Réunion groupe 10/04/25

1) Nouvelles et dates

- Reconduction de la direction
- Ecal - Prochaines etapes
- LCVision et ESPPU
- Accelerator News

2) Tour de table

Nouvelles groupe

- Mise en place de CALO5D
  - Felicitations a Jesus pour son doctorat
  - Recrutement Jesus pour le 1er mai en cours

Appels d'offre

- Appel projets P2I :
  - 60 kEUR (matériel ou RH)
  - Peut être utilise comme complément d'un contrat existant de Jesus
  - Vont postuler avec projet :
    - "Design du SND du SHIP avec les méthodes d'intelligence artificielle"
    - Se rime bien avec Calo5D et travaux Ecal
  - Clôture d'appel 9 mai
- P2I Bourse Cofund
  - Co-finance par l'Europe (Marie Curie Sklodowska Fellowship programme)
  - 2 ans de postdoc
  - Contrat a « plein droit » Ne peut pas être utilisé comme complément d'un autre
  - contrat
  - Ouverture d'appel ~début mai

Nouvelles IJCLab, IN2P3, DMLAB

- IN2P3/CNRS
  - ?

- IJCLab
  - CL favorable pour reconduction d'Achille et Fadi pour encore 5 ans
    - C'est bien dans notre sens
  - Bureaux
    - Xin, (Jesus) et Roman logés jusqu'a nouvel ordre sur le couloir des électroniciens
    - Dito pour Francois L., Francois R. et Marc depuis hier
    - Autour du rentrée déménagement sur l'autre aile du 200 (→ rapprochement Pole PHE (voir planche suivante)?
  - Prochain AG Pole PHE 16/6/25 avec « potluck »
  - Budget 2025
    - Le projet master SiW Ecal a touché 26 kEUR par l'in2p3 (bonne nouvelle)
    - Budget géré par LLR (Vincent)
    - Vincent a fait un bonne proposition pour la répartition des fonds
    - 10 kEUR pour nous
  - Budget 2026
    - Direction demande nos demandes pour le 12 mai !

- DMLAB
  - Reunion annuelle 16-17 October à Bonn

Situation bureaux apres rentrée ?

Proposition pour la rentrée

13 petits bureaux (<~14.5m2)
20 grands bureaux
=> capacité ~53 personnes
+ salle 135: café (en refaire un bureau?)
+ 2 salles de réunions
+ bibli

Ecal - Next steps

- Next steps
  - Review of design on HV Kapton
  - … to be compatible with assembly procedure at IFIC
  - Review of gluing procedure (ASUs were quite deformed after gluing)
  - Lower temperature
  - Proper implementation of TDC reading
  - Equipping PCBs
  - For testbeam beginning of 2026 need to have all at hand by ~September 2025

- Ageing of DAQ components ?
  - Occasionally « USB write/read errors » after recabling of CORE Module, gone after a few minutes
  - To be watched

- Disk server repaired by IT !
  - Obviously a battery did run empty
  - One disk sloty faulty
  - Should however be operational
  - Complete reinstallation by IT (Alma Linux)
  - Backup of data and software exists
- Need to organise soon technical meetings
- First among us and then with project

DRD Calo et al.

- Now addressing MOU and Annexes
  - Survey on resources launched on 11/2/25
  - Try to get as complete as possible version for next collaboration meeting

- Reunion Collaboration DRD Calo 1/4/24 – 4/4/24 chez nous

  - https://indico.ijclab.in2p3.fr/event/11400/
  - 172 participants registered
  - From three regions
  - 50–60 participants on site
  - ~35-40 regularly via zoom
  - The scientific work ramps up and collaborative tools become visible
  - No calorimeter w/o engineering
  - We are starting to exploit modern machine learning algorithms
  - Lots of talks by ECR

- Thanks to
  - IJCLab direction
    - for putting at our disposal all rooms free of charge
  - Valerie Brouillard and Emilie Bonnardel for the seamless administrative part of the organisation
  - Luc Petizon for the graphics support
  - Greg Perrin for the technical support
  - Dominique Longieras for the group picture
  - Giulia, Nicolas and Patrick for the support with the organisation
  - Fabrice Dupuis for logistics support
- Outreach coverage on Linkedin IJCLab
  - Thanks to Fairouz Ben Salah
- This meeting followed the agreement found at last meeting
  - 1st day parellel sessions
  - Only plenaries during main meeting
  - It looks as if this model has shown its usefulness
  - Next meeting in Ancona 16-19 Sept. 2025

