

Some thoughts on ECFA and the next three years

*Paris Sphicas
CERN & NKUA
PECFA Plenary
CERN, Nov 16, 2023*

- ❑ **Introduction**
 - ❑ What ECFA is supposed to be doing (aka our “charge”)
 - ❑ How we’ve been going about it – our activities
- ❑ **The next three years**
 - ❑ Our major goals
- ❑ **Pseudo-summary**

ECFA: from the “terms of reference” – aka “charge”

1. 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 ... matched to the size of this community and to the resources which can be put at the disposal of high-energy physics by society.

2. 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.

3. 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.

... and “[ECFA is] advisory to CERN Management, CERN Council and its Committees, and to other organizations, national or international.”

ECFA: How we've going about it (I)

1. Participation in the formation and subsequent support for the corresponding recommendations of the European Strategy for Particle Physics (ESPP).

- The ESPP is justifiably the focal point of all future planning and is essential for maintaining the unique leadership position of CERN and European HEP in the global research arena.
- While the execution of the core of the ESPP is the clear purview of CERN management, ECFA has an important role in ensuring the broader involvement and support by the European HEP community.

ECFA: How we've been going about it (II)

2. “Country visits”, which provide the means for:

- Monitoring and supporting the completion of as well as the successful full exploitation of currently ongoing HEP programs and upgrades, featuring the HL-LHC as the flagship project, whose success is necessary for any further future HEP program, alongside a competitive program of non-collider physics.
- Convincing policy makers and funding agencies of the importance of the field for continued long-term scientific and technological leadership, leading, hopefully, to a continuation of their investing the necessary resources.
 - The primary vehicles for these communications are the letters to the ministries/funding agencies of each country and the organization and support of outreach activities.

ECFA: How we've been going about it (III)

3. The creation and subsequent implementation of “roadmaps” for:

- The creation and coordination of “platforms” for carrying out research and development (R&D) on the several fronts needed by the continuation of the field. These include accelerators, detectors, software as well as new research directions. The current detector roadmap is a primary example of such a successful platform.
- Use of its advisory role within the community, providing oversight and information on new initiatives and research directions, especially new technologies from instrumentation to Artificial Intelligence, with particular emphasis in the much-needed interface to industry and the world of “applications”.

ECFA: How we've been going about it (IV)

4. The co-organization of some major cross-field events for:

- Nurturing the interaction with our sibling fields of nuclear physics (as represented by NuPECC) and astroparticle physics (as represented by ApPEC).
- The ongoing joint seminars (JENAS) between the three fields are an excellent meeting and synchronization points that should be maintained.

**I believe,
and I am certain that this is the prevalent feeling in our
community, that**

(a) all four activities have been very successful, and

(b) remain as important as ever – to this day.

**A personal note of thanks and appreciation to
Karl Jakobs, for three years of ultrarelativistic
leadership and progress
on several fronts,**

**from
the ECFA Study on Higgs/EW/Top factories,
to the Detector Roadmap and its progression**

**all the way to the
ECFA detector panel and the DRDC,
the Accelerator Roadmap,**

and much, much more.

**And of course to previous path keepers
(Jorgen, Halina, Manfred, ...)**

**And all of you/us, who have been contributing
to some/all aspects of the above.**

The next three years

ECFA: the next three years (I)

- **Foremost, the upcoming next European Strategy (2026) represents a historical crossroads for the field, and it is our duty to prepare for it in the best, most effective manner.**
 - *We must converge as a community on the “next” big project.*
 - *We, in ECFA, must do our utmost to ensure the widest possible participation in the formation and eventual buy-in by our field for both the next big frontier project and the overall new strategy.*
- **The country visits should be continued, with a mid-term update (only a report, not an additional visit) in between the relatively long ~ 5 to 8-year period between successive visits to each country.**
 - **Policy-makers & purse holders should not forget all about us until the next visit.**
- **ECFA roadmaps/panels will continue to be the primary tools in helping prepare our technological future.**
 - **They should be used to “rally the base”, ensuring little duplication/multiplication of similar efforts, while allowing enough room for promising, independent parallel developments. Get involved! So much to so, e.g. on the Training Panel!**

