

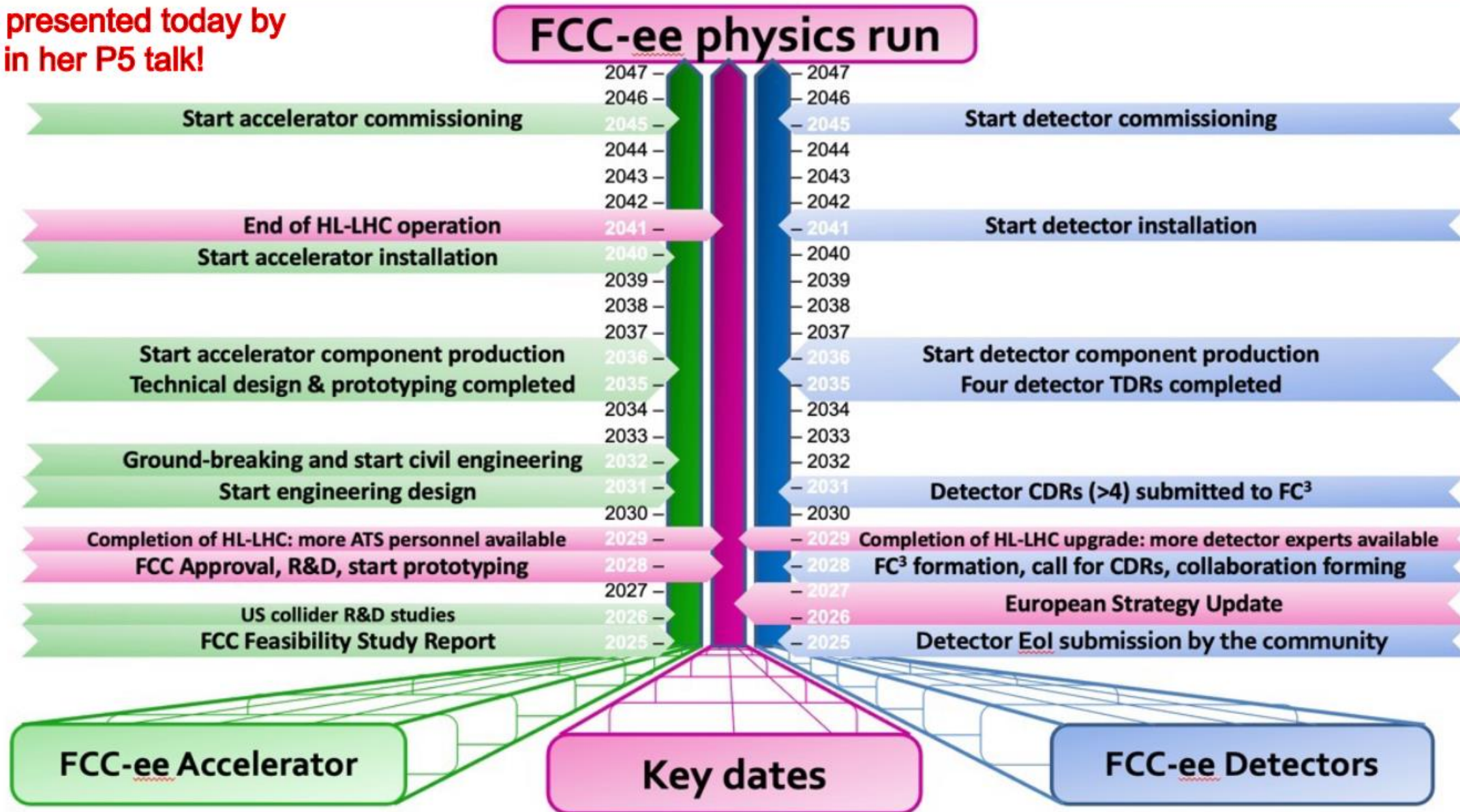
# FCC-contacts / DRD Status / April 14<sup>th</sup> 2023