Successor AIDAinnova

- AIDAinnova is European Project of detector R&D (for advanced communities)
  - (AIDAinnova itself is a successor of EUDET, AIDA, AIDA-2020)
  - One deliverable of AIDAinnova was ECFA Detector R&D Roadmap
  - AIDAinnova provides (some) funding to kick-off R&D Programme in DRD Calo
- AIDAinnova ends on September 30th 2025
- Discussions for sucessor has started
- Expect EU call for May and closing of call for early Autumn 2025
  - HORIZON-INFRA-2025-01-TECH-02 calls, around 45 MEUR in total, 10-15 MEUR for AIDAinnova successor
- Research proposal will largely pick from DRD research programme
  - Calorimetry will be one of the Work Packages (currently represented by Katja in initial Proposal Team)
  - Have to understand how DRD Calo can shape the new research programme
  - Most likely not all DRD Calo projects will make it into AIDAinnova successor
  - Question: What could be the added value by EU funding to our research programme?
- Need to come up with our proposals latest until AIDAinnova Annual meeting in May, better earlier
- Some Boundary conditions
  - Industrial partners as beneficiaries will be an asset (and these projects will be prioritised)
  - Programme will have to cover two ESFRI infrastructures
    - We have LHC -> 2nd infrastructure will be CTAO
- Remark: Even if European project it is good tradition to have non-European institutes as Associated Partners
  - Funding would be channeled through European “umbrella” beneficiary

Faut réfléchir comment on peut profiter de l’appel

DRD Calo input to ESPPU

DRD 6 Calorimetry - Input to European Strategy of Particle Physics Update (ESPPU)

March 30, 2025

Gabriella Gaudio (gabriella.gaudio@infn.pv.it)[1], Roman Pöschl (roman.poeschl@ijclab.in2p3.fr)[2]
(**Contact Persons**)

Roberto Ferrari[1], Mary-Cruz Fouz[3] Brieuc François[4] Adrian Irles[5], Marco Lucchini[6], Michaela Mlynarikova[4] Nicolas Morange[2], Wataru Ootani[7], Lorenzo Pezzotti[8], Marc-André Pleier[9], Christophe de la Taille[10]
(**Management Members, Workpackage and Working Group Coordinators**)

Martin Aleksa[4], Etiennette Auffray[4], David Barney[4], James Brau[11], Sarah Eno[12], Alberto Gola[13], Imad Laktineh[14], Philipp Roloff[4], Felix Sefkow[15], Frank Simon[16] Tommaso Tabarelli de Fatis[6], Hwidong Yoo[17] (**Proposal Team Members**)

On behalf of the DRD 6 Collaboration

[1]INFN, Pavia, ITALY
[2]IJCLab, Université Paris-Saclay, Orsay FRANCE
[3]CIEMAT, Madrid, SPAIN
[4]CERN, Geneva, SWITZERLAND
[5]IFIC, CSIC-Unversity of Valencia, Valencia, SPAIN
[6]INFN and University of Milano-Bicocca, Milano, ITALY
[7]University of Tokyo, Tokyo, JAPAN
[8]INFN, Bologna, ITALY
[9]Brookhaven National Laboratory, Upton, NY USA
[10]OMEGA, Palaiseau, FRANCE
[11]University of Oregon, Eugene, OR USA
[12]University of Maryland, College Park, MD USA
[13]FBK, Povo, ITALY
[14]IP2I Lyon, Villeurbanne, FRANCE
[15]Deutsches Elektronen-Synchrotron DESY, GERMANY
[16]Karlsruhe Institute of Technology, Karlsruhe, GERMANY
[17]Yonsei University, Seoul, SOUTH-KOREA

- Shortened and updated version of proposal
  - Reminder on research programm
  - Quick review of first year of operation
  - Some known updates of Milestones and Deliverables already included

