

# FASER

## Experience with ACTS

---

Tobias Böckh, [tobias.boeckh@cern.ch](mailto:tobias.boeckh@cern.ch)

5th May 2020

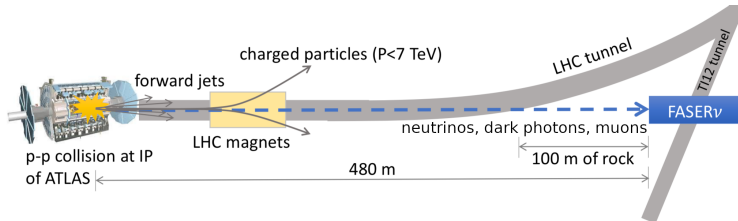
# FASER (ForwArD Search ExpeRiment)

## Motivation

- search for new, weakly-interacting particles (dark photon, ...)
- study neutrino interactions

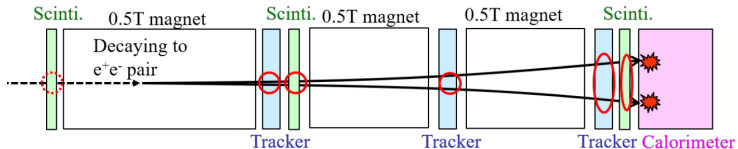
## Challenges

- weak interactions  $\rightarrow$  high rates
- highly collimated beam  $\rightarrow$  forward search
- suppression of SM background  $\rightarrow$  absorber, magnets



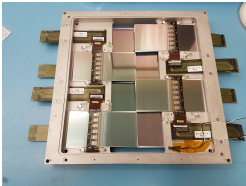
## Signal signature

- no charged particle entering detector
- two high energy, oppositely charged tracks from common vertex inside decay volume, pointing back to ATLAS IP

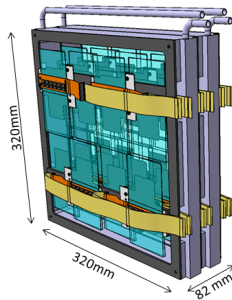


# Tracker

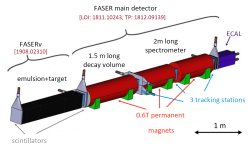
- 3 tracking stations
- each 3 layers of 8 semi-conductor strip (SCT) modules



Tracking layer

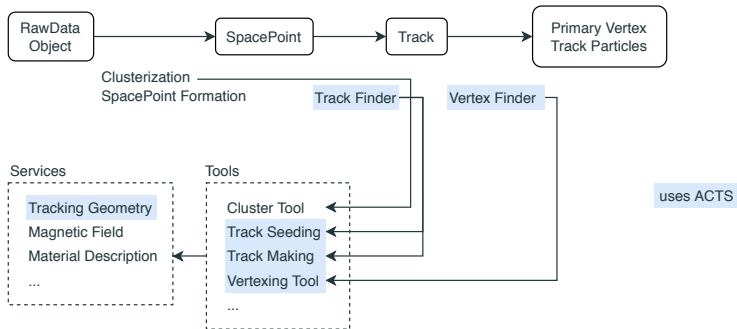


Tracking station



Tracker

# Tracking in Calypso



Next steps:

- use DD4HEP or TGeo for tracking geometry
- use ACTS propagator and Kalman Fitter to reconstruct tracks

# Event Display

