

<https://indico.cern.ch/event/1439509>

# 8<sup>th</sup> FCC PHYSICS WORKSHOP

January 13–16, 2025  
+ Satellite workshop on Jan. 17

> CERN



## Introduction and goals of the Workshop

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*on behalf of the org committee*

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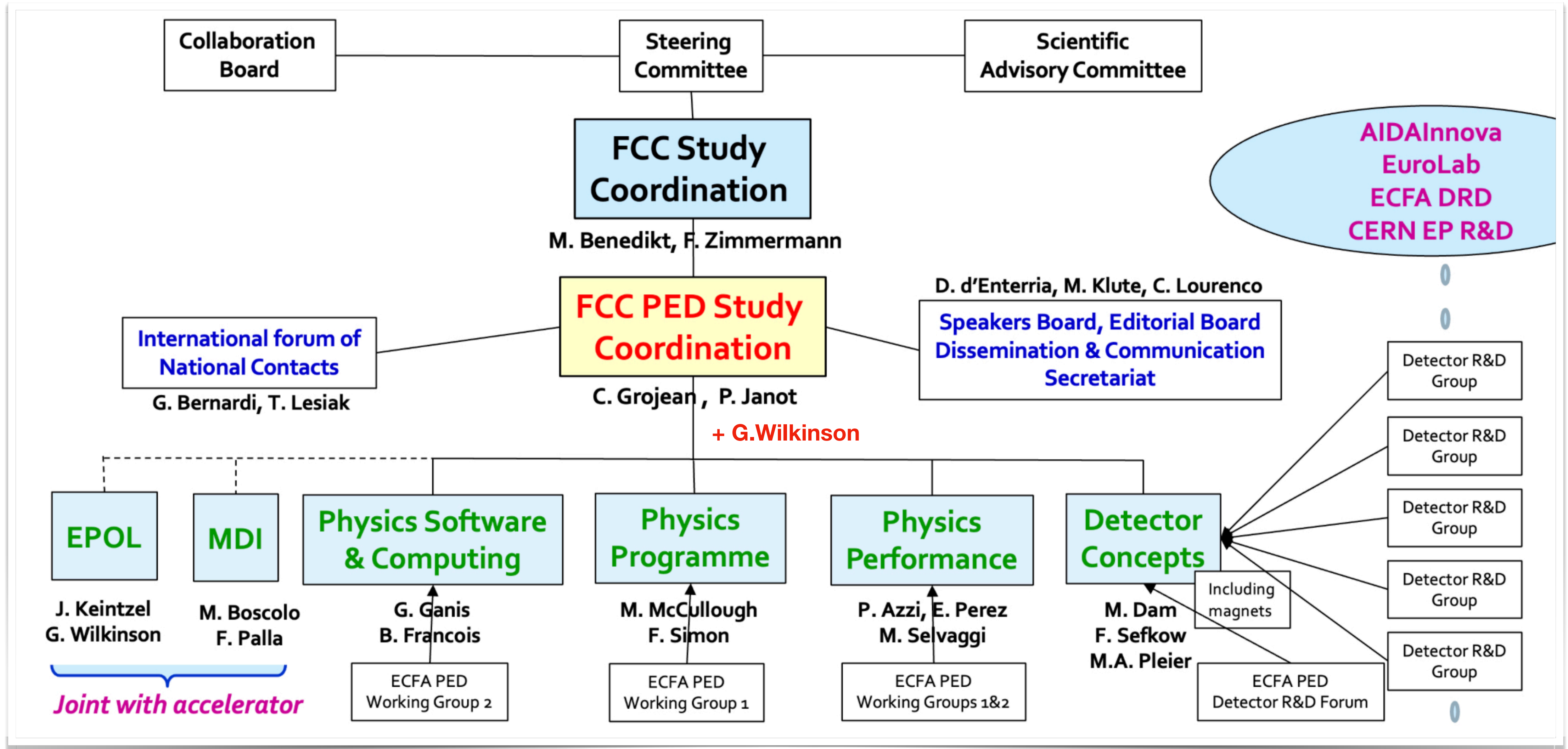


FCCSI - The Future Circular Collider Innovation Study  
The FCCSI Research and Innovation Action project  
receives funding from the European Union's Horizon  
Framework Programme under grant agreement no.  
001704.



