

Update to European Particle Physics Strategy

Background

- CERN activates clause in its constitution allowing it to coordinate European Particle Physics Activities
 - Strategy to cover Medium and long term
- 2006
 - First strategy
 - http://council.web.cern.ch/sites/council.web.cern.ch/files/European_Strategy/ESStatement.pdf
- 2013
 - Strategy update
 - <https://cds.cern.ch/record/1567258/files/esc-e-106.pdf>
- 2020
 - Strategy update

Committees, peoples and timelines

Physics Preparatory Group (PPG)

- 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,
- one representative from Asia appointed by the respective regional representatives in ICFA,
- one representative from the Americas appointed by the respective regional representatives in ICFA.

European Strategy Group (ESG)

Members

- The Strategy Secretary (chair)
- One representative appointed by each CERN MS (22)
- One representative appointed by each of the Labs participating in the European Laboratory Directors Group including its Chairperson (9)
- CERN DG
- SPC chair
- ECFA chair

Invitees

- President of CERN Council
- One representative from each AMS and OS (8+3)
- One representative from the European Commission
- Chairs of ApPEC, NuPECC, FALC, ESFRI
- Members of the PPG (17 - Secretariat)

Reversed time-line

May 2020: Approval of the updated European Strategy for Particle Physics by the Council at a special Open Session (venue to be determined).

March 2020: Submission of the draft Strategy update to the Council for feedback.

January 2020: (2nd half) Strategy Drafting Session of the European Strategy Group (ESG) lasting one week (Monday to Friday)

September 2019: (end) Briefing Book compiled by the Physics Preparatory Group (PPG) submitted to the ESG as input for the Strategy Drafting Session.

May 2019: (2nd half) A 4-day Open Symposium for the whole community to discuss and agree upon the scientific input to the work of the ESG (Briefing Book).

Beginning of 2019: First formal meeting of the ESG.

December 2018: (middle) Deadline for the submission to the PPG of written scientific input for proposals to be discussed in the Open Symposium.

September 2018: Formal launch of the Strategy update process through the establishment of the ESG and the PPG by the Council.

June 2018: Decision by the Council on the venues and dates of the Open Symposium of May 2019 and the Strategy Drafting Session of January 2020.

March 2018: Formal approval by the Council of the proposed detailed plan for the update process and enlarged composition of the PPG, submitted by the Strategy Secretariat. Call for nominations of the members of the ESG and PPG.

February 2018: Call for input into the Strategy update issued to the whole particle physics community.

Jan 2018: Call for proposals to host the Open Symposium of May 2019 and the Strategy Drafting Session of January 2020 (deadline for submission of proposals 15 May 2018).

Our process ?

- Those with a role representing the community (Section reps (AF,RP), CERN council delegates (K. J-A, RB) , ECFA (B L-J), RECFA (DM)) called a kick-off meeting
- Themes
 - Colliders and the energy frontier
 - Intensity Frontier
 - Theory
 - Neutrino Physics
 - Astroparticle physics/DM (today just DM via primary e-beam)
 - Nuclear Physics
- Large overlap between individual areas.
- Astroparticle and nuclear physics covered by ApPEC and NuPECC
 - Some activities are peripheral to the PP strategy but can also mean that they fall through cracks

Our process ?

- Each "area" to discuss during 2018 their wishes for the PP strategy update.
- Collate and discuss in ≥ 1 further general meetings (Partikeldagarna in Lund in Nov. is a useful opportunity for a meeting)
- Decision today if possible on hosting the community symposium.
- Discuss with our Nordic neighbours.
 - *Joint emphasis of certain issues likely to be helpful if agreement can be found.*
- End product – a short submission document outlining the Swedish particle physics community's views/proposals.

Personal observation

- Our main paradigm hasn't changed since 1973

$$SU(3)_C \otimes SU(2)_L \otimes U(1)_Y \xrightarrow{\text{SSB}} SU(3)_C \otimes U(1)_{\text{QED}}$$

- Every attempt to find BSM physics outside of the ν -sector has failed.
- Naturalness has been a dominant but not (so far) a helpful guide.
- The PP strategy should focus on building on recent achievements but not ignore the *elephant in the room*.