|   |         |  |       |
|---|---------|--|-------|
| <b>13:00</b>  | → 13:15 | <b>News, ILD, ECFA, DRD, IN2P3</b>   | 🕒 15m |
| Orateur: Gregorio Bernardi (APC Paris CNRS/IN2P3)                   |         |  |       |
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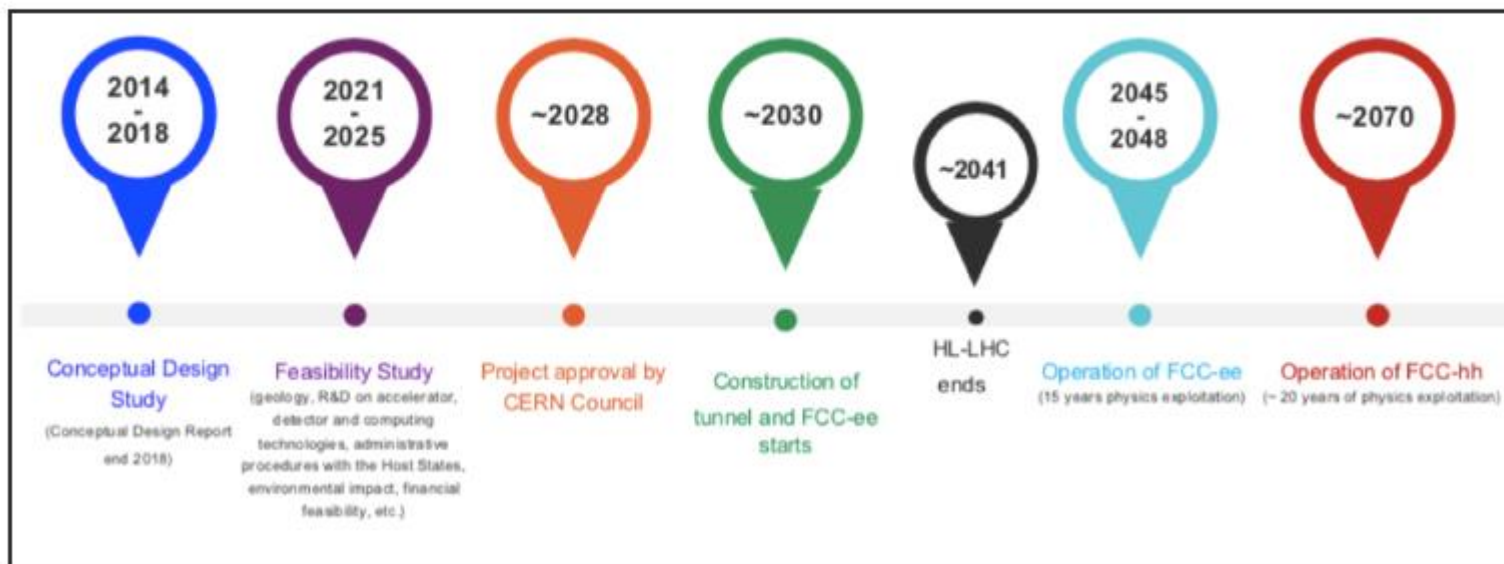
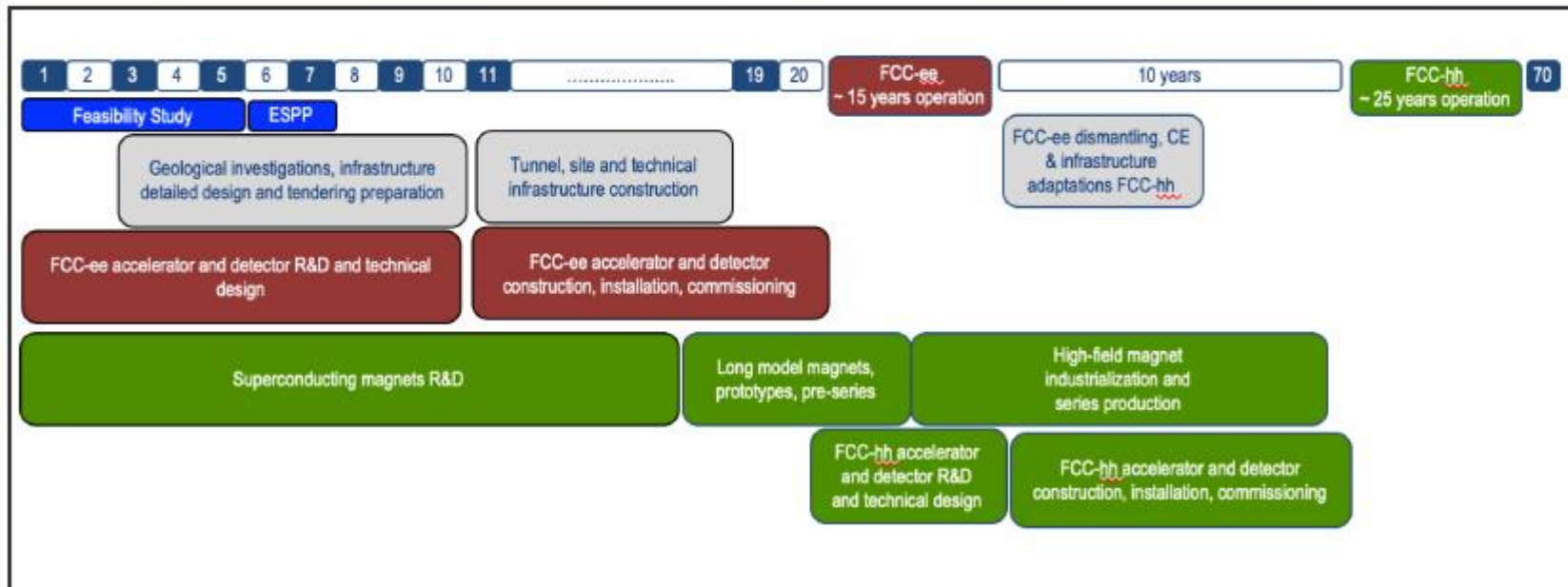


