



# Nouvelles du site web FCC-PED France

Réunion FCC-Contacts, 13 février 2026  
Catherine Biscarat (L2IT), Luc Poggioli (APC)

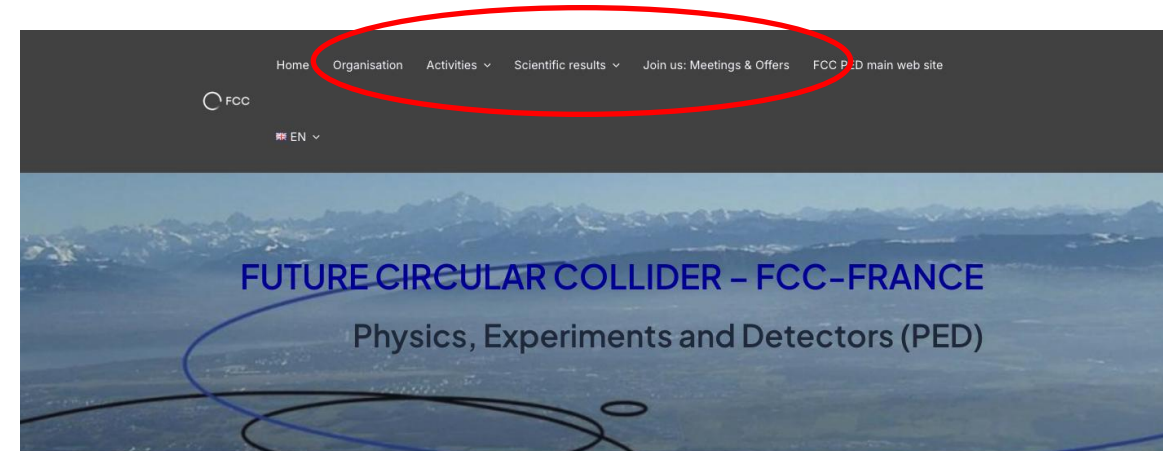
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# Introduction

- Site créé en 2024, accueilli au CCIN2P3, sous Wordpress (service offert par le CCIN2P3)
  - <https://fcc-ped-france.in2p3.fr/> (en accès non public à l'heure actuelle\*)
- Template
  - Idem à celui du L2IT (Astra)
  - Permet de s'aligner sur le design du site FCC-PED CERN (migration en cours vers Wordpress)
- Statut
  - La coquille (pages et menus), design largement inspiré du site FCC-PED du CERN
    - A priori versions EN & FR
  - 2025-2026
    - Développement en cours côté FR
    - Discussions en parallèle avec FCC-PED (Panos Charitos, Claire Adam) pour valider et intégrer le contenu
  - A terme doit être intégré dans la page officielle FCC-PED (avec d'autres pages nationales)

(\*) Seules les personnes avec un compte nominatif peuvent voir son contenu (Greg, Luc et Catherine)

# FCC PED – pages CERN et France



## Stay aware

- [FCC PED meetings](#)
- [Physics performance meetings](#)
- [FCC-ee monthly physics meetings](#) past and upcoming [meetings](#)
- [FCC conferences and workshops](#): Past and upcoming [Events](#)

## The FCC-ee in a few words

The idea of a large circular  $e^+e^-$  collider as Higgs Factory came from a conjunction of circumstances: i) the need of a large tunnel for the continuation of the high energy exploration after the LHC; ii) the new ‘nano-beam’ designs proposed for the ‘super’ B factories; iii) and of course the discovery of the Higgs boson with a mass that could have been reached (with efforts) at LEP II. The idea of such a machine as a first step toward a 100 TeV pp collider was submitted to the ESPP2013/13 and led to the FCC study, launched in 2014. The study concluded in its FCC-int submission to the ESPP2020 that the “*The most effective and comprehensive approach to thoroughly explore the open questions in modern particle physics is a staged research programme, integrating in sequence lepton (FCC-ee) and hadron (FCC-hh) collisions*”.

The ESPP concluded: “*Europe, together with its international partners, should*

## Next events

*Physics Performance*  
[FCC-hh Physics & Performance meeting](#)  
Fri, 13/02/2026 - 16:00

*Physics Performance*  
[FCC-hh Physics & Performance meeting](#)  
Fri, 13/02/2026 - 16:00

