



Contribution ID: 1009

Type: Parallel Talk

Communicating the next collider

Saturday, July 9, 2022 12:15 PM (20 minutes)

In April 1960, the late Prince Philip, husband of Queen Elizabeth II, piloted his Heron airplane to Geneva for an informal visit to CERN. Having toured the laboratory's brand new "25 GeV" Proton Synchrotron, he turned to his host, president of the CERN Council François de Rose, and asked: "What have you got in mind for the future? Having built this machine, what next?" De Rose replied that this was a big problem for the field: "We do not really know whether we are going to discover anything new by going beyond 25 GeV." Unbeknownst to physicists at the time, the weak gauge bosons were lying beyond the energy of the PS, and would be found two decades later at its successor, the SPS...

It's a story that is repeated in elementary particle physics. While some colliders had clearer physics goals than others, every one of them has led to a step-change in our understanding of the fundamental laws of the universe. The LHC was a pinnacle in this regard, thrusting high-energy physics under the glare of the media and turning the Higgs boson into a household name. How should the next major collider be "sold"?

Enthusiasm and consensus in the community are key factors. In the early 1990s, with the Higgs in its sights, there was agreement that an energy-frontier hadron collider was the right step forward. Today – against a backdrop of the LHC's discovery of a light Higgs boson and no particles beyond the Standard Model, and puzzles such as dark matter and neutrino masses – the field finds itself at a crossroads. Several major colliders are on the menu, each with its own physics capabilities, technology challenges, history and sociology.

Whether straight or circular, European or Asian, the next big collider requires a fresh narrative if it is to inspire physicists, funding agencies and the wider world. The rosy picture of eager experimentalists uncovering new elementary particles and wispy-haired theorists picking up Nobel prizes seems antiquated now that all the particles of the Standard Model have been found. The global situation is also very different to when the LHC was approved, and the technology and scale of the next collider more ambitious.

Drawing on the history and status of the field, the European strategy update and the CERN communication strategy, CERN Courier editor Matthew Chalmers will explore how best to communicate the next collider.

In-person participation

Yes

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