# FCC Feasibility Study (2021-2025):

## Physics, Experiments and Detectors (PED)





# Brief summary of recent developments of relevance to PED

- FCC-ee accelerator design:
  - 4 IPs is now the baseline (and facility layout now optimised for FCC-ee)
  - new RF system allows moving from 91.2 GeV to 240 GeV and back:
    - ➔ quasi-total flexibility in the run sequence
  - new optics design => increase of luminosity
  - Consider additional science that could increase the user base, i.e. diversity programme / dark sector searches etc. “Other science opportunities at the FCC-ee” workshop [Indico](#)
- FCC-hh: new baseline, to reflect accelerator layout and B=14T dipoles’ target
- FCC group established in the EP Department at CERN (group leader: P.Janot)

<https://fcc-ped.web.cern.ch/>

- Final Feasibility Study Report (FSR) ready for editorial review, before its release to the community by the March 31 2025 ESPP submission deadline

- Supporting FCC notes available on CDS at <https://new-cds.cern.ch/communities/fcc-ped-sub> (sign up to the FCC-PED egroup to get access to the notes)

- For a summary of the Mid-Term Report achievements, see Christophe’s talk at the 2024 FCC physics workshop ([slides](#))

The screenshot shows the website <https://fcc-ped.web.cern.ch/>. The top navigation bar includes links for HOME, ABOUT FCC-EE AND TLEP, ORGANIZATION, ARCHIVE, CONTACT/JOIN US, FCC WORLDWIDE, and a SEARCH function. A sidebar menu on the left lists various categories: Physics Groups, Physics Case Studies, Software and Computing, Detector Concepts, Beam Energy Calibration, Machine-Detector Interface, Hadron Collider Studies, and General Info. A dropdown menu is open over the 'CONTACT/JOIN US' link, showing options for 'Join FCC Collaboration' and 'Subscribe to mailing lists'. Below the navigation, a section titled 'Structure of the FCC PED Mailing Lists' contains a diagram. The diagram shows a central box 'FCC-PED-FeasibilityStudy' connected to several other boxes: 'FCC-PED-PhysicsProgramme', 'FCC-PED-PhysicsPerformance', 'FCC-PED-DetectorConcepts', and 'FCC-PED-SoftwareAndComputing'. These boxes are further connected to a grid of specific mailing list names, such as 'FCC-PED-PhysicsGroup-Top', 'FCC-PED-PhysicsGroup-Flavours', 'FCC-PED-CaseStudy-1', 'FCC-PED-CaseStudy-2', 'FCC-PED-SoftwareAndComputing-Developers', 'FCC-PED-SoftwareAndComputing-Generators', 'FCC-PED-SoftwareAndComputing-MDI', and 'FCC-PED-SoftwareAndComputing-Analysis'.

# Goals of the workshop

- Present to the full community the main results of the PED component of the FSR (this session)
- Provide a forum to the full community to present further recent or ongoing FCC studies carried out both within and outside of the FS context
- Review current activities and plans across the 4+2 PED work packages:
  - Physics programme
  - Physics performance
  - Physics software and computing
  - Detector concepts
  - Machine-Detector interface
  - EPOL

In particular, stimulate exchanges among the various groups, with several planned joint sessions

- Initiate the discussion towards the preparation of detector Expressions of Interest (see Friday satellite mtg)
- Discuss the submission of documents to the ESPP, beyond the FSR (Friday satellite mtg)
- Discuss the next steps following the FS period and the ESPP discussions (Friday satellite mtg)

# Practical matters

- More than 300 registrations, 200 in person: please wear your badge
- Plenary sessions today and Thursday afternoon, in this Auditorium
- Parallel sessions distributed across several rooms
  - Please consult closely the indico agenda to monitor possible modifications to the agenda or to the room
  - Zoom-room link always displayed next to the session entry title on Indico (see eg below)

16:00 → 18:00 **Overview/outlook of the feasibility study report: Physics/Experiment/Detector**  
Convener: Michelangelo Mangano (CERN)

16:00 **Introduction and goals of the workshop**  
Speaker: Michelangelo Mangano (CERN) 10m

16:10 **Physics programme and performance**  
Speaker: Matthew Philip Mccullough (CERN) 30m

500/1-001 - Main Audit... Join 500/1-001

- Coffee breaks served outside the Main Auditorium, even for parallel sessions: respect times allocated to the breaks
- Welcome drink tonight at 6pm, outside Main Auditorium
- Cocktail, with display of posters, on Wednesday at 6:30pm, outside Main Auditorium