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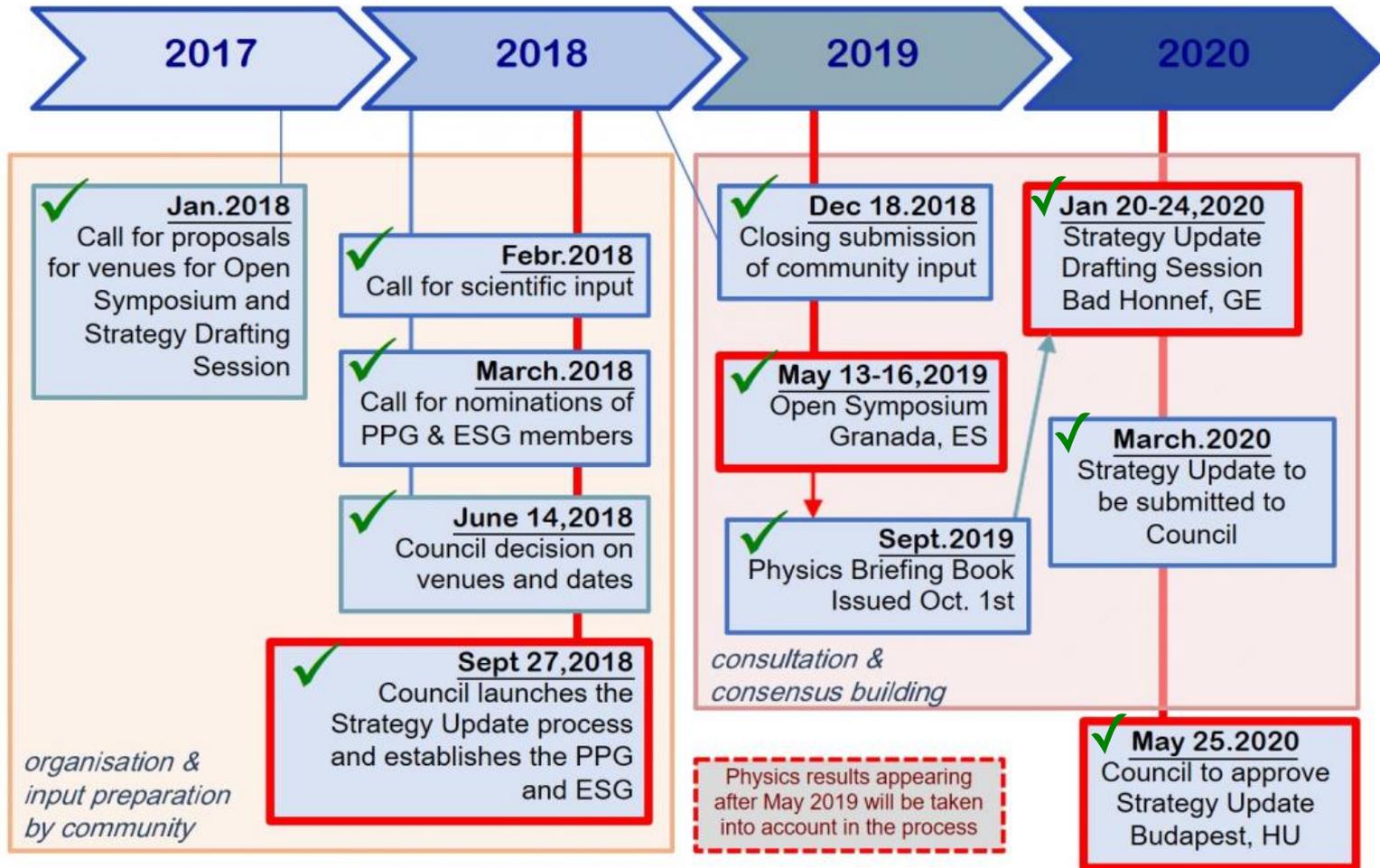
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European Particle Physics Strategy

Implications for Neutrino Physics

Joachim Kopp, July 17, 2020

The European Strategy Update



Overview

2 statements on **Major developments from the 2013 Strategy**

- a) Focus on successful completion of HL-LHC upgrade remains a priority
- b) Continued support for long-baseline experiments in Japan and US and the Neutrino Platform

3 statements on **General considerations for the 2020 update**

- a) Preserve the leading role of CERN for success of European PP community
- b) Strengthen the European PP ecosystem of research centres
- c) Acknowledge the global nature of PP research

2 statements on **High-priority future initiatives**

- a) Higgs factory as the highest-priority next collider and investigation of the technical and financial feasibility of a future hadron collider at CERN
- b) Vigorous R&D on innovative accelerator technologies

Letters for itemizing the statements are introduced for identification, do not imply prioritization

