Christophe Grojean & Patrick Janot

FCC PED coordinators

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FCC on a Fast Track

After just over a decade of pioneering and fascinating work, huge progress has been achieved altogether:

12 • The first proposal of a high-luminosity e^+e^- circular collider to study the Higgs boson was made **twelve years** ago (December 2011) and submitted to the 2012-13 European Strategy Update [A. Blondel & F. Zimmermann following discussions with P. Janot at CERN cafetaria on a bright summer night speculating on the rumours of a Higgs at **140 GeV**];

10 • The Future Circular Collider collaboration was created **ten years** ago, towards the conceptual design study of a **100 TeV pp collider**, with an e^+e^- Higgs factory as a potential intermediate step;

5 • The **Conceptual Design Reports** of the FCC physics case, and of the FCC-ee and FCC-hh colliders, were published **five years** ago and submitted to the 2018-19 European Strategy Update;

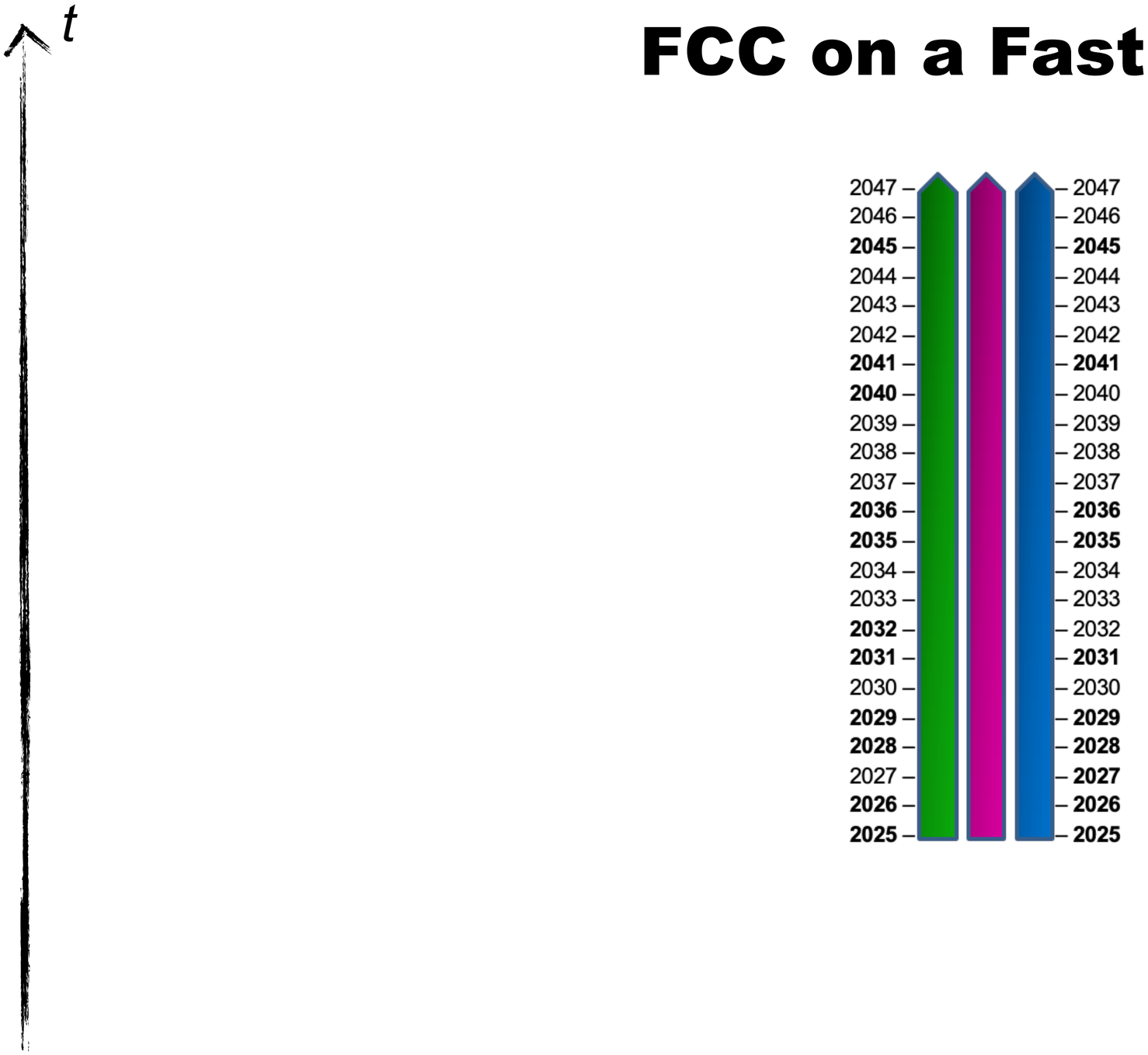
3 • The CERN Council updated the European Strategy **three years** ago, stating that an e^+e^- Higgs factory would be the highest priority next collider, to be followed by a proton-proton collider at the highest achievable energy;

2 • **Two years** ago, the CERN Council consequently initiated and funded a **technical and financial feasibility** study for FCC with focus on an e^+e^- electroweak and Higgs factory as a first stage, study to be completed by the time of the next European Strategy Update;