- Why a dedicated DRD Calo input
  - Calorimeters need more resources than other R&D Objects
    - Material
    - Engineering
    - Resources at beam tests
      - Space and lifting
  - Different particle species and energies
  - Beam line devices
  - A successful R&D needs sustained support beyond core activities

LC Vision Documents

Long generic document

Linear Collider Vision

A Linear Collider Vision for the Future of Particle Physics

In this paper we review the physics opportunities at linear e^+e^- colliders with a special focus on high centre-of-mass energies and beam polarisation, take a fresh look at the various accelerator technologies available or under development and, for the first time, discuss how a facility first equipped with a technology that is mature today could be upgraded with technologies of tomorrow to reach much higher energies and/or luminosities. In addition, we discuss detectors, alternative collider modes, as well as opportunities for beyond-collider experiments and R&D facilities as part of a linear collider facility (LCF). The material of this paper supports all plans for e^+e^- linear colliders and additional opportunities they offer, independently of technology choice or proposed site, as well as R&D for advanced accelerator technologies. This joint perspective on the physics goals, early technologies and upgrade strategies has been developed by the LCVision team based on an initial discussion at LCWS2024 in Tokyo and a follow-up at the LCVision Community Event at CERN in January 2025. It heavily builds on decades of achievements of the global linear collider community, in particular in the context of CLIC and ILC.

- https://arxiv.org/abs/2503.19983
- 158 pages
- Highlights of physics programme
- Coherent picture of accelerator Implementation
- Contributions by Dirk, Angeles, Walid, Akira and R.P.
- Currently v2
  - V3 this week
  - V4 later ~end of April middle of May