# FCC-ee timeline (still preliminary)

Version presented today by  
Fabiola in her P5 talk!









# P5 status - Sarah and Dmitri

- P5 web sites: [Hitoshi's page](#) & [official P5 page](#)
- FCC P5 coordination team: Sarah Eno, Dmitri Denisov, Srin Rajagopalan, Marc-Andre Pleier
- Four town Halls
  - [LBL](#) (Feb. 22-24): cosmic frontier
    - FCC submitted one abstract for the community comment section <https://indico.physics.lbl.gov/event/2382/sessions/503/#20230223> , presented by Bibhushan Shakya (DESY)
    - We were the only collider project with an abstract
  - [FNAL/Argonne](#) (March 21-23): neutrino. Rare processes, precision measurements
    - FCC submitted one abstract for the community comment section <https://indico.fnal.gov/event/58272/sessions/21901/#20230322>, presented by Jim Hirschauer (FNAL). Muon collider also submitted a comment with neutrino synergy
    - See next slides for interesting slides by plenary speakers
  - [BNL](#) (ongoing now): energy, instrumentation, computation, gravitational waves
    - <https://www.bnl.gov/p5meeting/>
    - 15 abstracts submitted, organized by Marc-Andre Pleier with aid from Markus Klute
    - See third slide and beyond for more details
  - SLAC (May 3-5, no webpage yet): accelerator
- There will be a dedicated budget sessions for projects over 0.25 billion dollars. See last slide for some general impressions



# Interesting slides during plenary

## FNAL Deputy Director Bonnie Flemings talk

### The Energy Frontier Beyond the LHC and HL-LHC

Precision measurements of the Higgs boson and EW sector and BSM searches at future colliders will shed light on key open questions in particle physics.

- This exploration will require an investment in accelerator technology research to
  - Contribute to the international effort to build a Higgs factory at CERN
  - Revitalize accelerator and detector R&D towards a next-generation multi-TeV energy frontier machine
- *Fermilab is poised to host a next generation multi-TeV energy frontier collider, as a global endeavor, following the completion of the full DUNE program*
- In order to make realistic progress, a substantial investment in **targeted accelerator research** as well as **associated detector research** will be required

These efforts should be organized through **national integrated accelerator R&D and detector R&D programs** that are aligned and coordinated with our international partners



March 15, 2022

<https://muoncollider.web.cern.ch>





### Promising Technologies and R&D Directions for the Future Muon Collider Detectors

Submitted to the Proceedings of the US Community Study  
on the Future of Particle Physics (Snowmass 2021)



# News from the FCC SAC + Mid-Term review report

## Reminder of mid-term review important dates

- ◆ 28 April 2023 (all day): virtual SAC meeting 
- ◆ 5-9 June 2023: FCC week in London, first drafts discussed internally.
  - June 6: SAC lunch meeting 
  - June 8: 4h SAC closed session 
- ◆ End Sept. 2023: All deliverables available in final form for SAC
- ◆ Beg. Oct. 2023: SAC reviews start
- ◆ Oct. 16-17 2023: in-person SAC meeting at CERN for final feedback on mid-term review 
- ◆ End Oct 2023: SAC report available for the SPC
- ◆ 20-22 Nov 2023: SPC/FCC meeting dedicated to the mid-term review
- ◆ 2 Feb 2024: Council meeting dedicated to the mid-term review.



