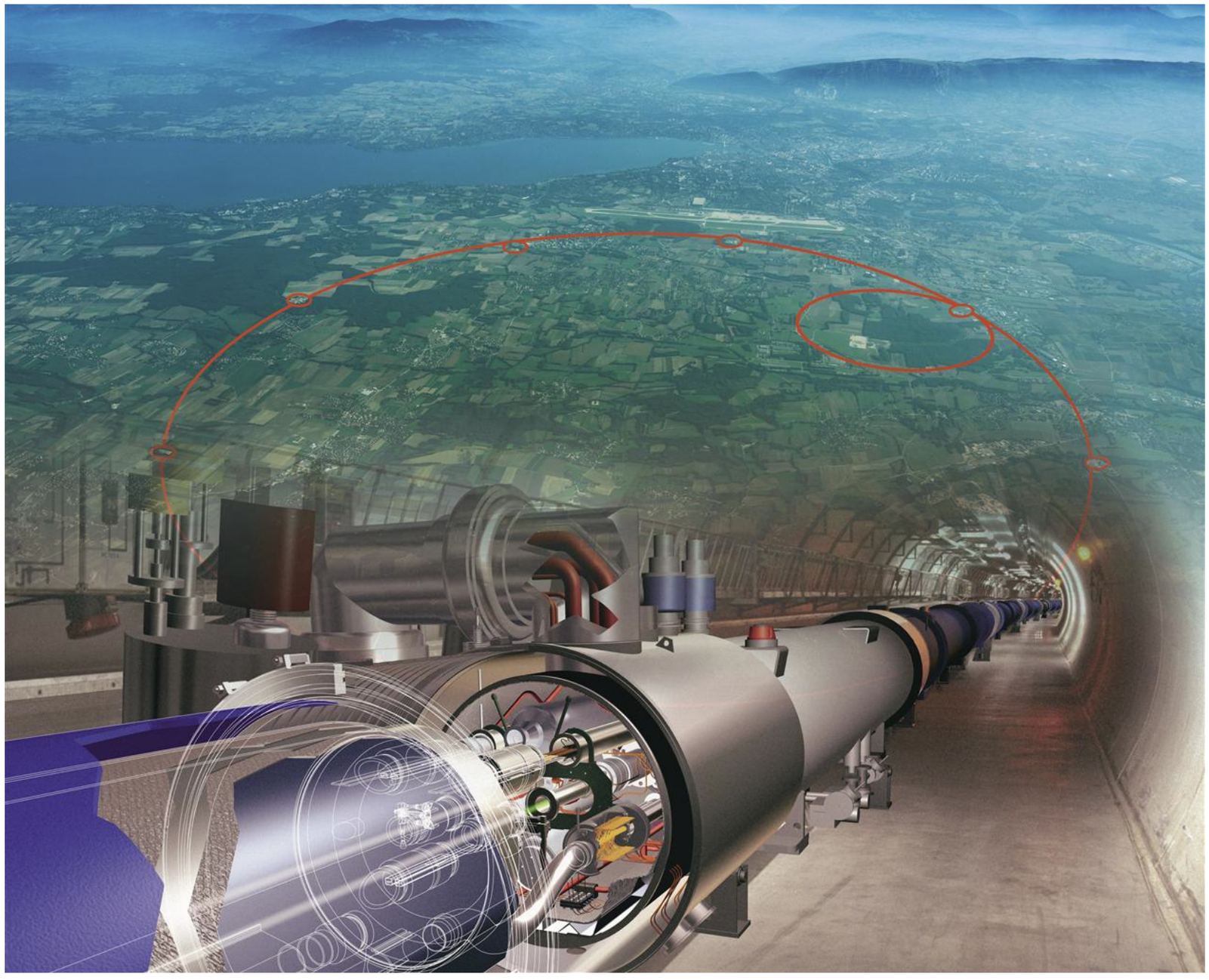
ECFA

European Committee for Future Accelerators



ECFA: R. Pasechnik, A. Ferrari (incoming), B. Lund-Jensen (outgoing)

