

Report on European Particle Physics Strategy Update



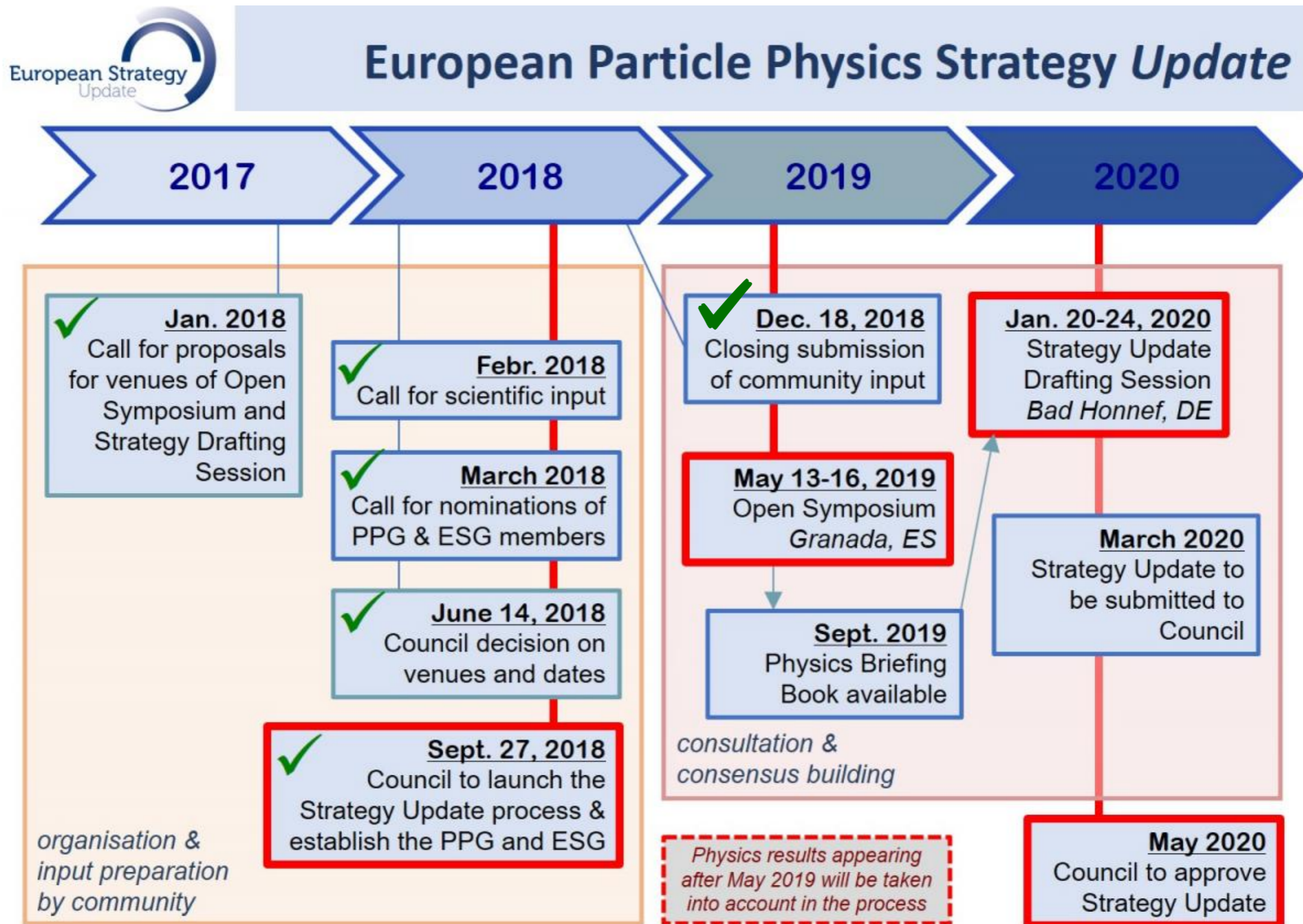
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McGill University

Fermilab PAC meeting
18 January 2019

- EPPSU 2020 process and organization
- Progress report
- US and Canada submissions

- Every few years, the European particle physics community reviews the roadmap and priorities of the field, updating the European Particle Physics Strategy (ESPP). More information is available here:
 - <http://council.web.cern.ch/en/content/european-strategy-particle-physics>.
- The next update process was launched by the CERN Council in September 2018 and is scheduled to be completed in May 2020.

EPPSU 2020 Process



Composition of each group can be found in the backup slides.