4 statements on **Other essential scientific activities**

- a) Support for high-impact, financially implementable, experimental initiatives world-wide
- b) Acknowledge the essential role of theory
- c) Support for instrumentation R&D
- d) Support for computing and software infrastructure

2 statements on **Synergies with neighbouring fields**

- a) Nuclear physics - cooperation with NuPECC
- b) Astroparticle - cooperation with APPEC

3 statements on **Organisational issues**

- a) Global collaboration on projects in and out of Europe
- b) Relations with European Commission
- c) Open science

4 statements on **Environmental and societal impact**

- a) Mitigate environmental impact of particle physics
- b) Investment in next generation of researchers
- c) Knowledge and technology transfer
- d) Cultural heritage: public engagement, education and communication

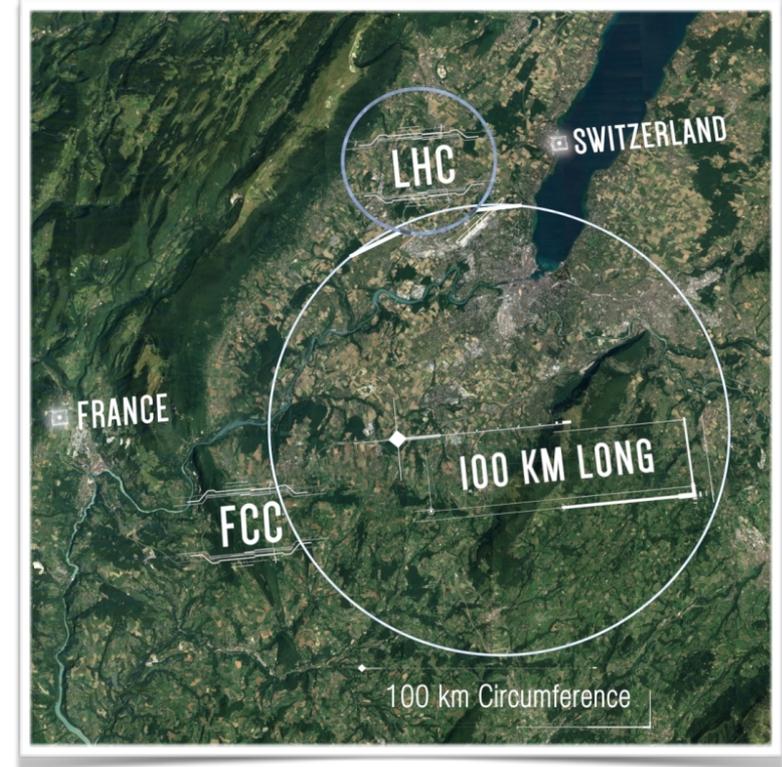
from slides shown by Halina Abramowicz at the the Open Council Meeting, June 2020

Resources: [booklet of recommendations \(PDF\)](#)

[presentation at council meeting, June 2020 \(PDF\)](#)

Main Recommendation in Collider Physics

- ☑ R&D towards 100 TeV pp collider
- ☑ e^+e^- collider as possible first stage
 - room for interpretation
 - likely: R&D towards FCC-ee, but keep CLIC technology alive at some level
- ☑ strong emphasis on international collaboration
- ☑ Personal opinion: future large-scale project at CERN essential to keep infrastructure alive. But should not suck up all resources.



The Statement on Neutrinos

The existence of non-zero neutrino masses is a compelling sign of new physics. The **worldwide neutrino physics programme** explores the full scope of the rich neutrino sector and commands strong support in Europe. Within that programme, the Neutrino Platform was established by CERN in response to the recommendation in the 2013 Strategy and has successfully acted as a hub for European neutrino research at accelerator-based projects outside Europe.

Europe, and CERN through the Neutrino Platform, should continue to support long baseline experiments in Japan and the United States. In particular, they should continue to collaborate with the United States and other international partners towards the successful implementation of the Long-Baseline Neutrino Facility (LBNF) and the Deep Underground Neutrino Experiment (DUNE).

Interpretation

- ☑ Strong recommendation to continue Neutrino Platform activities
- ☑ DUNE mentioned explicitly → reciprocity with US contribution to LHC program
- ☑ Noteworthy that other non-collider activities (beam dump facility for SHiP, astroparticle physics) are deemed interesting, but are not recommended for funding through CERN



Personal Opinion

- Currently: Neutrino Platform is exclusively for hardware development
 - no funding for scientific personnel
- In the medium term: would make sense to move towards an analysis platform
 - once DUNE is running, analysis more important
 - contributing to analyses means reaping the fruits of the hard(ware) work being done now
 - this should include neutrino theory



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Thank You
for Your Attention.



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