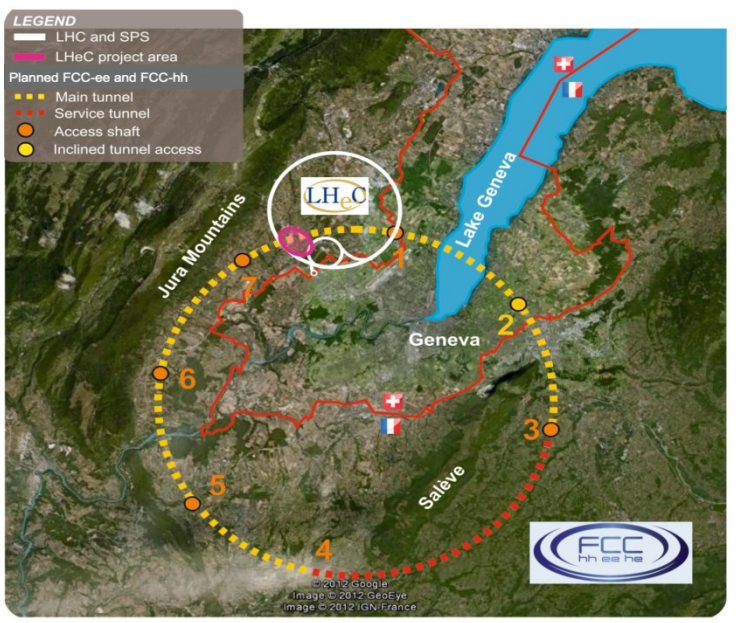
DESY

Particle and Astroparticle Physics Colloquium

Electrons for the LHC.

Tuesday, 27 February 2018, DESY Auditorium,16:45 h

Uta Klein ***(University of Liverpool)***



The Large Hadron Collider, our biggest investment in the field of particle physics so far, determines the energy frontier of experimental collider physics for the next 20 years. The planned High Luminosity LHC phase could be further upgraded with a 60 GeV electron beam using novel, sustainable Energy Recovery Linear Accelerator (ERL) techniques enabling electron-proton collisions at 1.3 TeV centre-of-mass energy. Electrons for the LHC would thus provide CERN with the highest resolution microscope to pin down secrets of the complex dynamics of the strong interaction with high precision. The substantial extension of the kinematic range and a thousandfold increase of luminosity with respect to the HERA collider make the Large Hadron electron Collider (LHeC), and its possible successor, the FCC-eh, unique colliders to test the Standard Model deeper than ever before, and possibly discover new physics in the electroweak and chromodynamic sector. The talk introduces the LHeC project and highlights the amazing physics potential of electron-hadron collisions at the energy frontier. In particular, it demonstrates how, with the addition of electrons, the LHC can be turned into a powerful Higgs facility.

- ***Coffee, tea and cookies will be served at 16:30h***
- ***After the colloquium there is a chance for private discussions with the speaker over wine and pretzels***

Accelerators | Photon Science | Particle Physics

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