- Strategy Secretariat:
 - Organizes EPPSU process.
 - 4 members.
- European Strategy Group (ESG):
 - Drafts strategy update which it submits to CERN council for approval.
 - ESG is assisted by the Physics Preparatory Group.
 - ~ 36 members (+ 29 invitees).
- Physics Preparatory Group (PPG):
 - Prepares the scientific contribution to the work of the ESG (the “Briefing Book”), based on community input.
 - 17 members.

EPPSU Progress report



- 18 Dec. 2018: Total of **161 submissions** received.
- 9 Jan. 2019: PPG vidyo meeting to review/assign to thematic groups the submitted inputs.
- ~ mid-Jan. 2019: Open access of submissions to European Strategy Group (ESG)
- ~ mid/end-Jan. 2019: Open access of submissions to public
- 21 Jan. 2019: PPG in-person meeting at CERN to finalize the programme for the Open Symposium, including invited speakers/experts; decide on follow-up vidyo meetings.
- 12 May 2019: PPG meeting in Granada, before the Symposium
- **Open Symposium, Granada, Spain, 13-16 May 2019.**
- 17 May 2019: PPG debriefing meeting in Granada, right after the Symposium
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- [ECFA/EPS-HEPP meeting, July 13, 2019 in Ghent]
- Deliver "Briefing Book" in September 2019.

Open Symposium

- The Open Symposium will take place in **Granada, Spain, from May 13 to 16, 2019.**
- Registration is **open**.
- The meeting will consist of parallel and plenary sessions, organized and convened by members of the Physics Preparatory Group (PPG).
- Parallel sessions will be organized around different themes.
- Tentative program:
 - Mon. AM: plenary
 - Mon. PM: parallel
 - Tues.: parallel
 - Wed. AM: parallel
 - Wed. PM: plenary
 - Thur.: plenary/closeout

CERN Council Open Symposium on the Update of

European Strategy for Particle Physics

13-16 May 2019 - Granada, Spain



Physics Preparatory Group

Halina Abramowicz (Chair)	Beate Heinemann
Shoji Asai	Xinchou Lou
Stan Bentvelsen	Krzysztof Redlich
Caterina Biscari	Leonid Rivkin
Marcela Carena	Paris Sphicas
Jorgen D'Hondt	Brigitte Vachon
Keith Ellis	Marco Zito
Belen Gavela	Antonio Zoccoli
Gian Giudice	

Local Organizing Committee

Francisco del Águila	Juan José Hernández
Antonio Bueno (Chair)	Mario Martínez
Alberto Casas	Carlos Salgado
Nicanor Colino	Benjamín Sánchez Gimeno
Javier Cuevas	José Santiago
Elvira Gámiz	
María José García Borge	
Igor García Irastorza	
Eugeni Graugés	

<https://cafpe.ugr.es/epps2019/>

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Sponsored by:



- Total ~ 8 submissions from US community.
- US community submission organized by APS Division of Particle and Fields (see next slide): “DPF Whitepaper”
- Other submissions received from US community include:
 - “Electron Ion Collider Accelerator Science and Technology - Designs, R&D and Synergies with European research in Accelerators”
 - “Synergies between a U.S.-based Electron-Ion Collider and the European research in Particle Physics”
 - “Deep Underground Neutrino Experiment (DUNE)”
 - “The Short-Baseline Neutrino Program at Fermilab”
 - “Status of Fermilab’s Neutrino Facilities”
 - “MAGIS-1K: A 1000 m Atom Interferometer Device for Searches in Dark Matter and Gravity Waves”
 - “Charged Lepton Flavour Violation using Intense Muon Beams at Future Facilities”

DPF Whitepaper



Process described in [DPF Newsletter from August 2018](#).

Dates in 2018	Process
Until October 8 th	Collect input from the US DPF community via email at dpfstrategy@fnal.gov
October 9 th -November 11 th	Draft white paper
November 12 th -December 2 nd	Post the draft for feedback from the DPF community
December 3 rd -December 16 th	Finalize the draft
December 17 th	Submit paper to and post it on the DPF bulletin site

DPF submission available in 3 parts:

- [Community Planning and Science Drivers](#)
- [Tools in Particle Physics](#)
- [Addendum of White Papers](#)

“The focus of this document, [...], is to describe research interests in the U.S. particle physics community beyond the P5 timescale. As the U.S. planning process described above has not yet commenced, we are unable to supply a comprehensive or prioritized summary of U.S. plans. For purposes of this document, editors representing the experimental and theoretical side of each science driver were identified [see Addendum] and asked to summarize the status of their sub-field. The DPF Executive Committee and the editors of this document sought and incorporated input from the community regarding future interests as well as feedback on preliminary drafts. This document does not claim to fully speak for the U.S. community, but the editors have attempted to produce an accurate summary of the current state of thinking in the U.S. particle physics community for consideration by the ESG based on input provided to us. An additional document submission describes other important activities within the U.S. and global particle physics communities: theory, accelerator development, computing, and detector R&D. For brevity we are omitting details and references about many of the initiatives mentioned in these white papers, given that independent white papers on specific initiatives are being submitted in parallel and information can easily be found online.”

