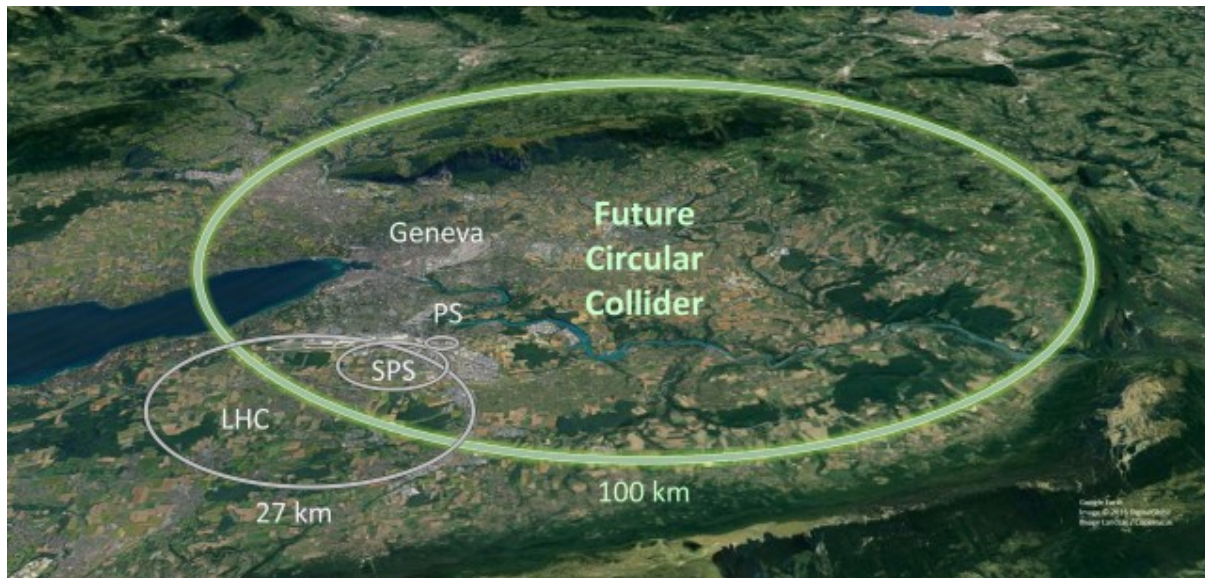


FCC-ee Higgs and Electroweak Factory

JAI Seminar – Hilary term 2021
Dr. Frank Zimmerman - CERN



Abstract:

The Future Circular Collider (FCC) integrated project consists, in a first stage, of an energy- and luminosity-frontier electron-positron collider, FCC-ee. The FCC-ee is a precision instrument to study the Z, W, and Higgs boson, and the top quark, and offers unprecedented sensitivity to signs of new physics. Its beam parameters are limited by several, partly new effects, such as beamstrahlung in collision, a coherent beam-beam instability with large crossing angle, the available top-up injection rate, and instabilities related to the large ring circumference. The FCC-ee should also be designed with maximum energy-efficiency, regarding hardware, operational scenarios, and parameters. In a second stage, most of the FCC-ee infrastructure could be reused for a subsequent hadron collider, FCC-hh, which shall provide proton-proton collisions at a centre-of-mass energy of 100 TeV. In this seminar, I will present selected highlights and key accelerator challenges from the FCC-ee design, near-term study targets, and the longer-term FCC schedule.