

US FCC

Engagement of the Early Career Scientist Community - Panel Discussion -

Moderated by Valentina Cairo

September 10th, 2026



Fourth US FCC meeting

8-11 Sept 2026
SLAC
Antares/Lee_Angelina @mazzoni

<https://indico.slac.stanford.edu/event/10213/>

Setting the scene

Building the FCC: A project that will span generations of scientists, engineers, technicians, etc

- **An extraordinary challenge**
- **A unique opportunity to shape what comes next**

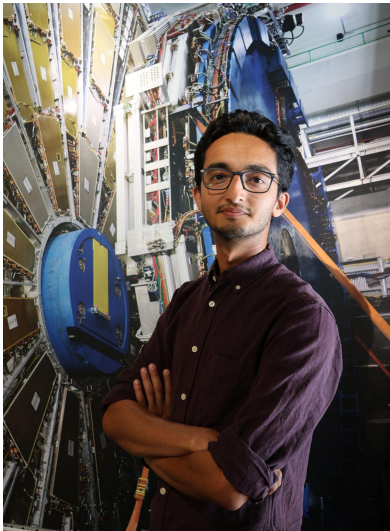
Earlier this year, as we visited a number of national laboratories,
we kept hearing a similar question:

how do we engage the next generation in the Future Circular Collider?

The international FCC project has already set up an FCC Early Career Forum as
a network designed to encourage exchange and collaboration.

[link to [Views](#) & [Meetings](#)].

The Panel



Haider Abidi, Staff Scientist, BNL, EXP



Julia Gonski, Staff Scientist, SLAC, EXP



Jean-Luc Vay
Senior Scientist, LBNL, ACC



Christiane Scherb
Postdoc, LBNL, TH



Angira Rastogi
Postdoc, LBNL, EXP



Dimitris Ntounis
PhD Student, Stanford & SLAC, EXP



Jan Eysermans
Staff researcher, CERN, EXP

How did you get here?

There is a lot to learn from the LHC experience...

When you were starting your career, what was the opportunity, person or circumstance that first brought you into a large-scale project like the LHC?

1. Was this something you actively sought, or did it come somewhat unexpectedly?
2. Who opened that door for you?
3. What opportunity almost didn't happen?
4. Did you realise at the time how important that opportunity might become?
5. What made you decide to stay involved?

How did you get here?

1. How much of your career path was something you deliberately planned, and how much was simply being in the right place at the right time?
2. If that particular opportunity hadn't come along, do you think your career would look very different?
3. Looking back at the LHC experience, what do you think the system did particularly well in creating opportunities for people at the beginning of their careers? What did it leave to chance?

Why choose to *shape* FCC: the unique opportunity

Participants vs Shapers: Are early-career scientists people we need to *recruit* into FCC, or are they part of the generation that should be *shaping* FCC from the beginning?

1. Imagine you are starting (or finishing) your PhD today. Why would you choose to invest part of your career in FCC?
2. What is the opportunity that FCC offers someone at that stage of their career?
3. Where do you think early-career scientists can have the greatest impact?
4. What can we learn from the different ways future-collider concepts engage the next generation?
5. If there were no risks, what would be your main scientific reason to join the FCC?

Why choose to *shape* FCC: the hesitation

What would make you hesitate to choose FCC as a major part of your career?

1. Is the timescale itself your main concern?
2. How do you make a career decision around a project whose ultimate future isn't yet certain?
3. How important is it to have opportunities and outputs in the near term?
4. What would you need to see from FCC to feel that investing your career in it is a reasonable choice?

Why choose to *shape* FCC: the career-independent question

What should someone be able to take away from working on FCC even if their career eventually takes them somewhere completely different?

How do we (or should we) make those benefits explicit rather than assuming that people will discover them for themselves?

What should the FCC do differently?

If we could take the LHC career experience and redesign it from scratch for FCC, what would you keep and what would you change?

1. Let's take someone who is very motivated and curious, but whose supervisor or institution isn't already deeply involved in FCC. How does that person discover an opportunity and get through the door?
2. Many of the stories we hear involve an individual who opened a door or provided guidance. How do we make sure that kind of mentorship isn't simply a matter of luck?
3. If early-career scientists are going to be among the people building and operating FCC, how should they have a voice in decisions being made now?

What should the FCC do differently?

If we could take the LHC career experience and redesign it from scratch for FCC, what would you keep and what would you change?

