Forward Physics Working Group and the Future Circular Collider

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Future Circular Collider

Future Circular Collider (FCC): 80 – 100 km tunnel infrastructure;

Expected start of construction: ~2025;

Expected start of operation: ~2035 – 2040;

Designs for different beam configurations: pp, AA, pA, ee, ep, eA (FCC-hh, FCC-ee, FCC-he);

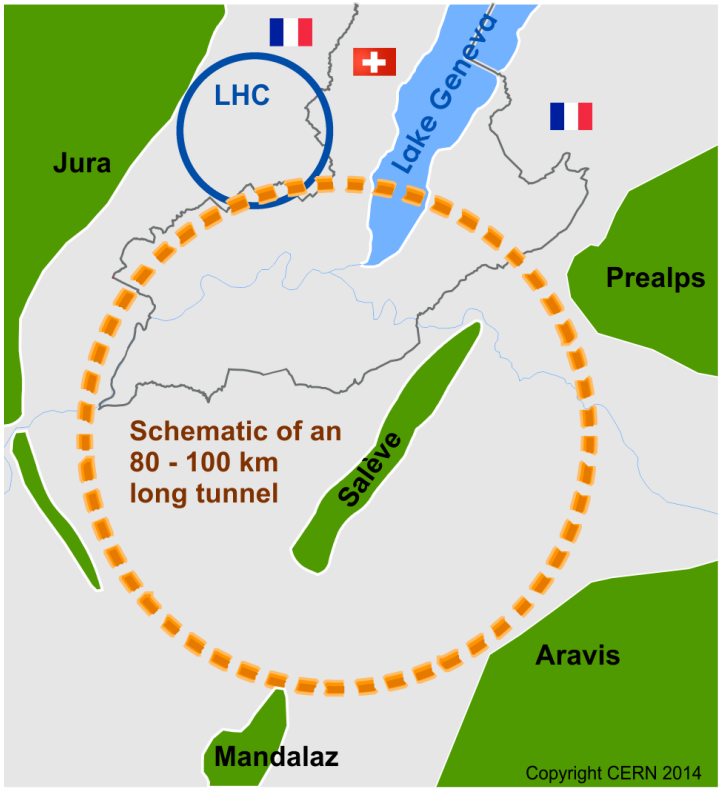
FCC-hh: 50 TeV beam energy; Luminosity up to 30 x 10^{34} $cm^{-2}s^{-1}$ and 1k pile-up events;

FCC-ee:

45 (Z), 80 (WW), 120 (ZH), 175 (tt) (GeV) working points;

Luminosity ~ 1 – 200 x 10^{34} $cm^{-2}s^{-1}$;

FCC-he: 50 TeV (p) x 60 GeV (e); 11 x 10^{33} $cm^{-2}s^{-1}$.



1st FCC Physics Workshop

16-20 January 2017
CERN
Europe/Zurich timezone

https://indico.cern.ch/event/550509/

Topics:

- Higgs
- QCD
- EW precision measurements
- Top and flavour
- BSM searches
- Relation with cosmology: DM and neutrino mass probes
- Experimental opportunities at the FCC and novel techniques
- Physics with Heavy Ion collisions
- Physics at beam dumps, injectors, or forward region detectors

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i) Machine & detector design and constraints on Physics

ii) Physics prospects at FCC

Forward Physics and FCC?

FCC *Conceptual Design Report* (CDR) to be ready by end of 2018;

A number of working groups in place within FCC;

Forward and Small-x Physics topics of interest in all FCC sub-programmes (hh, ee, he);

LHC Forward Physics community has an important role in this discussion;

What are the Physics requirements & machine constraints for dedicated detector systems for FCC?

What are the goals for Forward Physics at FCC?

- Contributions in this session:

FCC project status, Helmut Burkhardt

Small-x physics in ep, eA and pA at the FCC, Nestor Armesto Perez