

# FCC-contacts – November 6

- News
- Workshops à venir
- Tour de Table
  - point sur les case studies / R&D / Stages proposés
- AOB

MTP (as discussed in June) has been approved.

- Budget for High Field Magnet
- budget for CLIC reduced to accelerator part only
- FCC-ee Physics and Experiment studies will be supported  
+ detector R&D in CERN-EP + ECFA panel on detector R&D  
(not FCC exclusive, of course)

### The role of ECFA in the context of the Strategy

- ➔ **Detector, Experiment and Physics studies towards a Higgs Factory**  
(aligned with the ECFA initiative to map the potential of Higgs physics at future colliders)
- ➔ **Organize the development of a Detector R&D Roadmap**  
(additional to the ECFA Detector R&D Panel)
  - **Synergy efforts with astroparticle and nuclear physics**  
(aligned with our JENAS initiatives, Joint APPEC-ECFA-NuPECC Seminar)
  - **Societal efforts on recognition, diversity and career aspects**  
(aligned with our working groups on the topic and the ECFA initiative to organize a Strategy debate among early-career researchers)

# Physics, Experiment & Detector studies towards a Higgs Factory

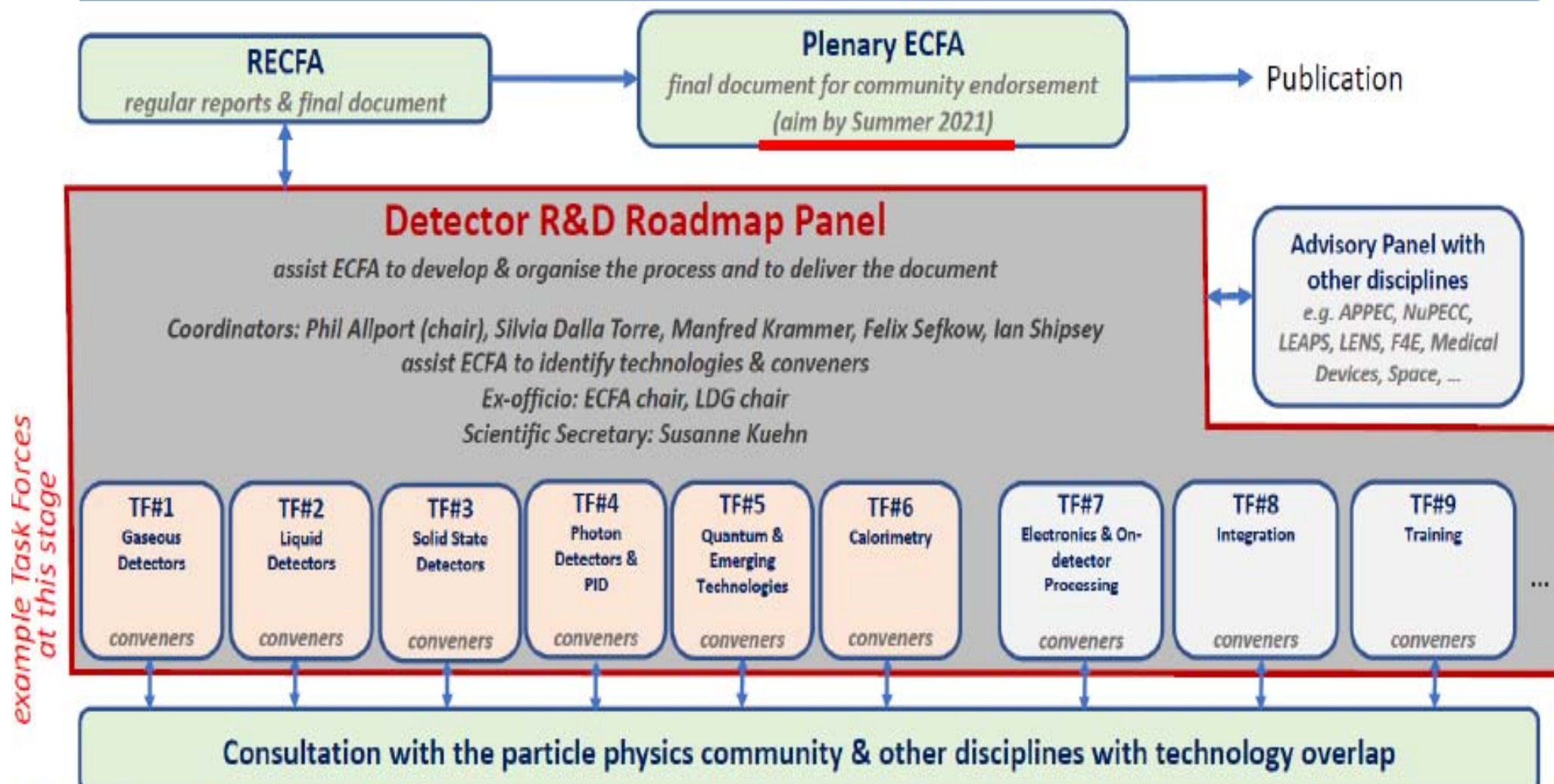
## Support for and Acknowledgement of a series of PED@HF workshops