# FCC Week 2023

- ❑ Indico webpage: <https://indico.cern.ch/event/1202105/>
- ❑ Registration open till May 5
- ❑ Registration fees:
  - ◆ 580 EUR (320 EUR for students)
  - ◆ 150 EUR for 1-day pass
- ◆ Plenary Speakers:
  - G. Salam “Physics Motivations”
  - Mid-term milestones: M. McCullough, A. Freitas (TBC), NN
  - G. Wilkinson, PED summary
- ◆ PED parallel session update:
  - Next item. See [gdoc](#).
- ◆ Poster session:
  - Thursday 5pm-6pm with wine&cheese
  - Encourage people to propose a poster
  - Best-poster award
- ◆ ECR/Young researchers session
- ◆ Public event at the Royal Society
  - Thursday evening, 7pm
- ◆ Conference dinner on Wednesday

Who is going ?









# News from ECFA II

- **ECGA WG1 coordinator (to join Jenny List, Fabio Maltoni, Jorge de Blas)**
  - ◆ FCC members of IAC proposed 3 names: *Patrick Koppenburg (Nikhef)*, *Luca Malgeri (CERN)* and *Ben Kilminster (Zurich)*
  - ◆ IAC decided to invite first *Patrick Koppenburg*. He has been formally invited by Karl and accepted on March 29. “I got a very good impression. He is certainly interested and motivated to get engaged and to contribute.” said Karl.
  - ◆ Important that FCC-inclined conveners (Patrizia, Jorge) go and talk to him (Karl, Aidan, Jenny have surely told him what they are expecting from him, so he should hear the other side too).
- **IAC: A. Blondel announced his resignation on March 16 to fully enjoy his retirement. ECFA report co-editor (to join Aidan Robson)?**
  - ◆ IAC proposed Christos Leonidos to replace Alain.
  - ◆ Nomination was approved by RECFA during its meeting in Prague.
  - ◆ Christos accepted
  - ◆ He will act as ECFA report co-editor (together with A. Robson) – officially approved by IAC.



### 3. Recent news from ICFA / ILC

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- The International Development Team (IDT, implemented by ICFA) proposes to set up an **ILC Technology Network (ITN)**
- Main purpose: continue with the R&D, capitalize on the increased funding in Japan
- The concept has been presented by Steinar Stapnes at last week's Council meeting

Major R&D topics: SRF cavities, cryomodule design, crab cavities, positron source,...

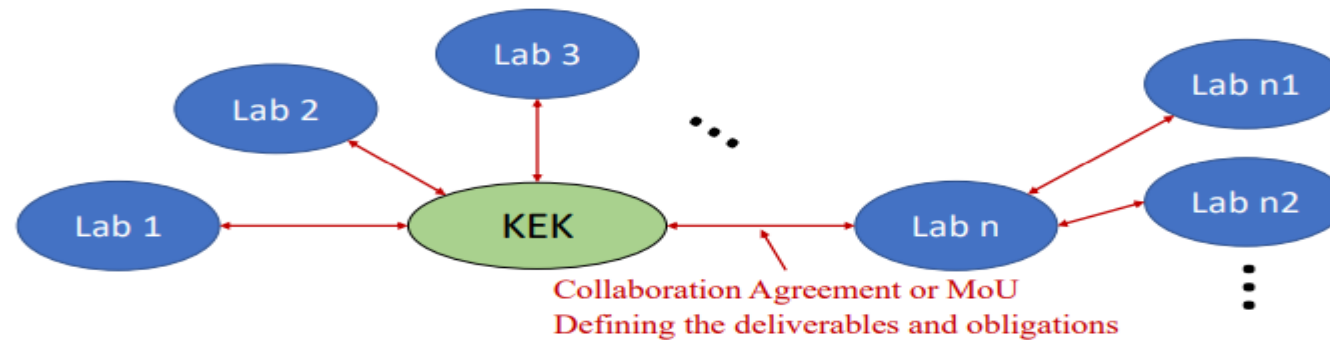
R&D programme is well aligned with the European accelerator R&D priorities...  
some parts of it build on existing expertise, industrial capabilities and infrastructure (e.g. SC cavities)

- ICFA has largely endorsed the plan proposed by Tatsuya Nakada in its meeting on 28<sup>th</sup> March 2023