LCF at CERN

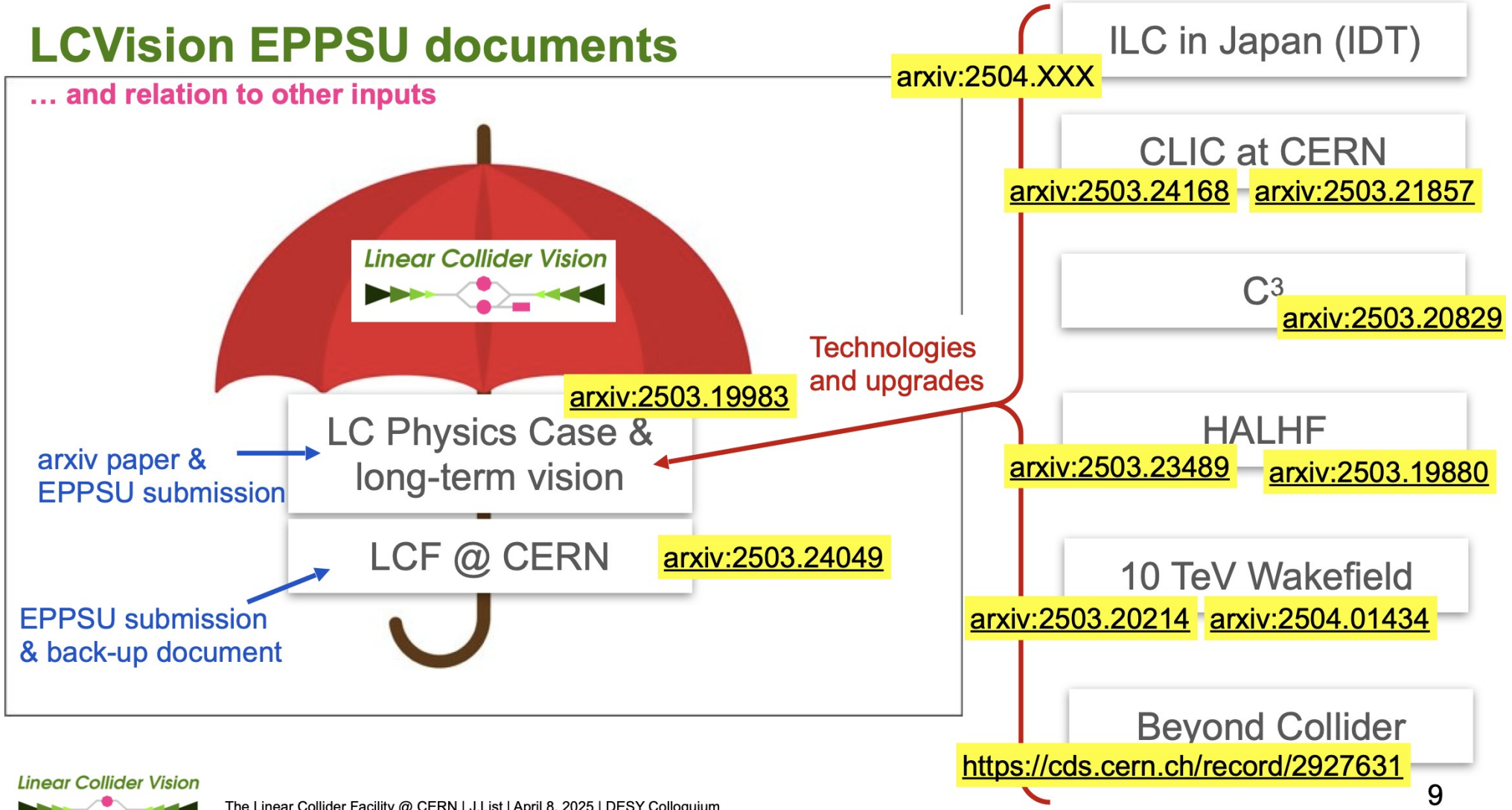
Linear Collider Vision

The Linear Collider Facility (LCF) at CERN

In this paper we outline a proposal for a Linear Collider Facility as the next flagship project for CERN. This proposal offers the opportunity for a timely, cost-effective and staged construction of a new collider that will be able to comprehensively map the Higgs boson's properties, including the Higgs field potential, thanks to a large span in centre-of-mass energies and polarised beams. A comprehensive programme to study the Higgs boson and its closest relatives with high precision requires data at centre-of-mass energies from the Z pole to at least 1 TeV. It should include measurements of the Higgs boson in both major production mechanisms, $e^+e^- \to ZH$ (Higgs-strahlung) and $e^+e^- \to \nu\bar{\nu}H$ (WW fusion), precision measurements of gauge boson interactions as well as of the W boson, Higgs boson and top-quark masses, measurement of the top-quark Yukawa coupling through $e^+e^- \to t\bar{t}H$, measurement of the Higgs boson self-coupling through HH production, and precision measurements of the electroweak couplings of the top quark. In addition, e^+e^- collisions offer discovery potential for new particles complementary to HL-LHC. The facility we propose robustly satisfies these scientific goals. With a total length of 33.5 km, two interaction regions as well as additional R&D and fixed-target experiments, it offers significant flexibility to take into account scientific and strategic developments. From today's perspective, we propose to equip the Linear Collider Facility in a first stage with superconducting RF cavities for polarised e^+e^- collisions at a centre-of-mass energy of 250 GeV with a luminosity of $2.7 \times 10^{34}\,\mathrm{cm}^{-2}\mathrm{s}^{-1}$, which requires an investment of about 8.3 BCHF. With a preparatory phase of six years, followed by ten years of construction, this first stage could start data-taking by 2042. First upgrades comprise doubling of the luminosity for 0.8 BCHF and an increase of energy up to at least 550 GeV, which can be achieved with the same accelerator technology for about 5.5 BCHF. Later stages will involve further increase of luminosity and energy as well as other new capabilities that will further enhance the Higgs programme and extend the discovery potential for new physics. These upgrades will primarily be accomplished by accelerator technology innovations rather than by additional civil construction.

- https://arxiv.org/abs/2503.24049
- Position an LCF as an option for the next machine at CERN
- For us it's of course not Plan B ;-)

Further LC Documents



Compilation by Jenny List

French Input to ESPPU (et al.)

