

# HiLumi LHC

FP7 High Luminosity Large Hadron Collider Design Study

## Press article

# HiLumi LHC design study moves towards HL-LHC

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The electronic version of this HiLumi LHC Publication is available via the HiLumi LHC web site <<http://hilumilhc.web.cern.ch>> or on the CERN Document Server at the following URL: <<http://cds.cern.ch/search?p=CERN-ACC-NOTE-2014-0004>>

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When the CERN Council approved the updated European Strategy for Particle Physics at a special meeting in Brussels last May, it recognized the High Luminosity LHC (HL-LHC) project as the top priority for CERN and Europe (*CERN Courier* July/August 2013 p9 (<http://cerncourier.com/cws/article/cern/54020>)). A month later, after Council had approved its integration into the CERN Medium Term Plan for 2014–2018, the HL-LHC entered a new phase, as it passed from design study to an approved project.

To mark this approval, the 3rd joint annual meeting of the HiLumi LHC Design Study and the US LHC Accelerator Research Program (LARP) took place in conjunction with the HL-LHC kick-off meeting. The event was held in November at Daresbury Laboratory in the UK, bringing together more than 160 scientists from countries around the world, including Japan, Russia and the US. Directors of major accelerator laboratories were present as invited speakers.

The kick-off meeting underlined the role of the HL-LHC as a necessary tool for extending physics beyond the LHC. The important roles of CERN and the high-energy physics community were also emphasized. Developing new technologies – for example, magnets with a field 50% above the present LHC technology – opens the way for a future higher-energy machine requiring even higher magnetic fields, such as the recently proposed Future Circular Collider.

Highlights reported by the design-study work-package leaders at the meeting included final parameters for the layout and finalized main layout for the machine; important developments in crab-cavity hardware; a detailed layout for improving collimation; and the assembly and characterization of two 10-m-long MgB<sub>2</sub> cables that have been tested up to 5 kA and at 20 K in the superconducting-link configuration.

The HL-LHC project is currently in the design and prototyping phase and should release a Preliminary Design Report in the middle of 2014, with the Technical Design Report for construction at the end of 2015.

- <https://indico.cern.ch/conferenceDisplay.py?ovw=True&confId=257368> (<https://indico.cern.ch/conferenceDisplay.py?ovw=True&confId=257368>)