## The FCC-ee in a few words

The FCC-ee project is a high-luminosity, high-precision  $e^+e^-$  circular collider. Two separate  $e^+$  and  $e^-$  storage rings with very strong focusing, fed by a full size continuous injector, provide  $e^+e^-$  collision luminosities ranging from (per interaction point)  $230 \cdot 10^{34} / \text{cm}^2 / \text{s}$  at the Z pole,  $8 \cdot 10^{34} / \text{cm}^2 / \text{s}$  at the ZH production maximum (240 GeV) and  $1.7 \cdot 10^{34} / \text{cm}^2 / \text{s}$  at the tt threshold and up to 365 GeV. Four interaction points are considered. The run plan of 15-20 years yields  $5 \cdot 10^{12}$  Z bosons,  $10^6$  W pairs,  $1.3 \cdot 10^6$  Higgs bosons and 106 top quark pairs. Thanks to the availability of transverse polarization, the energy calibration at 100 keV precision offers unprecedented precision for measurements of Z and W properties. The possibility of s-channel Higgs production at  $E_{\text{CM}}=125$  GeV is under study, giving unique access to the electron Yukawa coupling. These opportunities make the FCC-ee stand out among the other Higgs factory proposals. Especially at the Z run, considerable challenges await experimenters and theorists, for systematic uncertainties to match the extraordinary available statistical precision.

Following the ESPP 2020 recommendations, the goal until 2025 of the Physics Experiments and Detector studies will be, with widest participation from the international community, the delivery of an advanced Feasibility Study demonstrating the breath and feasibility of the experimental program, including detector designs. The present focus on the experimental side is the analysis of physics benchmark measurements with the aim of producing a consistent set of detector requirements, under the aegis of the Physics Performance Coordination. The design of the detectors, the use of the latest technologies, and the R&D program, offer great opportunities for creativity. On the phenomenological side, focus will be the full understanding of the possibilities for discovery of the machine, as well as the planning of the precision calculations required to fully exploit the program of precision measurements.

The French HEP community is involved in most of the Physics, Experiments and Detectors (PED) aspects of the FCC Feasibility Study. See the Organisation folder to see how it is organized and how you can join the effort.

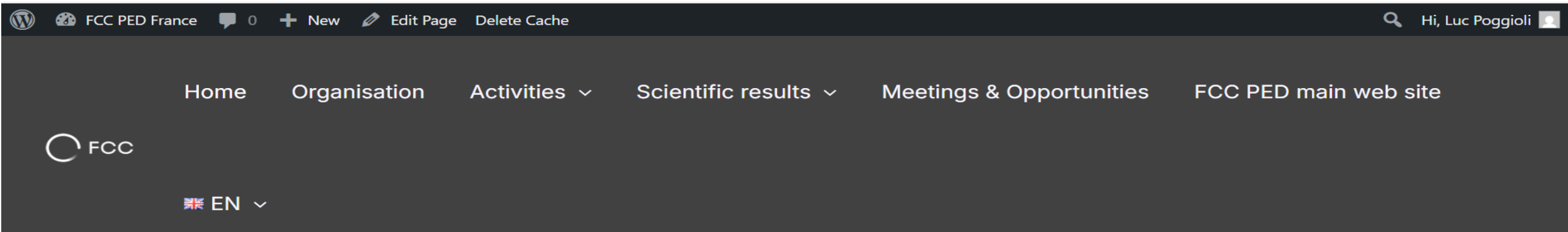
The main page of the FCC Physics PED Feasibility Study (2021-2025) is to be found here: <https://fcc-ped.web.cern.ch/>

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# Structure de la page FCC-PED France



- Pour l'instant effort sur partie EN uniquement
- 4 rubriques
  - Organisation
  - Activities
  - Scientific results
  - Meetings & Opportunities
- Infos incluses
  - Disclaimer: Tout oubli/erreur/mauvaise compréhension non volontaire et à corriger ASAP!!
  - Basées sur présentation EAP-2025 (Greg)
  - En cours. Evolutif en fonction des besoins/inputs/requêtes

# Rubrique #1 : Organisation

## Coordination

- [G. Bernardi](#)

## Labs & Contacts

- [APC](#) ([G. Marchiori](#))
- [CPPM](#) ([F. Djama](#))
- [IJCLab](#) ([N. Morange](#))
- [IP2I](#) ([G. Boudoul](#))
- [IPHC](#) ([Z. El Bitar](#))
- [IRFU](#) ([R. Aleksan](#))
- [L2IT](#) ([C. Biscarat](#))
- [LAPP](#) ([M. Delmastro](#))
- [LLR](#) ([R. Salerno](#))
- [LPCA](#) ([S. Monteil](#))
- [LPNHE](#) ([B. Malaescu](#))
- [LPSC](#) ([J-B. De Vivie](#))

# Rubrique #2 : Activities (1)

## ■ 4 sous-rubriques

- **Physics, R&D detectors**, Detector concepts & Labs involved, Software & Computing