ECFA: the next three years (II)

- ❑ **The link to the astroparticle and nuclear physics communities should be maintained, and new synergies should be sought.**
 - ❑ Especially in the era of some future big-science initiatives (such as the Einstein telescope).
- ❑ **We should continue addressing our societal challenges.**
 - ❑ Efforts to attract new talent, including from underrepresented communities, while maintaining the basic element for success, namely merit-based recognition, should be strengthened – in collaboration with national bodies and the various collaborations in HEP (both in experiment and theory).
- ❑ **We should work towards increased involvement from PECFA at large.**
 - ❑ There is much experience and country-specific considerations that should factor both in the formation of the new ESPP but also in ensuring the widest possible support across Europe for the new ESPP.

Pseudo-summary

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- ❑ **We are “living in interesting times”.**
 - ❑ **We all know that despite the striking completion of the most successful theory of nature over the past 50 years, nature still holds many, many secrets.**
 - ❑ **We are the most fortunate (and only...) beings on the planet with a chance to unveil some of those secrets.**
 - ❑ **It is our duty and we must converge on the next Strategy – definitively, and as soon as possible.**
 - ❑ **We must engage the community – and society at large – to secure support for the field/next project and the in-flow of great talent into the field.**
 - ❑ **We must use our resources wisely – avoiding duplication and exploiting synergies.**
- ❑ **There is a bright future ahead, and ECFA is intextricably linked to its preparation, planning and eventual fruit collection.**

Some social considerations

**Our field is immersed in a global society
that is constantly evolving.
It is our duty to both follow,
and in some cases even lead,
our societies
in addressing the challenges of the times.**

HEP (societal) achievements

- ❑ **HEP has already led in the development of large international cooperative efforts**
 - ❑ **These collaborations transcend national boundaries and cultures, forming a “science ethos” that is currently under study – and imitation – by many, and not only in science.**
- ❑ **HEP has been a leading example of collaboration without discrimination arising from natural traits (e.g., ancestry), personal beliefs (e.g., religion), political beliefs (e.g., system of governance) or other potentially distinguishing characteristics.**
 - ❑ **HEP has also been a leading example of identifying areas in which the field could do better, e.g., in fostering increased participation by underrepresented members of society.**
- ❑ **Meanwhile, society is moving on all the above fronts, sometimes faster and sometimes slower than our field.**
 - ❑ **This can lead to tensions that only careful analysis and deliberate implementation can overcome.**

HEP (societal) challenges

- ❑ **Continue attracting support for the great science of particle physics.**
- ❑ **Maintain our position as a leading attractor of young talent.**
- ❑ **Address the pathogenies of big science, with the evolution of the means via which recognition and credit are awarded and careers can be built.**
- ❑ **Bridge the expected long gaps between sequential projects – in the backdrop of the widely adopted three-year duration of a PhD or two/three-year duration of a postdoc position.**

ECFA's role in addressing HEP's (societal) challenges

- ❑ **ECFA has already been successfully engaged in addressing the above issues via several initiatives that range from the inclusion of Early Career Scientists in the deliberations of RECFA and PECFA, to the creation of its Diversity Charter, which is a first concrete step in a necessary long-term effort in ensuring that Diversity and Inclusion principles be inseparable aspects of scientific existence.**
 - ❑ **Of course, the execution of any such “plan” is left to the collaborations, universities/research centers, research groups...**
- ❑ **There have also been the surveys (e.g., of large collaborations) that have served as means of “taking the temperature” of the community and the field at large.**
 - ❑ **All such initiatives should be continued – at an appropriate rate – and should evolve to address the correspondingly evolving needs of the field and the wider society.**