French HEP community input to the European Strategy for Particle Physics

This document sumarizes the French community input to ESPP and was edited by: Yasmine Amhis[1], Jeremy Andrea[2], Etienne Augé[1], Sara Bolognesi[3], Maarten Boonekamp[3], Samuel Calvet[4], Emilien Chapon[3], Didier Contardo[5], Fabrice Couderc[3], Sabine Crépé-Renaudin[6], Louis D'Eramo[4], Cristinel Diaconu[7], Giulio Dujany[2], Federico Ferri[3], Marie-Hélène Genest[6], Stéphane Lavignac[8], Jessica Levêque[9], Cyrille Marquet[10], Anselmo Meregaglia[11], Stephane Monteil[4], Carlos Muñoz Camacho[1], Louis Portales[3], Philippe Schwemling[12], Christopher Smith[6], Ana M. Teixeira[4], and Michael Winn[13]

[1]Université Paris Saclay, CNRS/IN2P3, IJCLab
[2]Université de Strasbourg, CNRS/IN2P3, IPHC
[3]Université Paris Saclay, CEA/IRFU, DPhP
[4]Université Clermont Auvergne, CNRS/IN2P3, LPCA
[5]Université Claude Bernard Lyon, CNRS/IN2P3, IP2I
[6]Université Grenoble Alpes, CNRS/IN2P3, LPSC
[7]Aix Marseille Université, CNRS/IN2P3, CPPM
[8]Université Paris Saclay, CNRS/INP, CEA/DRF, IPhT
[9]Université Savoie Mont Blanc, CNRS/IN2P3, LAPP
[10]Institut Polytechnique de Paris, CNRS/INP, CPHT
[11]Université de Bordeaux, CNRS/IN2P3, LP2I
[12]Université Paris Cité, CEA/IRFU, DPhP
[13]Université Paris Saclay, CEA/IRFU, DPhN

March 20, 2025

Abstract

In view of the European Strategy for Particle Physics process, the French HEP community has organized a national process of collecting written contributions and has pursued a series of workshops culminating with a national symposium held in Paris on January 20-21, 2025 that involved over 280 scientists[1]. The present document summarises the main conclusions of this bottom-up approach centred on the physics and technology motivations[2].

- Result of French Exercise over last Autumn/Winter
  - Authors did take into account corrections corrections sent by me in March
- What I did not find is the common In2p3 CEA/Irfu document
  - The « real » French national input
  - Did search for
    « in2p3 », « CEA », « Irfu »
    « French », « France »
  - Does this input exist ?
  - If you have seen it, let me know

https://indico.cern.ch/event/1439855/contributions/6461414/
All contributions can be found here
https://indico.cern.ch/event/1439855/contributions/

LCVision Next Steps

- Work with Physics Prepatory Group to prepare Venice Meeting

- Spread the word !
  - How to convey the message that the LCF is a credible alternative ?
    - To colleagues but also to press and decision makers
    - The entire discussion is completely dominated (captured) by CERN
      - Notable exceptions are articles in Nature and Guardian
    - Many (young) colleagues simply don't know that there are alternatives to FCC
  - Seminars
    - Jenny gave DESY internal seminar
    - Jenny invited to seminar at CEA/Irfu
    - Plan that Angeles an myself give a seminar locally at IJCLab (need to finally fix a date)
    - SFP Meeting 4th of July
    - Terascale Meeting at Strasbourg (19th – 21st of May) ?
      - Would need an abstract

- Further national meetings ?
  - German community has a meeting in week of 28th of April
    - … to absorb report on FCC Feasibility Study
  - Other countries may do as well
  - Not aware that France is planning another Townhall meeting

Dates à noter

- 5-9 Mai 2025: AIDAinnova Annual Meeting at Prague

- 23/6/25 – 27/6/25 European ESPPU Symposium at Venice

- 6/7/25 – 11/7/25 EPS-HEP at Marseille

- 16/9/25 – 19/9/25 DRD Calo Meeting at Ancona

- 20/10/25 - 24/10/25: LCWS at Valencia

Prochaine réunion du groupe 5 juin (sauf nouvelle ordre)
à 10.30h dans la salle 139 du bâtiment 200

Prochaines réunions de groupe

- Jeudi 5/6/25 (potentiellement reportee)
- Jeudi 4/7/25
- Jeudi 24/7/25

Toujours à 10.30h dans la salle 139 du bâtiment 200
(jusqu’a nouvelle ordre)