*PED@HF – Physics, Experiments and Detector studies at Higgs Factories*

ECFA acknowledges 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.

Such *Aix-les-Bains-type* workshops would focus on PED studies for a Higgs Factory which would match a previous ECFA initiative mapping the potential of Higgs studies at future colliders. Setting up an International Advisory Committee (IAC) would be the next step, involving some RECFA members and European leaders of the most relevant colliders (e.g. CLIC, FCC, ILC, CEPC, LHeC, muon collider) with a mandate to setup a Program Committee (PC) that would develop an agenda in consultation with the IAC, and embracing the global nature of these projects.

# Organization to structure the consultation with the community



NB TeraZ requirements on TDAQ, have been registered, not necessarily on systematics!

Progress on our requirements (E. Perez) + Roadmap Panel activities (S. Kuehn) will be presented at FCC 4<sup>th</sup> Phys. workshop

FCC-ee Web site → Marcin Chrzaszcz agreed to take charge of enlivening the web site  
For documentation e.g. on publications, he will appreciate your active participation!

## Physics detectors and experiments

### Stay aware

### The FCC-ee in a few words

### Next events

Replace with links to Indico categories, rather than to old meetings + Link to PPC work pages, etc.

Update text to 2020-2025 study

Adapt, as list will become longer

The FCC-ee, formerly known as TLEP, is a high-luminosity electron-positron circular collider envisioned in a new 80-100 km tunnel in the LHC area. With a centre-of-mass energy from 90 to 400 GeV, the FCC-ee could pave the way for the discovery of new particles, test the Standard Model, casting light on long-standing questions such as the matter-antimatter asymmetry of the Universe, the hierarchy of the Yukawa couplings, the baryon asymmetry of the Universe, the baryon asymmetry of the Universe or the nonzero neutrino masses.

The FCC-ee project is part and parcel of the Future Circular Collider design study (FCC) at CERN, and would be the first step towards the long-term goal of a 100 TeV proton-proton collider. It is expected to deliver its conclusion in 2018, just prior the next update of the European Strategy. There are many challenges facing the study, starting with a realistic design that allows these promises to be fulfilled, so feel free to [join the design study group](#) if you wish to collaborate with us!

Further reading:

*FCC General Meetings*

[FCC-ee physics zoom meeting](#)

Monday, October 26, 2020

*WG7: Experimental physics*

[Searches for new particles](#)

Wednesday, October 28, 2020 - 15:00 -

CERN - Zoom

*Conferences and Workshops*

[FCC November Week 2020](#)

Monday, November 9, 2020 - 08:30

[Next](#) >

Update documentation

For each Physics Group, one or two experimentalists, and one or two phenomenologists

## 1. Gather community

- with help from FCC national contacts
- using their own relations
- as needed organize well advertised kick-off mini-workshops or meetings
- collect a first set of Benchmark measurements

existing list can be found here <https://www.overleaf.com/read/dyjpdszrqxhz>

list of submissions to Snowmass <https://indico.cern.ch/event/951830/>

## 2. With high priority should focus on participating to the Physics Performance effort

via the Physics Benchmark Committee

- Benchmark measurements → case studies leading to detector requirements
  - ➔ common Physics Tools, Analysis Code, Detector Requirements, Public Documentation
- NB independently of physics groups, volunteers are welcome in PP effort!