## Physics

- Higgs
  - Total x-section, H branching ratios, [APC](#), ([G. Bernardi](#), [G. Marchiori](#))
  - Higgs self-coupling, [LLR](#), ([C. Charlot](#), [R. Salerno](#))
- Electroweak
  - [LPSC](#) ([J-B. De Vivie](#)), [LPNHE](#) ([A. Blondel](#))
- QCD
  - Jets, x-sections, alpha\_s extraction, [LPNHE](#) ([B. Malaescu](#))
- BSM
  - [CPPM](#) ([F. Djama](#)), [IP2I](#) ([G. Boudoul](#))
- Flavour
  - [IJCLAB](#) ([Y. Ahmis](#)), [LPCA](#) ([S. Monteil](#), [R. Madar](#)), [IRFU](#) ([R. Aleksan](#))
- FCC-hh
  - [L2IT](#) ([I. Stark](#))
- EPOL
  - [LPNHE](#) ([A. Blondel](#))
- Theory
  - BSM, Precision EW, Exotics, [IP2I](#) ([A. DeAndrea](#)), [LPTHE](#) ([G. Cacciapaglia](#))

## R&D detectors

- Vertexing
  - [GRAM-MANTA](#) ([IP2I](#))
  - [SEED](#) ([APC](#), [IPHC](#), [LAPP](#), [LPNHE](#))
- Tracking
  - [TPC](#) ([IRFU](#))
- Electromagnetic calorimetry
  - [ALLEGRO](#) High-granularity Noble Liquid calorimeter ([IJCLab](#), [LAPP](#), [CPPM](#), [APC](#), [LPSC](#))
    - [Meetings](#)
  - [CALICE](#) High-granularity Silicon calorimeter ([LLR](#))
  - [GRAiNITA](#) High-granularity Scintillator grains calorimeter ([IJCLab](#), [LPCA](#))
  - [MAXICC](#) Crystal calorimeter ([IP2I](#))
- Hadronic calorimetry
  - [T-SDHCAL](#) ([IP2I](#))

# Rubrique #2 : Activities (2)

- 4 sous-rubriques

- Physics, R&D detectors, **Detector concepts & Labs involved, Software & Computing**

## Detector concepts & Labs involved

- [ALLEGRO](#) (APC, CPPM, IJCLab, LAPP, LPSC)
  - Ultra-light drift chamber
  - Noble liquid EM calorimeter
- [CLD](#) (IPHC, IP2I, LLR)
  - Full Silicon tracker
  - CALICE-like calorimeter
- [ILD](#) (IPHC, IJCLab, LLR)
  - Large volume TPC
  - CALICE-like calorimeter
- [IDEA](#)
  - Ultra-light drift chamber
  - Crystal EM calorimeter
  - Dual-readout Fiber calorimeter

## Software & Computing

- Not fully addressed yet
- Could include software responsables
  - eg ALLEGRO (G. Marchiori)
- Could contain Tutorials to FCC software



# Rubrique #3 : Scientific results (1)

## ■ 3 sous-rubriques

### ■ **Publications**, Presentations at conferences, Defended theses

#### Publications

##### APC

- "ECFA Higgs, electroweak , and top Factory Study ," (2025), arXiv:2506.15390 [hep ex], G. Marchiori co editor of WG3 chapter
- "The FCC software for PED studies " (2025), [https://doi.org/10.17181/kz4kp\\_h2j85](https://doi.org/10.17181/kz4kp_h2j85), G. Marchiori and T.Li co authors
- Measurement of Higgs boson hadronic decays at FCC ee " (2025), [https://doi.org/10.17181/3jjdh\\_6fz97](https://doi.org/10.17181/3jjdh_6fz97) A. Maloizel , G. Marchiori (in preparation)
- "Model independent ZH production cross section at FCC ee ", G. Bernardi, A. Li co authors (in preparation)

##### IP2I

- "Multi boson splashes at future colliders from electroweak compositeness", arXiv: 2506.19413 , G. Cacciapaglia , A. Deandrea, A.M. Iyer , S. Kulkarni, A.K Singh

##### LPCA

- First characterization of a novel grain calorimeter : the GRAiNITA prototype , S. Barsuk et al., JINST 19 (2024) 04, P04008
- Study of the feasibility of the observation of  $B^0$  to  $K^*(892) \tau^+ \tau^-$  at FCC ee T Miralles et al., doi 10.17181/d772d\_egz40
- Measuring  $A_{FB}^b$  and  $R_b$  with exclusive b hadron decays at FCC ee , doi 10.17181/yax2s\_mvc83

##### LLR

- CaloFlux : A Tool to Estimate Fluxes in Calorimeters at Colliders", K. Hassouna , V. Boudry , JINST tech. report
- The ILD Detector: A Versatile Detector for an Electron Positron Collider at Energies up to 1 TeV , (2025), H. Abramowicz et al .



