

Triggering

- LHC provides orders of magnitude more collisions than we can save to disk.
 - Can only keep 1 out of 40,000 events / Discarded data lost forever
- Interesting physics is incredibly rare:
 - ~1 Higgs per billion events / ~1 Di-Higgs per trillion events

Triggering: Process of selecting which collisions to save for further analysis.

Triggering at the LHC:

- Custom Electronics + Commodity CPU
- Fast processing of images (micro-seconds / seconds)
- Events rate from 40 MHz \rightarrow 1kHz.
- Data rate from 80 TBs (!) \rightarrow 2 GB/s