European Strategy

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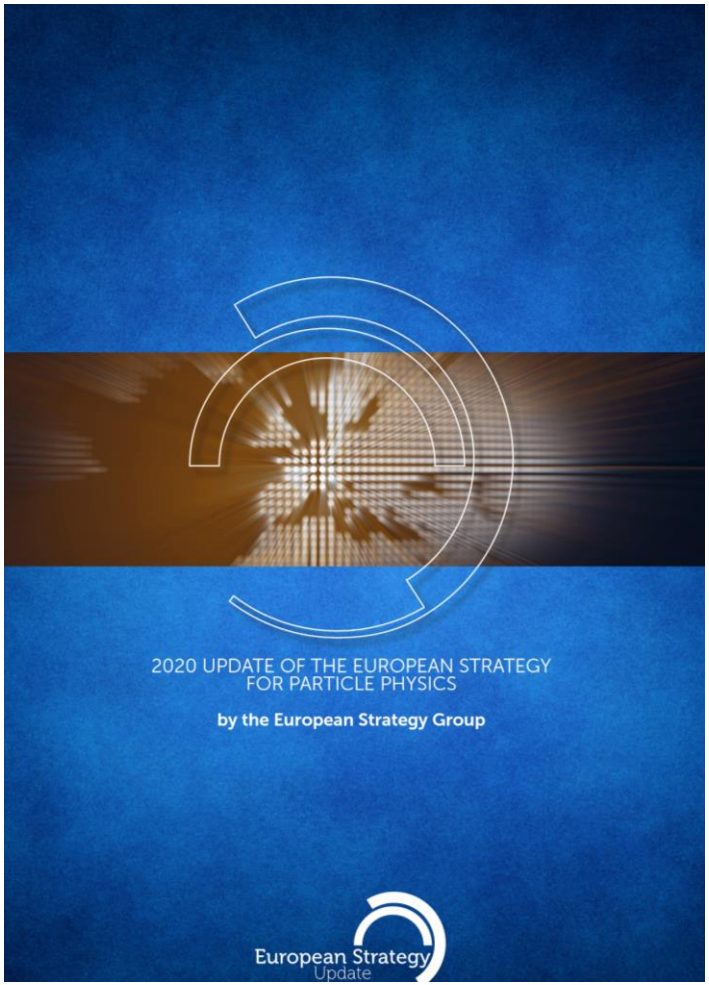
KEK/Linear Collider Collaboration (LCC)

European Strategy

https://home.cern/sites/home.web.cern.ch/files/2020-06/2020%20Update%20European%20Strategy.pdf



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High-priority future initiatives

A. An electron-positron Higgs factory is the highest-priority next collider. For the longer term, the European particle physics community has the ambition to operate a proton-proton collider at the highest achievable energy. Accomplishing these compelling goals will require innovation and cutting-edge technology:

• the particle physics community should ramp up its R&D effort focused on advanced accelerator technologies, in particular that for high-field superconducting magnets, including high-temperature superconductors;

• Europe, together with its international partners, should investigate the technical and financial feasibility of a future hadron collider at CERN with a centre-of-mass energy of at least 100 TeV and with an electron-positron Higgs and electroweak factory as a possible first stage. Such a feasibility study of the colliders and related infrastructure should be established as a global endeavour and be completed on the timescale of the next Strategy update.

The timely realisation of the electron-positron International Linear Collider (ILC) in Japan would be compatible with this strategy and, in that case, the European particle physics community would wish to collaborate.

DIRECTOR'S CORNER

A Clear and Strong Endorsement:European Strategy for Particle Physics

http://newsline.linearcollider.org/2020/06/19/a-clear-and-strong-endorsementeuropean-strategy-for-particle-physics/

Lyn Evans | 19 June 2020

The long-awaited report of the study group for the future European Strategy for particle physics was presented by the chair of the study group, Professor Halina Abramowicz, at a special session of the CERN Council on 19 June. The report covers the broad range of particle physics from the precision low-energy experiments to the very high energy frontier.

It confirmed that the immediate top priority for CERN is the full exploitation of the Large Hadron Collider. "The successful completion of the high-luminosity upgrade of the machine and detectors should remain the focal point of European particle physics together with continued innovation in experimental techniques. The full physics potential of the LHC, including the study of flavor physics and the quark-gluon plasma should be exploited."

"**An electron-positron Higgs factory is the highest priority next collider.** For the longer term, the European particle physics community has the ambition to operate a proton-proton collider at the highest achievable energy. Accomplishing this compelling goal will require innovation and cutting-edge technology."

"The timely realisation of the electron-positron International Linear Collider (ILC) in Japan would be compatible with this strategy and, in that case, the European particle physics community would wish to collaborate."

Concerning international collaboration, it goes on to make the following recommendation.

"An ambitious next-generation collider project will require global collaboration and a long-term commitment to construction and operation. CERN should initiate discussions with potential major partners as part of the feasibility study for such a project being hosted at CERN. In case of a global facility outside Europe in which CERN participates, CERN should act as the European regional hub, providing strategic coordination and technical support. Individual Member States could provide resources to the new global facility either through additional contributions made via CERN or directly through bilateral and multilateral arrangements with the host organization"

Altogether, it was a clear and strong endorsement of the need for a Higgs factory as the essential next step for particle physics and a willingness of the European particle physics community to collaborate in the ILC.

LYN EVANS

Lyn Evans (CERN) is the Linear Collider Director.

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