# Rubrique #3 : Scientific results (2)

## ■ 3 sous-rubriques

### ■ Publications, **Presentations at conferences**, **Defended theses**

#### Presentations at conferences

##### APC

- Lepton Photon 2025: G. Bernardi, "FCC hh Physics potential"
- EPS HEP 2025: A. Maloizel, "Higgs boson couplings to hadrons, invisible, and rare decays at FCC ee"
- Higgs 2025: G. Marchiori, "R&D towards future Higgs factories"

##### IPHC

- "Curved Mimosin as a preparation for FCC SEED : status ad plan", 7/2025, FCC ee Vertex detector R&D workshop, 10/25,
- "OCTOPUS : a R&D program towards a vertex detector for future e+e collider", S. Senyokov, FCC ee Vertex detector R&D workshop, 10/25, Coordinator of Vertex Detector for CLD : J.Andrea
- FCC SEED kick off workshop at IPHC 02/25 : CPPM, IP2I, IPHC, LPNHE, APC <https://indico.in2p3.fr/event/>
- Soutenance de thèse : A.Sadowski, CLD full simulation and the study of displaced vertices for the FCC ee, 09/2025

##### CPPM

- "R&D on Noble Liquid Calorimeter for Future Collider Exp ". F. Djama, 2024 International Workshop on CEPC, Octobre 2024
- "DRD 7 activity overview ". M. Barbero, 5th FCC/DRD France Workshop, Novembre 2025
- "Calorimeters, photodetectors and more...: Cooperation on noble liquid calorimeter". E. Monnier, 30th Ann. of CNRS, FCPPN Workshop, 11/2025

##### LAPP

- Noble liquid calorimetry for ALLEGRO FCC ee detector concept, Zhibo Wu, FCC Week, Vienna, 20/05/2025

##### LLR

- EPS HEP, Marseille, 7/2025: A Versatile Detector for an Electron Positron Collider at Energies up to 1 TeV ; Poster on the SiW ECAL

#### Defended theses

##### 2025

- L. Delagrangé, LPNHE, Jet calibration, Measurement of production cross sections, and study of jet substructure with ATLAS, prospects at the FCC-ee, <https://theses.hal.science/tel-05408584>
- G. Sadowski, IPHC, Recherche de particules à longue durée de vie au Futur Accélérateur Circulaire (FCC) et optimisation du système de trajectométrie du détecteur CLD.

##### LPNHE

- Soutenance de thèse : L. Delagrangé, QCD studies at FCC and LHC, 09/2025
- EPS 2025 conference, 7/2025: L. Delagrangé High precision QCD physics at FCC ee

##### IP2I

- FCC ee vertex detector R&D workshop, Pisa, Italy 10 2025 : J. Daniel "Towards realistic digitization of silicon tracking detectors for the FCC ee"
- FCC ee Workshop: Tracking Detectors and Software, Brookhaven, USA May 2025 : G. Boudoul "Detailed digitization for silicon based sensors"
- D. Contardo "Tracker & PID TPSCo 65 nm CMOS R&D at IN2P3 " + "Simulation needs for hardware"
- DRD3 week, Amsterdam, Juin 2025 : D. Contardo "Tracking and PID readout architecture with fine TDC in TPSCo 65 nm"
- DRD7 week, CERN : D. Contardo "Proposal for fine timing in"
- Physics at TeV Colliders Workshop, Les Houches, France, 7/ 2025 : S. Gascon "The Future Circular Collider (FCC) at CERN"
- Corfu Summer Institute 2025 Workshop on Standard Model and Beyond, Aout 2025: S. Gascon "FCC overview"
- DRDCalo week, IJCLab, Avril 2025: G. Grenier "Overview of software activities/needs for WP1"

# Rubrique #4 : Meetings & Opportunities

## Meetings & Opportunities

### Meetings

- FCC-France yearly meetings
  - <https://indico.in2p3.fr/category/1261/>
- FCC-Contacts monthly meetings (incl. France-Italy workshops)
  - <https://indico.in2p3.fr/category/893/>

- Could add here (already in R&D page) subdetector meetings (eg ALLEGRO)

### Opportunities in 2026

#### Permanent positions

#### PostDoc

- Infos on internships/postdocs:theses to be provided by each Lab contact

#### Thesis

#### Internship

- M2
- M1
- L3

# Next steps

- Dans la communauté FR
  - Pour l'instant seuls Greg, Catherine, Luc avec droits **d'écriture**
    - MAJ en fonction des inputs/commentaires/suggestions
    - Updates & compte-rendus fréquents
    - Dans un 1<sup>er</sup> temps donner accès en **lecture** aux membres de FCC-Contacts
  - Au niveau FCC-PED
    - Suivre et interagir les développements (Claire Adam, Panos Charitos)
    - Eventuellement uniformisation
  - Plus pratiquement
    - Credit and legal notices, e.g. <https://www.l2it.in2p3.fr/en/credits-legal-notice-2/>
    - Créer un mail de contact générique (foot page) ?
    - Faire la version FR une fois la version EN « figée »