A Short Introduction to ECFA and major ECFA Activities

ECFA Early Career Researchers Panel Kick-off meeting
11th January 2021

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ECFA Chair

Who is your new Chair?

- Professor at the University of Freiburg / Germany (since 2003)

  Spokesperson of the ATLAS Experiment (03/2017 – 02/2021)

- Experiments: UA2 (1985 – 1992), ALEPH (1992 – 2000) ,
  D0 (2001 – 2007), ATLAS (1992 - ....)

- Physics Interest: - Higgs boson physics
  (Studies on detector optimisation for Higgs boson discovery,
  Higgs boson search and discovery, parameter measurements)
  - Search for supersymmetry
  - Test of Standard Model (QCD, W production) in early years

- Detector experience: Calorimetry
  Silicon (strip) tracking detectors

- Membership in several committees: SPC at CERN
  Scientific Council DESY
  EPS HEP Board
  P5 / DOE panels (US)

ECFA Terms of Reference

Guidelines for the Work of the European Committee for Future Accelerators

As agreed at the 19th Plenary ECFA Meeting held on 29 March 1976 and amended at several meetings later on:
https://ecfa.web.cern.ch/ecfa-terms-reference

1. Aims

Long-range planning of European high-energy facilities *- accelerators, large-scale facilities and equipment - adequate for the conduct of a valid high-energy research programme by the community of physicists in the participating countries and matched to the size of this community and to the resources which can be put at the disposal of high-energy physics by society. Duplication of similar accelerators should be avoided and international collaboration for the creation of these facilities should be encouraged if essential and efficient for attaining the purpose.*

Equilibrium between the roles of international and national laboratories and university institutes *in this research, and a close relation between research and education in high-energy physics and other fields.*

Adequate conditions for research and a just and equitable sharing of facilities between physicists, irrespective of nationality and origin, as conducive to a successful collaborative effort.

ECFA Terms of Reference (cont.)

2. Activities

To achieve these aims ECFA can engage in - among others - the following activities:

- ***Regular meetings of Restricted and Plenary ECFA**;*
- *Ad hoc symposia and conferences sponsored or organized by ECFA;*
- *Study groups, set up by ECFA, or jointly with other organizations, for special problems;*
- *Demographic studies of the high-energy physics community and resources in the ECFA participating countries, repeated at regular intervals, by means of **visits to the participating countries by Restricted ECFA**;*
- ***Monitoring of the ongoing implementation of the European Strategy for Particle Physics** in the CERN Member States, presentation of corresponding status reports to the European Strategy Session of Council.*

3. Status

*ECFA is **advisory** to CERN Management, CERN Council and its Committees, and to other organizations, national or international.*

4. Participating Countries

*Traditionally, physicists from the European countries which are **Member States of CERN** participate in ECFA. **CERN** is also considered as a "participating country". Plenary ECFA may on request extend participation to physicists from other European countries associated to CERN. Any participating country is free to leave ECFA on six month's notice given at a Plenary ECFA meeting. Admission of a new participating country is decided by Plenary ECFA.*

ECFA Terms of Reference (cont.)

5. Observers

Plenary ECFA may accord observer status to countries which wish to follow the work of ECFA or contribute their views on ECFA's activities. Observer status can also be granted to national or international laboratories or organizations which are of importance for ECFA's activities.

Observers participate in the discussions of Plenary ECFA unless otherwise decided for particular questions. They do not participate in decisions. On request, Restricted ECFA may decide to invite delegates from observer countries to the plenary session of country visits. On invitation by an observer country, Restricted ECFA may decide to visit that country.

6. Structure

*ECFA consists of **Plenary ECFA**, **Restricted ECFA**, **Chairperson and Secretary** and **permanent or ad hoc working groups**.*

Where possible, decisions of ECFA are taken by consensus. If a vote is required, it is taken at Restricted ECFA, and the recommendation is then presented for endorsement at Plenary ECFA.

ECFA Terms of Reference (cont.)

6.1 Plenary ECFA

*Plenary ECFA **decides on all ECFA activities**, appoints the Chairperson and Secretary, approves the final reports of the working groups and terminates their activities, decides on admission of new participating countries and observers, and makes recommendations to outside organizations.*

*Plenary ECFA **appoints members for a total maximum period of six years after nomination by their country**. While the members so chosen should be able to represent the views of the high-energy physics community of their country, they are members of Plenary ECFA as individuals. Plenary ECFA normally holds two meetings per year. Meetings are public unless otherwise decided.*

6.2 Restricted ECFA

*Restricted ECFA is composed of **one member per participating country**, confirmed every three years and generally appointed for at most two three-year periods. The Director-General of CERN and the Chair of the Lab Director Group are ex-officio members. The CERN Director responsible for research is invited. Representatives of national or international laboratories or organizations which are of importance for ECFA's activities can also be invited.*

*Restricted ECFA **assists and advises the Chairperson and the Secretary in the current running of ECFA**, and acts as the **communication channel to each participating country**, its physics community and national institutes and authorities.*

ECFA Terms of Reference (cont.)

