

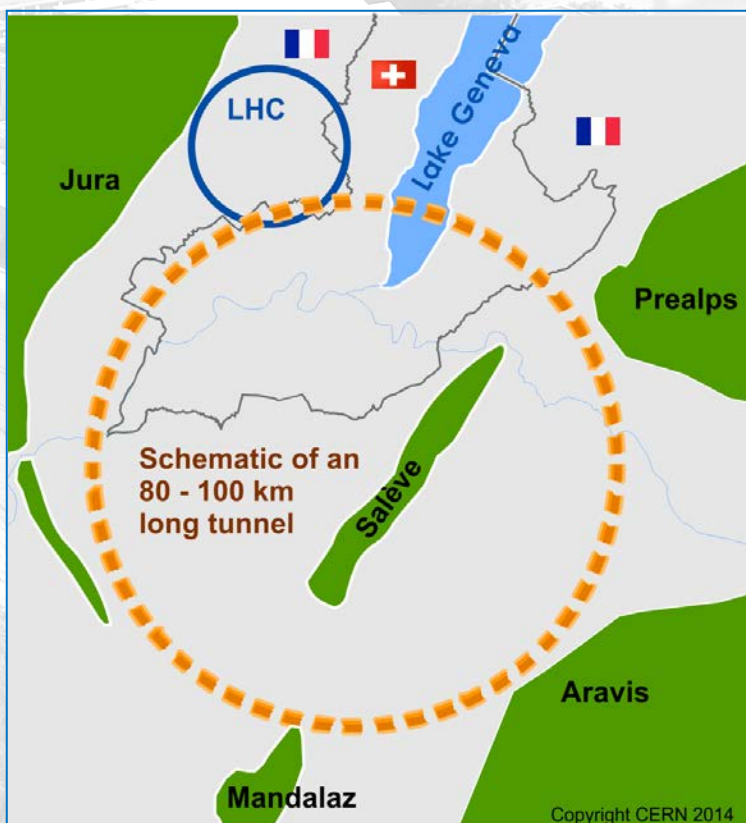
GFA & SwissFEL Accelerator Seminar

The Future Circular Collider Study

Monday, 02 November 2015, 16.00 h, WBGB/019

Dr. Michael Benedikt, CERN

Following the 2013 update of the European Strategy for Particle Physics, the Future Circular Collider (FCC) Study has been launched by CERN, to design an energy frontier hadron collider (FCC-hh) in a new 80-100 km tunnel with a center-of-mass energy of about 100 TeV, an order of magnitude beyond the LHC's, as a long-term goal. The FCC study also includes the design of a 90-350 GeV high-luminosity lepton collider (FCC-ee) installed in the same tunnel, serving as Higgs, top and Z factory, as a potential intermediate step, as well as an electron-proton collider option (FCC-he). The physics cases for such machines will be assessed and concepts for experiments will be developed in time for the next update of the European Strategy for Particle Physics by the end of 2018.



The presentation will summarize the machine concepts and parameters and discuss the essential technical components to be developed in the frame of the future circular collider studies. Key elements are superconducting accelerator-dipole magnets with a field of 16 T for the hadron collider and high-power, high-efficiency RF systems for the lepton collider.

In addition the unprecedented beam power presents special challenges for the hadron collider for all aspects of beam handling and machine protection. The status of the infrastructure study will also be summarized.