RECFA: D. Milstead

European Committee for Future Accelerators

- **Plenary ECFA, Restricted ECFA**

- **Primary aim is the planning of high-energy facilities, including accelerators, large-scale experiments, technologies and equipment adequate for valid particle physics research by the community of participating (European) countries**

- **ECFA engages into a number of different activities:**

A. **Regular meetings**
B. **Symposia/seminars/conferences sponsored/organised by ECFA**
C. **study groups, set up by ECFA, or jointly with other organisations, aimed at addressing special problems**
D. **Collecting/sharing/implementing/monitoring views/trends in particle physics community (e.g. through ESPP updates) in the CERN Member States**
E. **Presentation of the ESPP status reports to the European Strategy Session of Council**
F. **Demographic studies of the HEP community, developments and resources in ECFA countries at regular intervals (country visits, 3-4 visits/year)**

RECFA/PECFA overview

- Restricted ECFA: 17/4, 15/5, 13/7, 9/10, 19/11 (remote!)
- Plenary ECFA: 13/7, 19/11
- Sweden mid-term report given on 19/11
  - Presentation
  - Highlighted disconnect between RFI and project grant funding
- ECFA newsletter : https://ecfa.web.cern.ch/
- Country visits to Ukraine, France, Serbia in 2020 postponed
- 2021 - France, Ukraine, Denmark (covid19 impact to be discussed in January)
- RECFA is proactive in preparing initiatives in response to the updated ESPP
- Priority is given to those topics that will enhance the readiness of ECFA to help our research community when we emerge from the COVID pandemic

European Strategy for Particle Physics (ESPP):

scientific priorities (by Fabiola Gianotti, ECFA 13/7/2020)

- **Full exploitation of the LHC physics potential - successful completion of the high-luminosity upgrade of accelerators and experiments**

- **e+e- Higgs factory as the highest-priority next collider (no decision on exact type yet)**

- **Increased R&D on accelerator technologies: high-field superconducting magnets, high-gradient accelerating structures, plasma wakefield, muon colliders etc. Develop accelerator R&D roadmap.**

- **Investigation of the technical and financial feasibility of a future ≥ 100 TeV hadron collider at CERN, with e+e- Higgs and electroweak factory as a possible first stage (by next ESPP update ~2026). Long-term objective**

- **Support to long-baseline neutrino projects in US and Japan (DUNE at LBNF)**

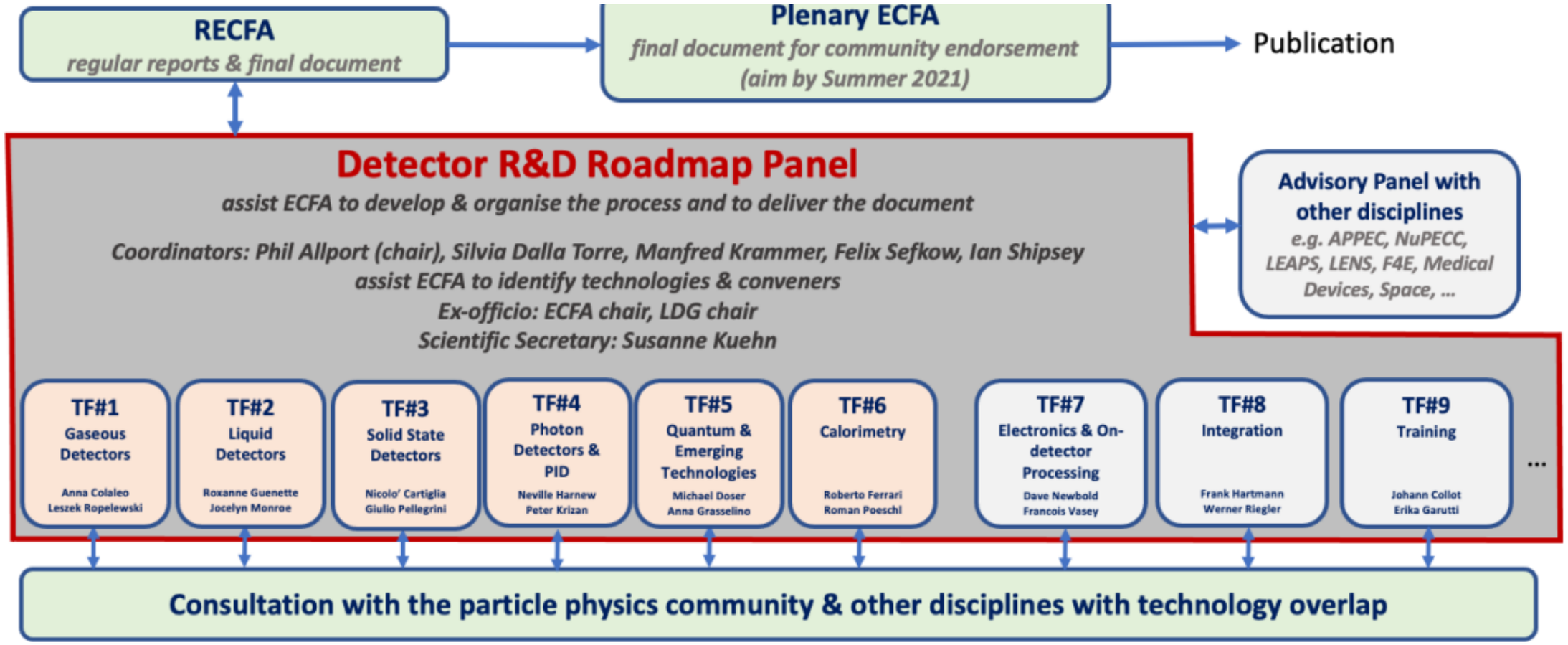
- **Support to high-impact scientific diversity programme complementary to high-E colliders (role of national labs emphasised, as well as participation in experiments outside Europe)**