Canadian submission



Submission based on 2017-21 Canadian Subatomic Physics Long Range Plan (LRP)

- LRP Drafted by committee of 11 subatomic physicists appointed by NSERC (funding agency). Note that 1/3 of members were non-Canadian. There were also 7 observers from the IPP, CINP, TRIUMF, SNOLAB, CFI and NSERC.
- LRP Committee Mandate:
 - Based on a broad consultation with the Canadian subatomic physics community:*
 - Identify subatomic physics scientific ventures and priorities that should be pursued by the Canadian community and that would ensure continuous Canadian global scientific leadership covering the period 2017-21 and look ahead to 2026.
 - Provide budgetary estimates, including funding ranges for prioritized endeavours.
 - Funding ranges should include funding levels that would allow for a restrained, yet efficient, contribution to the ventures, as well as levels that would enable a more extensive contribution.
- Extensive and broad input: documents solicited from IPP and CINP (representing the particle and nuclear physics communities, respectively), surveys of all Canadian subatomic physicists who have held subatomic physics grants, two town hall meetings.
- **IPP, CINP, TRIUMF and SNOLAB** prepared the Canadian Roadmaps Submission to the European Particle Physics Strategy Update which summarized the 2017-21 Canadian Subatomic Physics LRP and included updates since that recent broad community consultations associated with the LRP. The **McDonald and Perimeter Institutes** reviewed and provided input to the submission.
 - Note that IPP Council, the elected representatives of the Canadian particle physics community, worked on the submission as did the CINP Board, which consists of the elected representatives of the Canadian nuclear physics community.

- Preparation of Open Symposium ongoing, based on community written inputs received.
- Open Symposium, Granada, Spain, 13-16 May 2019.
- US-community submission to EPPSU coordinated by DPF.
 - An additional ~ 7 submissions on specific research programs also received from US community.
- CND submission to EPPSU prepared by IPP, CINP, TRIUMF and SNOlab, with input from the McDonald and Perimeter Institutes.

Additional Material

STRATEGY SECRETARIAT

Scientific Secretary (Chair)

Prof. Halina Abramowicz (IL)

SPC Chair

Prof. Keith Ellis (UK)

ECFA Chair

Prof. Jorgen D'Hondt (BE)

Chair EU Lab. Directors' Mtg

Prof. Lenny Rivkin (CH)

European Strategy Group (ESG)



Members: [~ 36 people]

- the Strategy Secretary (acting as Chair),
- one representative appointed by each CERN Member State,
- one representative appointed by each of the Laboratories participating in the major European Laboratory Directors' meetings, including its Chair (CERN, CIEMAT (Madrid-Spain), DESY (Hamburg-Germany), Irfu (Saclay-France), LAL (Orsay-France), N (Amsterdam-Netherlands), LNF (Frascati-Italy), LNGS (Gran Sasso-Italy), PSI (Villigen-Switzerland), STFC (Didcot-UK)),
- the CERN Director-General,
- the SPC Chair,
- the ECFA Chair.

Invitees: [~ 29 people]

- the President of the CERN Council,
- one representative from each of the Associate Member States,
- one representative from each Observer State,
- one representative from the European Commission,
- the Chairs of ApPEC and NuPECC,
- the Chairs of FALC and ESFRI,
- the members of the **Physics Preparatory Group**.

Physics Preparatory Group (PPG)

Members: [17 people]

- the Strategy Secretary (acting as Chair),
- four members appointed by the Council on the recommendation of the SPC,
- four members appointed by the Council on the recommendation of ECFA,
- the SPC Chair,
- the ECFA Chair,
- the Chair of the European Laboratory Directors' meeting,
- one representative appointed by CERN,
- two representatives from Asia appointed by the respective regional representatives in ICFA,
- two representatives from the Americas appointed by the respective regional representatives in ICFA.

Marcela Carena (US)

Brigitte Vachon (Canada)