## 1.1) ILC Technology Network:

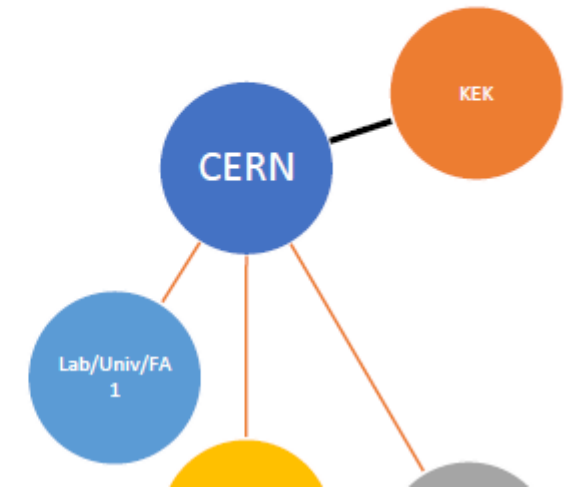
- ITN is **dedicated** to make progress in the **ILC related accelerator R&D** with high priority for engineering studies, profiting from the recommendation of the MEXT Expert Panel to continue R&D.
- It has been initiated as a joint effort of KEK and IDT and is based on the **institutional engagement** through bilateral agreements between KEK and partner laboratories (Collaboration Agreement/MoU).



Agreed that ITN should not be under the purview of the IDT

### European Organisation of the ITN programme

- CERN plays coordinating and facilitating role
- KEK contributes to the material costs
- Main contract for flow of funds between CERN and KEK\*
  - CERN-KEK ILC IDT agreement already extended by 2 years
  - New agreement being prepared for ITN, describing the European programme, allowing funds to be transferred
- Subsequent contracts\* – similar to what is done for other studies for future colliders – between CERN and European Labs in the cases where money flow is needed (limited number)
- Establish a light distributed Project Office, administratively anchored to CERN, to follow up the work.
- Aim to involve CERN personnel, fellows, PJAS within the current LC resource planning at CERN (in many cases using long term collaborative links and common studies between CLIC and ILC). This is possible without perturbing the overall LC study resource allocation.





CERN and CERN member states have 55 seats (15 for CERN, 40 for member states)

CERN associate member states 8 seats

(CERN directorate, persons with mandates will be invited *ad personam*, not included in this counting)

### 7. ECFA-EPS meeting at EPS in August 2023

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- The EPS-HEP Conference will take place in Hamburg from 21 – 25 August (change of format, Monday – Friday)
- This results in limited time of 2.5h for the ECFA-EPS block

Present planning: (4h for ECFA + EPS Prizes → 2.0 hours, content to be defined by ECFA + EPS-HEPP Board)

Proposal: Focus on implementation of the European Strategy

- FCC feasibility study
- Status of other  $e^+e^-$  projects (ILC, CLIC, CEPC, C<sup>3</sup>)
- ECFA  $e^+e^-$  study
- Detector Roadmap (implementation status, overview on proposals)

Plenary talks: - Overview on Detector R&D highlights / recent achievements  
- Overview on Accelerator R&D highlights / recent achievements



# FCC/Higgs Factory France workshop @ IPHC 22-24 Novembre

IPHC organisera le FCC France/Higgs Factory workshop du mercredi 22 midi au vendredi 24 Novembre 14h

Mise en place de l'organisation scientifique et technique d'ici au prochain meeting, le 12 Mai.

Thèmes: - DRD

- Software: effort engagé à l'IPHC/APC/IJCLab sur la full sim
- Physics Cases studies
- Synergies FCC/ILC
- Proto-collaborations

## RH pour FCC en 2023-2024

Laurent réfléchit à d'autres attributions de postdoc pour FCC.

Problème relevé par LV: les PD assignés ne travaillent pas tous assez sur FCC (trop sur LHC)

➔ Nous devons changer ceci si nous voulons avoir plus de support.



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# Tour de table

|         |
|---------|
| APC     |
| CPPM    |
| IJC Lab |
| IPHC    |
| IP2I    |
| LAPP    |
| LLR     |
| LPC     |
| LPNHE   |
| LPSC    |
| L2IT    |







### 3) IDT proposal to ICFA for the following next step

IDT to **continue** the following activities:

- Profiting from the increased R&D funding in Japan through ILC Technology Network activities with worldwide contribution. This will ensure ILC to remain as a viable option for the future Higgs factory in the coming years' discussion.
- International Expert Panel exploring further ways to realise a constructive intergovernmental discussion on the ILC.
- WG2 exploring accelerator activities beyond the current scope of ITN such as overall machine design and parameters, engineering studies and R&D for possible upgrades.
- Community continuing activities of physics and detector under WG3.

(WG1 was created for the formation of the Pre-lab. Its activity is on hold for the moment.)  
with an aim to realise the Preparatory Phase in around 2026. The first step includes starting some ITN activities, and sharing and discussing the findings by Init. Exp. Panel with the relevant government authorities. The IDT activities should be annually reviewed by ICFA who evaluates the progress and decides on the further continuation of the activities.

Agreed that ITN should not be under the purview of the IDT