- **Theory, detector R&D, computing (develop roadmap under ECFA's supervision)**

Support for Higgs factory studies

- In initial contacts with (most of the) leaders of the future Higgs Factories, enthusiasm and support was noted to explore synergies and for such a series of workshops.
- From the formulated vision, more concrete objectives for the program are to emerge from the discussions within the IAC.
- Initial thoughts formulated at our last RECFA meeting:
  - Awaiting decisions for e^+e^- Higgs Factories, the objective is to identify synergies in detector R&D and physics analysis methodologies (experimental and theoretical) in order to make efforts applicable/transferable to more Higgs Factories, where relevant and possible.
  - Towards potentially joint research programs for detector R&D and physics for Higgs Factories.
- Accordingly, RECFA is finalizing the process to develop the membership of the IAC to further the discussion with the objective to identify synergies and to define concrete ways how to pursue them.

Detector R&D roadmap



- National contact nominations to be sought soon.

Accelerator R&D roadmap

As an outcome of the European Strategy for Particle Physics 2020, CERN Council has mandated the Laboratory Directors Group (LDG) to define and maintain a prioritised accelerator R&D roadmap towards future large-scale facilities for particle physics.

The roadmap will define a route towards implementation of the scientific goals of the European Strategy, bringing together the capabilities of CERN, large national laboratories, and other institutes, to carry out R&D and the construction and operation of demonstrators.

The large national laboratories in Europe play an important role in European particle physics. Their resources, infrastructure and technical capabilities are necessary for implementation of most large-scale projects in particle physics.

Joint ECFA-NuPECC-APPEC Activities

http://www.nupecc.org/jenaa/

A joint effort by

- **Astroparticle Physics European Consortium (APPEC)**
- **Nuclear Physics European Committee (NuPEC)**
- **ECFA**

About us

This JENAA site was established after the Joint ECFA-NuPECC-APPEC Seminar (JENAS) at Orsay, that allowed astroparticle, nuclear and particle physics researchers to peek into each other's activities. The identified overlapping challenges might transform via joint programs into stronger opportunities to further our understanding of both the smallest and the largest structures in nature.

Being informed by the presentations and discussions and with a view to further explore topical synergies between our disciplines, we issue a call for novel Expressions-of-Interest (EoI). We seek bottom-up and community thoughts expressed in a non- binding EoI for further discussion within the APPEC, ECFA and NuPECC committees or consortia. These thoughts can revolve around potential synergies in technology, physics, organization and/or applications.