## 2'. Scope thoroughly the physics capabilities,

develop new measurements, event generators, understand th. uncertainties etc.

investigate New Physics sensitivities towards physics CDR

## FCC national groups for PE&D activities

France and Italy well established already (Contacts: G. Bernardi, R. Aleksan, F. Bedeschi)

UK had their first meeting on 11 September (Contact G. Wilkinson, C. Leonidopoulos)

Spain had “next future collider” gathering on 7 October (Contact Juan Alcaraz)

→ join FCC with future colliders (so far mostly ILC)

Poland: FCC information day @ Epiphany conf. January (Contact T. Lesiak, M. Chrzęszcz)

Switzerland: FCC-INT well on the roadmap (contact R. Wallny) FCC PE&D workshops in 2021

CERN: creation of EP/FCC group is commissioned to EP dep. head (Contact: P. Janot)

Discussions started with Germany, USA, Austria, Belgium, Netherlands, Estonia, Sweden, Denmark etc. Many countries represented in Program Advisory Committee for the workshop

G. Bernardi & T. Lesiak have been assembling an informal group of national contacts

We are seeking volunteers for

- **FCC PE&D conference committee**  
a few more members from exp. and th.
- **General Physics Meetings Organizer**  
one Exp. Physicist to replace P. Azzi

**FCC PE&D Conference committee**

New member(s) are sought for FCC PE&D conference committee

Existing members: P. Azzi (to be replaced), A. Blondel, P. Giacomelli, C. Grojean, M. Klute (chair)  
(did I forget somebody?) An online interface exists (Markus)

**Dissemination is an important task for the collaboration!**

- beneficial to communicate on the project (physics capacities, plans, performance etc...) to wider audiences
- beneficial to entrust FCC presentations to active members as well as new/young interested members
  - even if it goes somewhat beyond their own area of expertise
- write-ups are also very useful

**Tasks**

- collect and disseminate information, deadlines for abstracts etc... on upcoming conferences
- collect suggestions for topics and seek suggestions/nominations for speakers
- sometimes discuss directly with conference organizers/conveners etc.
- ensure abstracts are reasonably consistent and coherent and that important topics are not absent.

**Meetings:** so far as needed but will seek a regular monthly meeting.

**Context:** These meetings have been taking place since TLEP times.

Patrizia Azzi and Matthew McCullough are jointly organizing them at present.

Patrizia having accepted the task of Physics Performance Coordinator, she has asked to be relieved

-- thanks Patrizia for excellent and lively organization!

### **The object of the general meeting is as follows**

- inform the design study members – and whoever has registered on the mailing list – of the progress
- discuss new results of the study
  - as appropriate proceed to make them official results.

### **Content \*typically\* comprises:**

- General news, news pertaining to common working environment
- Important new results from any of the working groups
- ++ Experiment
  - accelerator performance
  - MDI
  - physics performance results , i.e. detector requirements from case studies
  - detector simulation or test beam results
  - new detector ideas
- ++ Theory:
  - new results from theoretical calculations
  - new ideas for measurements that can be done at FCC-ee

the FCC November workshop (9-13 November 2020) (357 registered at 13:30)

<https://indico.cern.ch/event/923801/>

**will be remote**

It comprises the 4th FCC Physics and Experiments Workshop (298 registered at 13:30)

<https://indico.cern.ch/event/932973/> 10-13 November.

The two agendas are intimately linked

Introductory presentations on the 9 November

Physics workshop presentations on the following days.

➔ we recommend that you **\*register to, and attend, both events\***.

**Some of the many highlights:** (invited speakers):

- first day presentation by F. Gianotti Monday 9 10:00
- ECFA R&D roadmap presentation Tuesday 10 15:30
- Physics Performance, MDI/EpoL/ee→H presentations
- round table discussion on Tuesday 10 17:15 organized by B. Heinemann and D. Milstead
- many pheno and detector parallel presentations, summaries on the last afternoon.
- joint sessions Exp+pheno sessions