6.1 Chairperson and Secretary of ECFA

*The Chairperson and Secretary are **responsible for the day-to-day running of ECFA**. The Secretary is elected for a three-year term. The Chairperson is elected for one term of three years which is not, normally, extendible. Nominations for Chairperson shall be invited at the second meeting of Plenary ECFA in the Chairperson's second year of office and election shall take place at the first meeting the following year. The term of office shall normally start on 1st January.*

The Chairperson can set up ad hoc working groups and delegate to them part of his or her responsibility.

The Chairperson acts as or appoints an ECFA observer in the committees and other organizations where ECFA is granted observer status. The Chairperson, the Secretary and the chairpersons of working groups participate ex officio in the meetings of Restricted and Plenary ECFA.

High-Priority Items for ECFA in 2021

Overarching topic for the next years:

"Accompany and support the implementation of the recommendations of the European Strategy for Particle Physics" → pave the way towards establishing a large next-generation accelerator at CERN

(Many recommendations for CERN management to implement, others profit from a coherent and concerted involvement and support of the European particle physics community)

Important Topics for 2021:

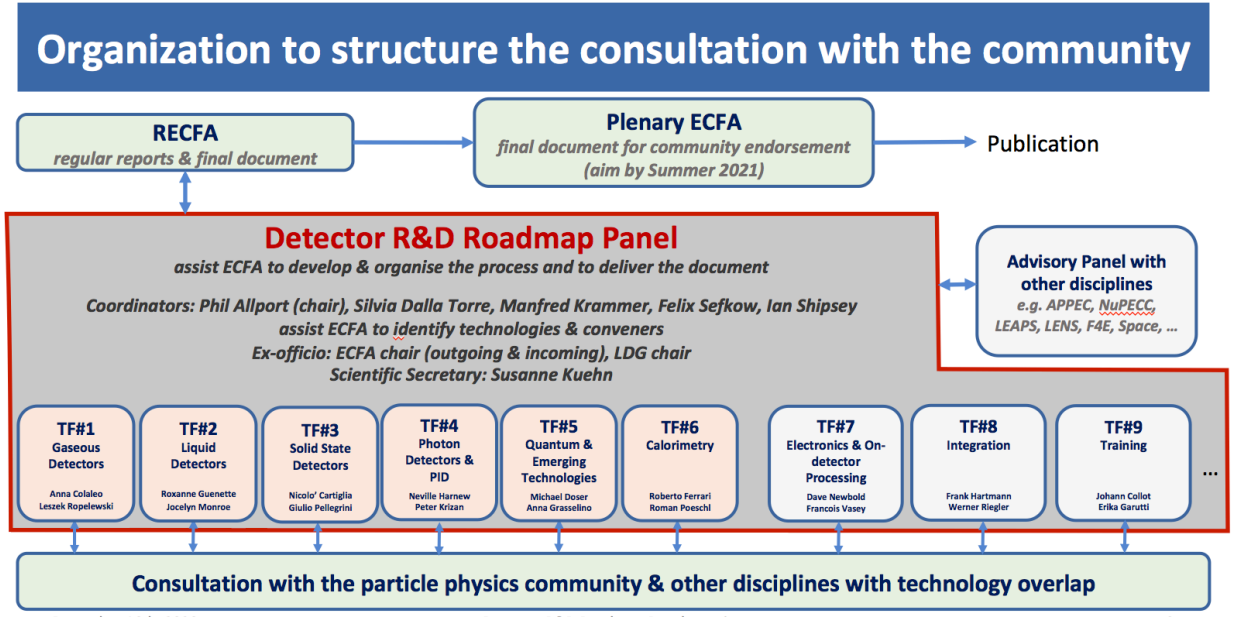
- **Roadmap for Detector R&D** (initiated, on track, to be followed-up, report at EPS conference 2021)
- **Physics, Experiment & Detector studies towards an electron-positron Higgs Factory**

  - Forum to bring together people from the full community is useful and needed (synergies, act coherently)

- **Country visits** (→ slide)

(i) Organise the development of a Detector R&D Roadmap

***Extract from the 2020 ESPP Update**:*
*"…. **Organised by ECFA, a roadmap should be developed by the community to balance the detector R&D efforts in Europe**, taking into account progress with emerging technologies in adjacent fields. The roadmap should identify and describe a **diversified detector R&D portfolio that has the largest potential to enhance the performance of the particle physics programme in the near and long term**…."*



(ii) Physics, Experiments & Detector studies for an e^+e^- Higgs factory

ECFA statement *(endorsed at the Plenary ECFA meeting on 13th July 2020):*

"ECFA recognizes the need for the experimental and theoretical communities involved in physics studies, experiment designs and detector technologies at future Higgs factories to gather. ECFA supports a series of workshops with the aim to share challenges and expertise, to explore synergies in their efforts and to respond coherently to this priority in the European Strategy for Particle Physics (ESPP)."