EoIs in the form of a brief letter are to be submitted to the chairs of the committees/consortia. In the letter you can elaborate on the synergy topic, the objectives, the initial thoughts and the potential communities involved. This letter is not the end of the process, but potentially the start of further communications on the expressed interest.

Within our committees/consortia and taking into account their respective roles in our communities, we will discuss and propose actions to further your thoughts.

Jorgen D'Hondt, ECFA chair, Jorgen.DHondt@vub.be
Marek Lewitowicz, NuPECC chair, Marek.Lewitowicz@ganil.fr
Teresa Montaruli, APPEC chair, Teresa.Montaruli@cern.ch

APPEC ECFA European Committee for Future Accelerators NuPECC

Joint activities on common issues. Diversity, cross-disciplinary physics.
Next meeting in Madrid. Autumn 2021 or early 2022.
Initiatives on Machine learning, DM, gravitational waves, nuclear physics@LHC and storage rings for charged particle EDM's.

Working group on diversity

JENAA

Joint ECFA-NuPECC-APPEC Activities

Diversity Working Group

APPEC, ECFA, and NuPECC recognise the importance of diversity as a motor to boost productivity and innovation, fight prejudice and discrimination and contribute to the improvement of social and economical standards.

The three organisations joined together to propose a Diversity Charter to be signed by research organisations, collaborations and conferences within the fields of Particle Physics, Nuclear Physics and Astroparticle Physics, who value diversity and commit to promote equal opportunities at all levels.

In a first phase, diversity within the different signatories will be monitored. To simplify the task of monitoring for all partners involved, a survey has been made available to be filled out on a voluntary and anonymous basis by affiliated people and participants to the signatories. Initially, just a few basic variables are proposed for data collection in order to simplify privacy issues. If any signatory entity prefers to monitor the data itself, it is free to use any other method and just communicate the results of its analysis.

The three consortia have already started their activities on this issue by asking large collaborations, namely those with more than 40 members to participate in the survey by having their members fill out the questionnaire prepared by the working group, so that one can have a good picture of diversity among collaborations. Due to the COVID-19 pandemic, no conferences are presently being organized. Hence, the part of our study having to do with conferences will be performed in the near future, after the restrictions are lifted.

The APPEC-ECFA-NuPECC Diversity Charter can be found here. The relevant surveys can be found here for Collaborations, here for Organisations and here for Conferences.

Diversity WG members

From APPEC:

- Francesca Moglia
- Teresa Montaruli

From ECFA:

- Patricia Conde Muíño
- Nadia Pastrone

From NuPECC:

- Jens Jørgen Gaardhøje
- Nasser Kalantar-Nayestanaki
- Jochen Wambach

- Diversity Charter distributed in summer to collaborations of APPEC/ECFA/NuPECC above 150 people
  - few signatures collected already
  - some collaborations contacting their Collaboration Boards and/or their Diversity Groups
  - received questions and issues related to data protection and the survey

- Contacted the CERN Data Protection Office which clarified all doubts about the survey
  - re-structure the survey to ensure that no single person can be identified
    - ✓ example: researchers from small country, in XX collaboration with YY-ZZ age group
    - ✓ group small countries/collaborations to ensure complete anonymity

- Next steps:
  - finish the implementation of the survey
  - follow up with the collaborations —> start collecting and analysing data
  - go ahead with conferences (add an “online-event” category due to COVID and dealing with data protection issues)

Recognition of individuals in large collaborations

- Contact with large collaborations (>40 authors) with goal of list of good practice

- ApPEC (34)
  - AMS, Antares, Auger, Baikal GVD, Borexino, CALET, CTA, CUORE, DAMIC, DarkSide, Darwin, DEAP, Edelweiss, ET, EUCLID, Fermi-LAT, Gerda, IceCube, Juno, Katrin, Km3NeT, Legend, LIGO, LISA, LSST, MAGIC, Pamela, SNO+, Virgo, XENON, HESS, HAWC, JEM-EUSO, LHAASO
- ECFA (14)
  - Atlas, Belle-II, Calice, Cast, Cloud, Dune, CMS, Compass, Dirac, LHCb, NA61/SHINE, NA62, Solid, T2K
- NuPECC (33)
  - A2, ACTAR/TPC, AD, AEGIS, AGATHA, ALICE, ALPHA, BM@N, CBM, CLAS, COLLAPS, CRIS, DESIR, Galileo, Ganil, Gbar, HADES, HISPEC/DESPEC, IDS, INDRA, Isolde, JEDI, MATS, Miniball, MPD, nTOF, NFS, NUSTAR, PANDA, PARIS, R3B, S3, SuperFRS

