in terms of infrastructures to maintain or strengthen the Swiss scientific expertise in the field. Are there infrastructures at national level, i.e. beyond what can be afforded by single institutes, that would be essential? Focus on the scientific benefits and the breadth of the community of users, whilst keep it very general on the size, the costs, possible geographical location, management structure, etc. These points will be defined in a second step involving the ETH-Board, swissuniversities and the institutions. They will be described in any specific proposal for a given infrastructure to be submitted by end 2021 (or early 2022) in view of an international evaluation conducted by the SNSF.

15. **Swiss participation to international organisations (2025-2028)** (1-5 pages)

    Is there a need for Switzerland to join an international organization to get access to one or several international facilities? Explain the benefits of this. Which specific community would benefit from this? Is it of strategic importance for Switzerland? Are there also positive implications to be expected for the industry or society?

+ reference to ESPP

16. **Conclusion** (1-2 pages)

    In this section or imbedded in various recommendations in the text and listed in Sect. 2, there should be some consideration about the prioritization of investments in the field. It is a difficult topic to agree upon by the community, but leaving this completely open to decision-makers is not always the best alternative. As the funds are not infinite it would be good that the community gives basic recommendations on how to serve them optimally in case the list of possible investments clearly exceeds the available means. Some simplistic examples could be: focus on research infrastructures serving the widest community of users; avoid prestige infrastructures in areas not yet having a strong scientific community in Switzerland; rather consider joining a European facility than building something smaller in Switzerland, etc.

17. **Appendix** (1-6 pages)

    An appendix could be a list of people involved in the sub-groups formed in the preparation of this document. Another annex can give a list of acronyms used in the text. Concerning acronyms, try to refrain using them too widely to ease the reading by somebody not directly in the field. The same applies to references to scientific publications. Some key references can be given in appendix, if useful, but the roadmap shall not be a scientific paper with many references. Finally, the credit for figures and images shall also be included somewhere, either in the figure caption, or in an appendix, or an inside cover page.

Agenda item 7:
Editorial Team Roadmap 2020

Editorial Team:

composed of the EB members and SWICH workshop coordinators+ individuals (KM,GD,MS,LR) nominated by the CHIPP EB

- Anna Syrla (high and low energy frontier pillar 1)
- Gino Isidori (theory)
- Günther Dissertori (tech transfer)
- Katharina Müller (outreach and education)
- Michele Weber (neutrino pillar 2)
- Mike Seidel / Lenny Rivkin (accelerator)
- Ruth Durrer (astroparticle pillar 3)
- Rainer Wallny (general structure, main editor, organizational lead)
- Angela Benelli (secretary)

Idea is that the editorial team members have the mandate to

- act as nexus to the CHIPP board community and edit the submitted text
  - input should also come from the board members!
- Help co-ordinate and convene the Kandersteg workshop groups

Agenda item 7:
CHIPP Roadmap Workshop 25/26. June

- Format similar to the 2nd SWICH workshop
  - only board members and senior scientists
  - **Please attend!** We open the workshop beginning of April.
- Should be a «working» meeting so we need to flesh out text!
  - 4-5 groups in parallel rooms available to do writing/ brain storming
  - **Need a decent first draft prior to the meeting to make it a success!**
  - This will still be largely text and tables
  - Editorial Team will solicit input from individual members
  - Everybody welcome to contribute – contact the editorial member of your choice and receive instructions
  - Document will be viewable in an online repository
- how to do the common ”online” editing ?

Agenda item 7:
Possible Format Kandersteg Workshop

Swiss Institute of Particle Physics

Thursday:

Register 10:00h

Start 10:30h

- Introduction
- Impact of ESPP on our Roadmap

lunch 12:30h

divide 14:00h parallel sessions

16:00h coffee

16:30h - 19:00h parallel sessions

evening lecture ? Provocative thoughts on the strategy ? Open for proposals.

Friday:

09:30h parallel sessions

11:00h coffee

11:30h plenary

12:30h lunch

14:00h plenary, wrap up

15:30h adjourn.

Agenda item 7: Roadmap Process and Confirmation of the Editorial Board

- Discussion and Feedback on the concept
  - The Board is invited
    - **to approve** the roadmap update process with the aim to produce a roadmap by end of 2020
    - **to endorse** the composition of the editorial team and their mandate