Goal: bring the entire e^+e^- Higgs factory effort together, foster cooperation across various projects, collaborative research programs are to emerge

Status:

- First meeting of an International Advisory Committee took place last week

- Define common items / working topics and eventually working groups

- Target first report at Plenary ECFA in November 2021, followed by ECFA workshops

- Idea of organising schools on e^+e^- physics was brought up *(input from ECFA ECR highly welcome)*

(iii) Country visits and major ECFA events in 2021

- **RECFA Country visits** are extremely important ... and they need to be done in person;
  - For 2021: propose to keep the four planned countries visits;
  - For 2022 and 2023: probably go to five visits to catch up (3 in spring, 2 in autumn)

- The 2021 the programme depends heavily on the development of the COVID pandemia in Europe

- **2021 calendar:**

France:	(12-13 March)	already agreed to move to Sept 2021 (10-11 Sept. t.b.c.)
Ukraine:	(April 2021?)	under discussion
Denmark:	(28-29 May?)	under discussion
Serbia:	8-9 October	

EPS Conference (online only, rescheduled to 26 – 30 July 2021; incl. RECFA + PECFA meeting

ICFA seminar in Berlin: 4 – 7 October 2021

RECFA + PECFA meeting at CERN: 18-19 Nov

Important Topics for 2021 (cont.)

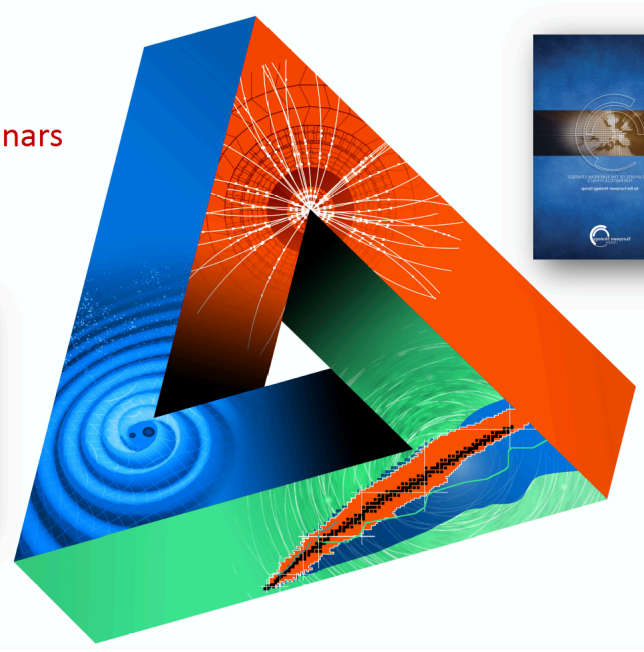
- Long timescales of experiments, rapidly changing technologies give us new challenges

  (developments in computing, ASICs, ..., software needs of experiments,..)

- Follow-up and continuation of important ECFA initiatives
  - Interaction with APPEC, NuPECC → JENAS
  - Recognition, working in large collaborations
  - Early Career Scientists, career building, ..
  - Diversity and Inclusion
  - ...

Exploring and strengthening synergies

Initiated a series of
Joint ECFA-NuPECC-APPEC Seminars
(JENAS)



ECFA: European Committee for Future Accelerators
NuPECC: Nuclear Physics European Collaboration Committee
APPEC: Astroparticle Physics European Consortium

Some examples:

- Dark Matter
- Gravitational waves for fundamental physics
- Machine learning
- Open Science and Data
- ...

1st JENAS event at Orsay in 2019 (https://jenas-2019.lal.in2p3.fr)

2nd JENAS event planned in Madrid in spring 2022

ECFA Early-Career Researchers Panel

The objective of the ECFA Early-Career Researcher (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.*

You are strongly encouraged to give input on all the topics mentioned, e.g.

- *Recognition in large experiments*
- *Career building*
- *...*
- *... but also on Future Colliders and on shaping the future of our (your!!) research field!!*

I am also very open for dedicated discussions with you