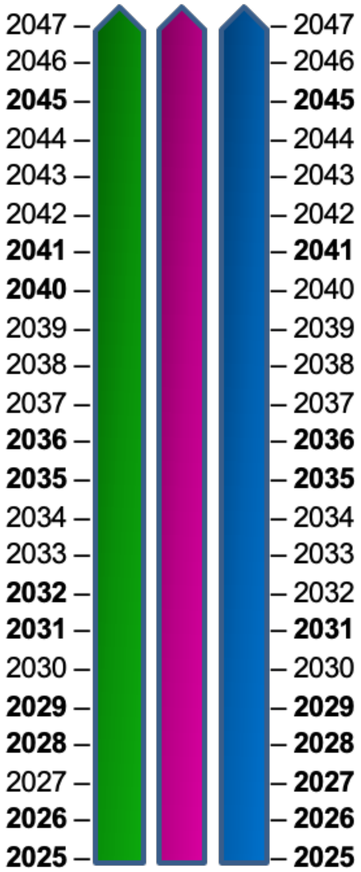
0.5 • **Five months** ago, a 700+ pages **mid-term report** about the FCC feasibility was submitted to the CERN Council for a thorough review, with a conclusion expected at the beginning of 2024. Very positive feedback from CERN council in **Feb. 2;**

0 • 200+ of us joined this week at **MIT** to push this project forward!

FCC on a Fast Track



FCC on a Fast Track



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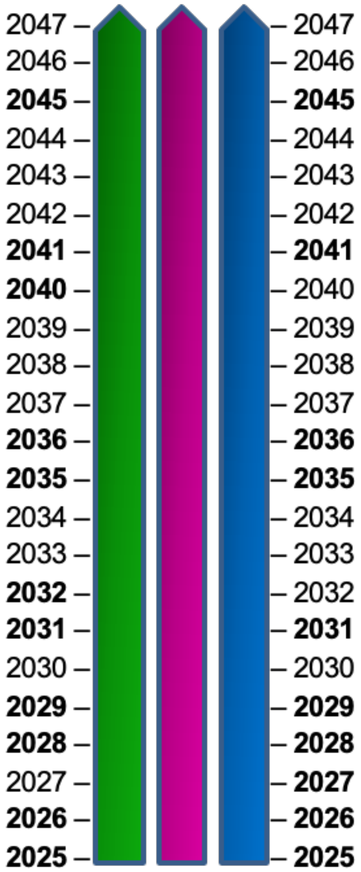

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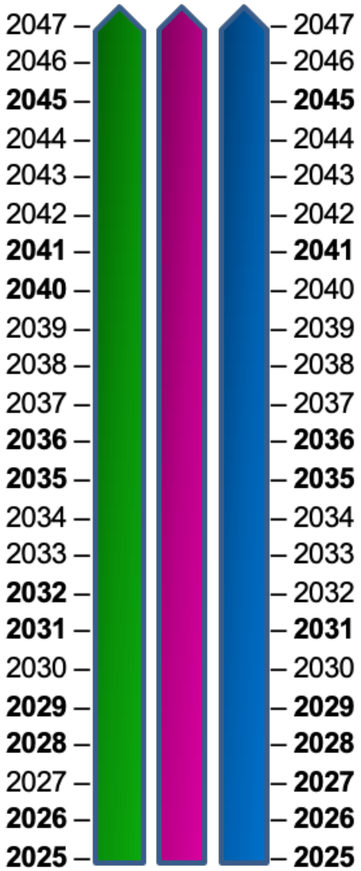

FCC on a Fast Track

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FCC-ee physics run

FCC-ee Accelerator	Key dates	FCC-ee Detectors
	2047	
	2046	
Start accelerator commissioning	2045	Start detector commissioning
	2044	
	2043	
	2042	
End of HL-LHC operation	2041	Start detector installation
Start accelerator installation	2040	
	2039	
	2038	
	2037	
Start accelerator component production	2036	Start detector component production
Technical design & prototyping completed	2035	Four detector TDRs completed
	2034	
	2033	
Ground-breaking and start civil engineering	2032	
Start engineering design	2031	Detector CDRs (>4) submitted to FC³
	2030	
Completion of HL-LHC: more ATS personnel available	2029	Completion of HL-LHC upgrade: more detector experts available
FCC Approval, R&D, start prototyping	2028	FC³ formation, call for CDRs, collaboration forming
	2027	
US collider R&D studies	2026	European Strategy Update
FCC Feasibility Study Report	2025	Detector EoI submission by the community

FCC on a Fast(er) Track




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FCC-ee Accelerator | **Key dates** | **FCC-ee Detectors**

Moving Forward Together

Roundtable on Monday:

“It’s been noted that many of the most intellectually interesting FCC-related projects are already highly subscribed.”

Don’t panic!

There are plenty of opportunities to contribute and they need everyone’s inputs.

We definitively need you (not on a 4th detector but everywhere)!

I’m very happy to see the FCC community being formed and already growing fast.

I’m envy you too:

what I witnessed at this meeting is a large group of physicists acting coherently with full energy and enthusiasm.

— Many intellectual challenges ahead of us —

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What we have been discussing so far:

- 3 detectors concepts;
- 3 calorimeters;
- (1) 2 (silicon) trackers;
- 1 vertex detector;
- 0.5 luminometer.

→ definitively not enough for 4 detectors;

→ any new idea is desperately welcomed.

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- A depth of interconnections between all FCC-ee runs, as pertains to exploring new physics, is emerging.
- FCC-ee is not a re-run of LEP.

[M.McCullough on Monday]

Stronger Together*

Old generation with young generation.
(I encourage you to go and talk to the young students starting college!)
TH with EXP.
(I encourage you to get in touch with your theory colleagues!)
ACC with PED.
US with EU/rest of the world.

(*a missed opportunity 8 years ago in the US)

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See You Soon Again

https://fccweek2024.web.cern.ch/

A great opportunity to
develop our collaboration further.

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After BNL last year, MIT this year,
I wish to see all of you (and many others)
in **Chicago** at the 3rd US FCC meeting!

THANK YOU ALL