

13 Why is FCC-ee More Precise for Electroweak Measurements?

15 What can be discovered at FCC-ee?

16 Is the FCC-ee Project "Ready to Go"?

14 Will Theory be Sufficiently Precise to Match this Experimental Precision?

27

FCC-ee: Your Questions Answered

A preprint entitled "FCC-ee: Your Questions Answered" was prepared for the previous European Strategy Update (2018-2020), and can be found at https://arxiv.org/abs/1906.02693.

ontents				
What is FCC-ee?	6	Will be updated	17 What is the cost of the FCC-ee?	27
		will be updated	17.1 What are the FCC-ee Construction Costs?	
Can I do Higgs physics in the first year of FCC-ee?	7	Will be updated	17.2 What are the Costs of Operating FCC-ee?	28
How can the FCC-ee Machine Parameters reach such High Luminosities?	7		18 Can FCC-ee be the First Stepping Stone for the Future of our Field?	28
3.1 What is the basis for the FCC-ee machine parameters?	8		18.1 Is a linear collider the best "Electroweak and Higgs Factory" that can be built?	28
3.2 How do circular and linear e ⁺ e ⁻ colliders compare in this respect?	8		18.2 Can one build a long-term strategy based on linear $\mathbf{e^+e^-}$ colliders?	29
3.2.1 Historical record	8	Still up-to-date ?	18.3 Can one go beyond 3 TeV in lepton collisions?	29
3.2.2 Beam sizes	9	our up to date :	19 Can there be a Smooth Transition between HL-LHC and FCC-ee Experiments?	30
3.2.3 Positron source	9			
3.2.4 Beam emittance	10		20 Can Physics start at FCC-ee right after HL-LHC?	31
3.3 Summary	10		21 Will FCC-ee delay FCC-hh?	31
How will the FCC-ee Detectors deal with Beam Backgrounds?	10	May be either updated or suppressed	22 How long will the Shutdown between FCC-ee and FCC-hh be?	31
How good is FCC-ee as a Higgs Factory?	11	Is being updated	23 Are there Better Ways to 100 TeV than FCC-ee?	32
How Many Interaction Points at FCC-ee?	12	Has been updated	23.1 Learning from History	33
7 Do we need an e ⁺ e ⁻ Energy of at least 500 GeV to Study the Higgs Boson Thoroughly?			23.2 Looking at the numbers	34
			23.3 Should we by-pass FCC-ee and go directly for a 100 or 150 TeV Hadron Collider? .	34
	13		23.4 Should we by-pass FCC-ee and opt for a High-energy Upgrade of the LHC instead?	34
Why are the FCC-ee Beams not Polarized Longitudinally?	14		23.5 Rather than starting with FCC-ee, should we build a Lower-Energy Hadron Collider in the FCC Tunnel?	95
8.1 A choice: Longitudinal or Transverse Polarization?	14	Will be updated	23.6 Why not a Low-Energy Linear e ⁺ e ⁻ Collider instead?	
8.2 Longitudinal GigaZ vs Transverse TeraZ	15		23.7 Should we leave FCC-ee to China?	
8.3 Longitudinal Polarization and Higgs Coupling Determination	18		20.7 Should we lette 2 co-ce to child.	
Will the Accuracy of FCC-ee Higgs Measurements be Affected by Experimental Uncertainties?	19		24 Why do we want FCC in Europe?	38
Oncertamoles:	19			
How does a Muon Collider compare (as a Higgs Factory)?	20			
		1		
Can I do more than Higgs Physics at FCC-ee?	21	This document w	as aimed at answering the quality	10

This document was aimed at answering the questions people had always wanted to ask but never dared asking, and especially to lay popular beliefs and frequent misconceptions to rest



FCC-ee: Your Questions Asked

We plan to update the document for the next ESU (2025-2026)

- With answers to popular (new) questions and misinformed statements
- With actualisation of previous answers, to match the overall context evolution
- With a removal of obsolete questions/answers

You are invited to browse/read this document, see what's missing (according to you), ask more questions, and – if you can/wish – propose articulated answers.

A Google Doc ("FCC-ee: Your Questions Asked") is available for you to add questions

- Can cover many aspects: scientific, (geo)political, environmental, financial, moral, ...
- You can also make suggestions on how you would update/modify existing answers
- Examples of already asked questions in previous US meetings can be browsed therein

An Overleaf document is being prepared with already three and a half new answers

- LEP3 as a plan B? How many IPs? Importance of the top-pair threshold?
- Current rewriting of "How good is FCC-ee as a Higgs factory?" (with comparisons)
- Your question(s) will be an invaluable input to this document