1. How do we make sure that contributions to things like software, instrumentation, engineering, R&D or project coordination are valued properly when people are making career decisions and applying for their next position?
2. Does someone need to spend years at CERN to have a meaningful FCC career? How do we ensure that somebody from the US can succeed along this path?
3. What should meaningful participation look like for someone based at a US national laboratory or university?
4. What can the international and/or U.S. FCC management do to get Early Career Scientists more engaged in FCC?

Agree, disagree, depends

Let's break the rhythm: do you agree, disagree or have a more “layered” opinion about the following:

General:

1. If you work on FCC, you are betting your career on the project being built.
2. You need to know someone already involved in FCC to get into the project.
3. If you're starting a PhD today, FCC is too far in the future to matter to your career.
4. Early-career scientists should not just be recruited into FCC, they should help shape how FCC works.

US-Focused

1. If a US early-career scientist has to choose between working on a project with a near-term payoff in the US and FCC, FCC will usually lose.
2. For a US early-career scientist, FCC is a less obvious career choice than an LHC project was.
3. The biggest opportunity for the US is not simply to contribute people to FCC, but to help shape what FCC becomes, including developing the next generation of scientists and engineers

Final round

For each one of you, pick one of the following:

1. What is one thing you wish someone had told you when you were a PhD student and you were starting your career in particle physics?
2. What opportunity did you underestimate when you were starting out?
3. If you were starting your career today, knowing what you know now, what would you do differently?
4. If we meet again 20 years from now, what is one thing you would like the next generation to say that FCC got right?
5. And what is one thing we should do now to make that future possible?

Particle Physics
programs of CERN
and the US are
interdependent to the
mutual benefit of both

Following the HL-LHC
legacy, the Future
Circular Collider will
push open a new
window onto the laws of
nature...

We are getting ready
to discover
what we know
and also
what we did not know
we were missing

We have a **unique**
opportunity to drive it
as a community and
shape technologies,
theories,
and the scientific vision
of the future



Relative view point, by F. Cairo

EXTRA SLIDES

FCC Timeline



The Future Circular Collider in a nutshell



The future collider would be built in a circular underground tunnel some 91 kilometres in circumference located at a depth of between 180 and 400 metres beneath the French departments of Haute-Savoie and Ain and the Swiss canton of Geneva.

Timeline

2021-2025	Feasibility Study
2026-2027	Update of the European Strategy for Particle Physics
2028	Expected decision whether or not to build the FCC
Early 2030s	Construction start
2038-2046	Installation phase
Late 2040s	Start-up of FCC

90.7 kilometres

The circumference of the accelerator ring is a key parameter for determining the energies at which particles can be collided. Its proposed location was chosen after careful consideration to minimise the impact on the surrounding countryside and villages.

200 metres average depth

The FCC tunnel would be primarily embedded in the molasse of the Geneva Basin, spanning parts of France and Switzerland and including a section beneath Lake Geneva. The tunnel would be accessible from eight surface points, one in Switzerland and seven in France.

4 detectors

Using different detector technologies would ensure a broad scientific harvest as well as systematic cross-checks of results. International collaborations would build on CERN's existing technical and organisational infrastructure, while expanding it to meet the specific requirements of the FCC programme.

Decades of scientific research

An infrastructure designed to support decades of scientific research, reinforcing Europe's leadership in particle physics throughout the 21st century and beyond.



<https://home.cern/science/accelerators/future-circular-collider/>

2026 European Strategy Update: FCC-ee descoped - Summary

Other alternative options

A descoped FCC-ee

(to improve the financial feasibility)

- Descoping scenarios include:
 - removing the top-quark run -1.26 BCHF
 - constructing two rather than four interaction regions and experiments - 0.80 BCHF
 - decreasing RF system power (50 MW → 30 MW) - 0.35 BCHF
- These measures would reduce the construction cost by approximately 15%.
- **Although this would have a significant impact on the breadth of the physics programme and the precision achieved, the descoped FCC-ee would still provide a very strong physics programme and a viable path towards high energies, compared to the alternative collider options.**
- *The luminosity for the descoped FCC-ee would be (M. Benedikt, F. Zimmermann):*
 $L(\text{FCC-ee}) \times 3/5 \times 2/4 \times 1.2 = L(\text{FCC-ee}) \times 0.36$
- Should additional resources become available, these descoping scenarios would be reversible.



K. Jakobs, US HFCC Meeting, 5th February 2026

26