

Questions for Future of HEP discussion panel @LHCP 2024

1. Role of HL-LHC

- a. The HL-LHC is the next phase in our exploration of particle physics. Which is the most important physics that we must address at the HL-LHC and what are the main challenges that need to be addressed (experiment, theory, human, etc.)?
- b. There is pressure to reduce the full exploitation of the HL-LHC from future colliders. What would be the consequences of shortening HL-LHC data taking (scientific, human, funding)?

2. Scientific goals of future colliders

- a. What do you think is the single most compelling reason to build a future collider and which of the proposed projects is best suited for it?
- b. How do we best communicate the motivation and excitement for future colliders?
- c. Given the time scales for future projects, how best to keep a thriving research effort over the long term? Can we look at the future of particle physics from a different perspective and do we best collaborate with efforts outside of collider physics?

3. Future collider R&D

- a. Given limited resources, how should we best proceed with R&D? How much collaboration should take place between competing projects? What is the right balance between supporting ongoing experiments and developing the next generation of experiments?
- b. Industry is leading the way in developing new technologies that are crucial for our projects. How closely should we work and interact with the private sector?

4. Career paths

- a. Given the long time scales for future projects, how best to combine work on current and future experiments, and do it in a way that does not hurt career development?
- b. How should we bridge the time gaps between projects and retain key expertise?

5. Communicating to non-HEP communities and decision makers

- a. Are we communicating our scientific goals and achievements sufficiently well? If not, in what areas should we improve and how?
- b. What are the best ways to counteract mis-information (e.g. conspiracy theories) or a lack of appreciation for particle physics or science in general?

6. Other considerations

- a. What importance should environmental considerations play in planning for future colliders? In which areas can progress be made?