Reminder PSSU – French input

Extraire du circulaire de Laurent Vacavant et Nathalie Besson

Organisation pour la préparation de la contribution française :

Dans ce cadre et en sus de toutes les éventuelles contributions personnelles ou de groupes, l'IN2 et l'Irfu proposent que la communauté française produise et soumette un document synthétisant avis. Des groupes de travail autour de 4 thématiques scientifiques ont été mis en place pour colle et synthétiser les contributions de la communauté. Ils s'appuieront sur les GDR existants afin bénéficier des réseaux déjà constitués, mais ne sont évidemment pas restreints aux GDR :

- GT1 : Modèle standard et au-delà [en lien avec l'IRN Terascale] – Pilotage : Fabrice Coud Marie-Hélène Genest, Ana Teixeira
- GT2 : Physique de la saveur et tests des interactions fondamentales [en lien avec le G Intensity Frontier] – Pilotage : Yasmine Ahmis, Giulio Dujany, Christopher Smith
- GT3 : Neutrinos (notamment Long-baseline) [en lien avec l'IRN Neutrinos] – Pilotage : S Bolognesi, Stéphane Lavignac, Anselmo Meregaglia
- GT4 : QCD et collisions d'ions lourds [en lien avec le GDR QCD] – Pilotage : Cyr Marquet, Carlos Munoz Camacho, Michael Winn

À ces quatre groupes thématiques est adjoint un groupe transverse pour l'étude des différents scénarios de futurs collisionneurs (GTS). Ce groupe sera en charge de répondre spécifiquement au premier point du mandat de la stratégie, rappelé ci-dessus (en italique). Il devra naturellement interagir fortement avec les groupes thématiques, selon des modalités qu'il définira. Le groupe sera piloté par Cristinel Diaconu ainsi que Jeremy Andrea, Maarten Boonekamp et Stéphane Monteil.

Contributions de la communauté attendues en amont :

Chaque groupe sera responsable de l'organisation du travail dans son périmètre. Les travaux de collecte des contributions préparatoires émanant de la communauté, consultation large puis synthèse dans chacun des groupes devront converger d'ici à janvier 2025, pour être présentés et discutés lors d'un symposium ouvert à tous (vraisemblablement pendant la semaine du 20 janvier).

Sur le fond, il s'agit d'une mise à jour de la stratégie européenne établie en 2020. Dans ce cadre, les contributions peuvent s'appuyer (sans les reprendre in extenso) sur les différents travaux de prospectives conduits à l'époque et depuis (prospectives nationales, plan stratégique de l'IN2P3, structuration des R&D détecteurs ECFA/CERN, étude de faisabilité FCC,…). Les avancées scientifiques ainsi que les évolutions du paysage international auront donc une place prépondérante. Les contributions peuvent être de différentes natures : expérimentales, théoriques et phénoménologiques, technologiques (accélérateurs, détecteurs, calcul, …), sociétales ou appliquées.

Les contributions attendues doivent être synthétiques (2 pages maximum) et peuvent provenir des projets, des laboratoires, de collectifs variés ou d'individus. Afin d'aider les groupes de travail à collecter les contributions de la communauté française, un formulaire web sera ouvert dans les prochains jours au CCIN2P3 : https://survey.in2p3.fr/ESPPU
Chaque contribution sera adressée prioritairement à un seul des 5 groupes de travail (GT1 à GT4, GTS), un groupe de travail secondaire pouvant être indiqué lors de la soumission, ainsi que des grandes catégories et mots-clés précisant la nature de la contribution.

Nathalie Besson
Laurent Vacavant

Schedule GT01:

- Informal meeting ~4 October
- Deadline for 2-page input : 25th of October
- Terascale Meeting 13-15th of November
- French Meeting to prepare French contribution ~20th of January 2025

Intermezzo - AIDAinnova

- Demande de prolongation par 6 mois soumise a Bruxelles

- N.B. : AIDAinnova a reçu de la critique sur la gestion de la diversité
  - Trop peu d'information a cet égard

- Successeur
  - Il y aura un appel correspondant par l'UE pour soumission d'un projet en automne 2025
  - Préparation va commencer cet automne