Towards listing Best Practices for:

- Awards and Rewards
- Reviews and publication procedures
- Authorship of papers and notes: recognizing contributions
- Conference presentations: selection and contents
- Decision making processes
- Promoting juniors
- Promoting technical work (detector, software, calibration,…)
- Communication/information to committees inside/outside own research field

Working group on diversity

"For particle physicists, ***the principles of equality, diversity and inclusion should be clearly and recognisably present in all of the field's activities****. Training appropriate to this end should be available at CERN and other institutes, and best practices shared among them."*

Extract from the 2020 Strategy update

Key objective is to create a platform for large collaborations to exchange best practices among them and across disciplines.

- Held two discussion sessions with collaborations:
  - July: First meeting providing further clarifications and initial discussions,
  - September/October: Second meeting collecting feedback from the collaborations.
- Detailed feedback received from almost all major collaborations in ECFA.
- Currently digesting the feedback and having "across-JENAS" discussions.
  - feedback of the ECFA collaborations collected: https://indico.cern.ch/event/776784/
  - note that ALICE is not missing but was part of the NuPECC group discussion
- Working towards a list of "practices"/"recommendations" grouped as:
  1) "generally accepted"
  2) "under debate"
  3) "controversial"
- Each collaboration remains responsible for their own practices.

Early career researcher debate and conclusions

Survey, discussion and conclusions

Report on the ECFA Early-Career Researchers Debate on the 2020 European Strategy Update for Particle Physics

The ECFA Early-Career Researchers

February 6, 2020

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ECFA Early Career Researcher Panel now established

- The objective of the ECFA Early-Career Researchers (ECR) Panel is for its members to discuss all aspects that contribute in a broad sense to the future of the research field of particle physics. In its advisory role to ECFA, the panel reports to ECFA on a regular basis. An annual report of the ECFA ECR Panel is added as a standing item to the agenda of Plenary ECFA meetings.
- Members are, in general, PhD students and postdocs, either with a non-permanent contract or with up to 8 years after obtaining the PhD. Up to three members can be nominated by each ECFA country and each major laboratory represented in ECFA for a mandate of 2 years, extendable with another 2 years. In general, the delegation from each ECFA country should have at least one PhD student and at least one postdoc. Nominations are to be endorsed by Plenary ECFA. Members are nominated by and assigned to the quota of the country they are hired at the moment they become member of the panel.
- Members act as individuals, but should be able to represent the views of early-career researchers in particle physics in the country from which they were nominated.
- From among the ECFA ECR Panel members, a delegation of up to five members is assigned by the panel as observers to Plenary ECFA meetings, and one member is assigned by the panel as observer to Restricted ECFA meetings.
- The ECFA ECR Panel would normally hold two plenary (tele-)meetings per year among its members.
- The activities of the ECFA ECR Panel are organised by a smaller group selected by the panel itself from among its members. To achieve their aims, the ECFA ECR Panel can proceed among others with regular meetings, topical working groups and studies related to the early-career researchers community in particle physics in ECFA countries.
- The ECFA ECR Panel can invite observers to its meetings, for example to seek adequate diversity among the participants to conduct its business.

Conclusions

- **Focus on recognition of individual researches, early-career researches, diversity**

- **Focus on implementation of EPPS Update**

Examples of key objectives for next ESPP update ~ 2026:

- ❑ Successful completion of Run 3, HL-LHC construction and ATLAS and CMS Phase-2 upgrades (installation in LS3: 2025-2027)
- ❑ Start of installation of first detector of DUNE experiment at LBNF (strong contributions of CERN and Europe to detector, PIP-II accelerator, cryogenics)
- ❑ Feasibilty study for FCC (succesfully) completed
- ❑ Accelerator R&D: LTS/HTS magnet feasibilty; AWAKE Run 2 completed; muon collider ready to build facility; etc.