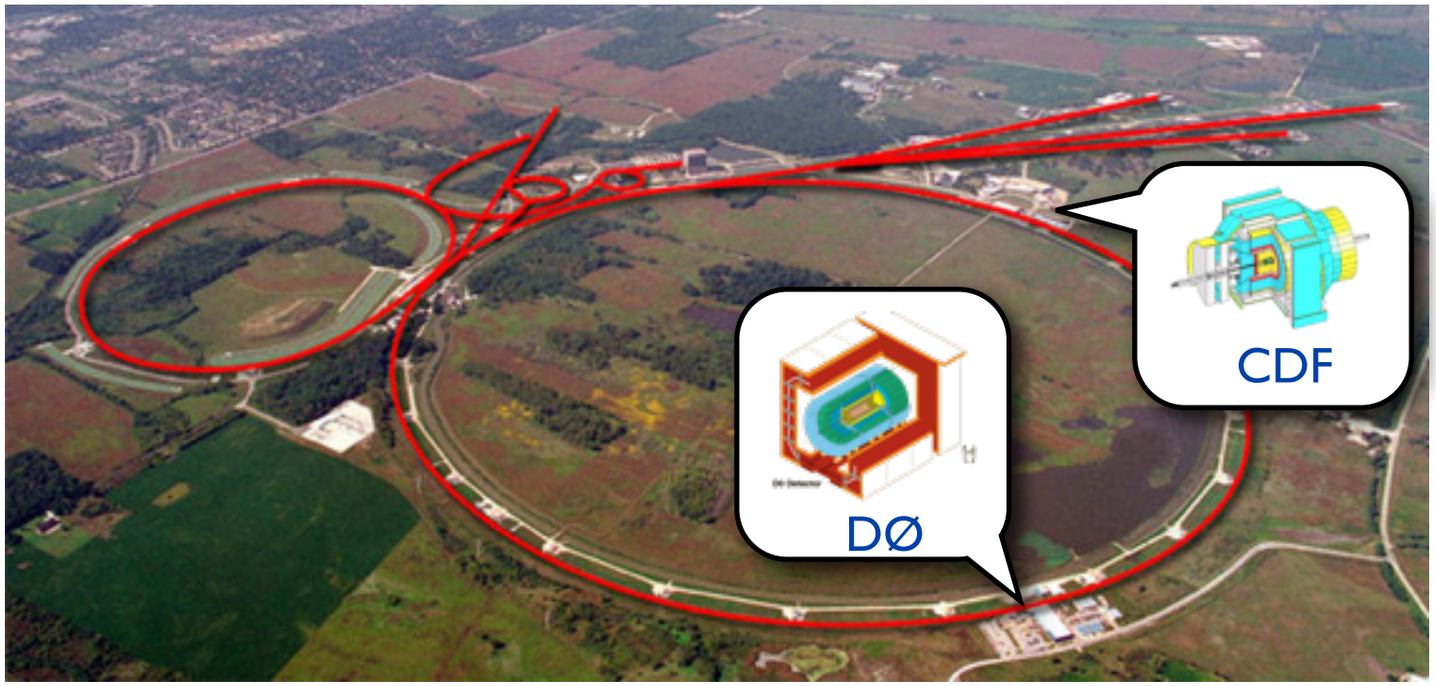
Summer Experience (sort of)

Björn Penning

Atlas & DØ



Tevatron/DØ

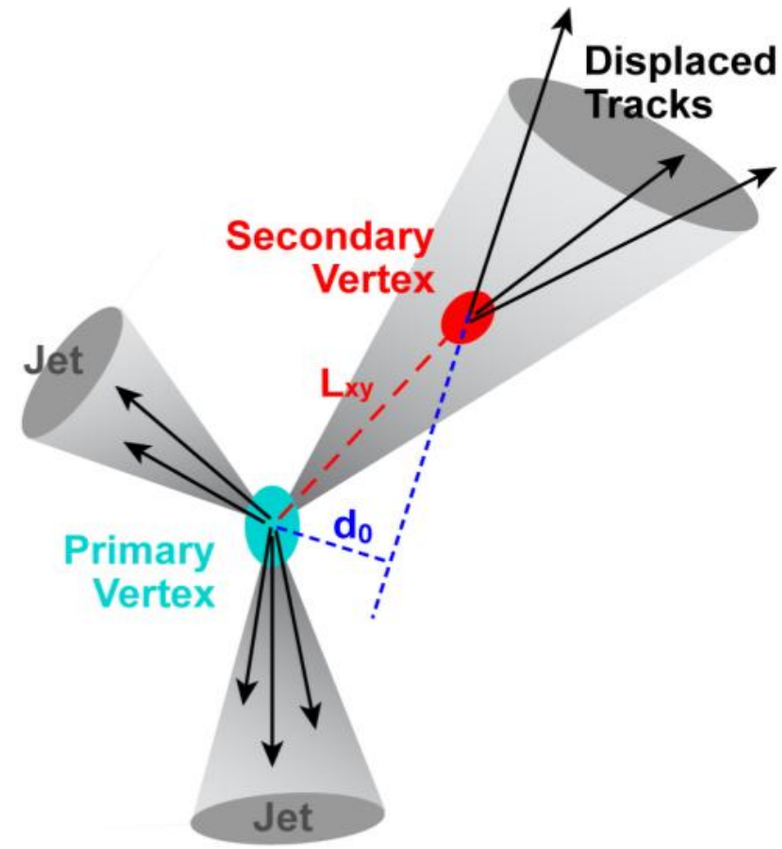
- $\sqrt{s} = 1.96$ TeV
- Matter-Antimatter Collider
- 10 fb-1 of data (and ending)
- Working on the DØ detector

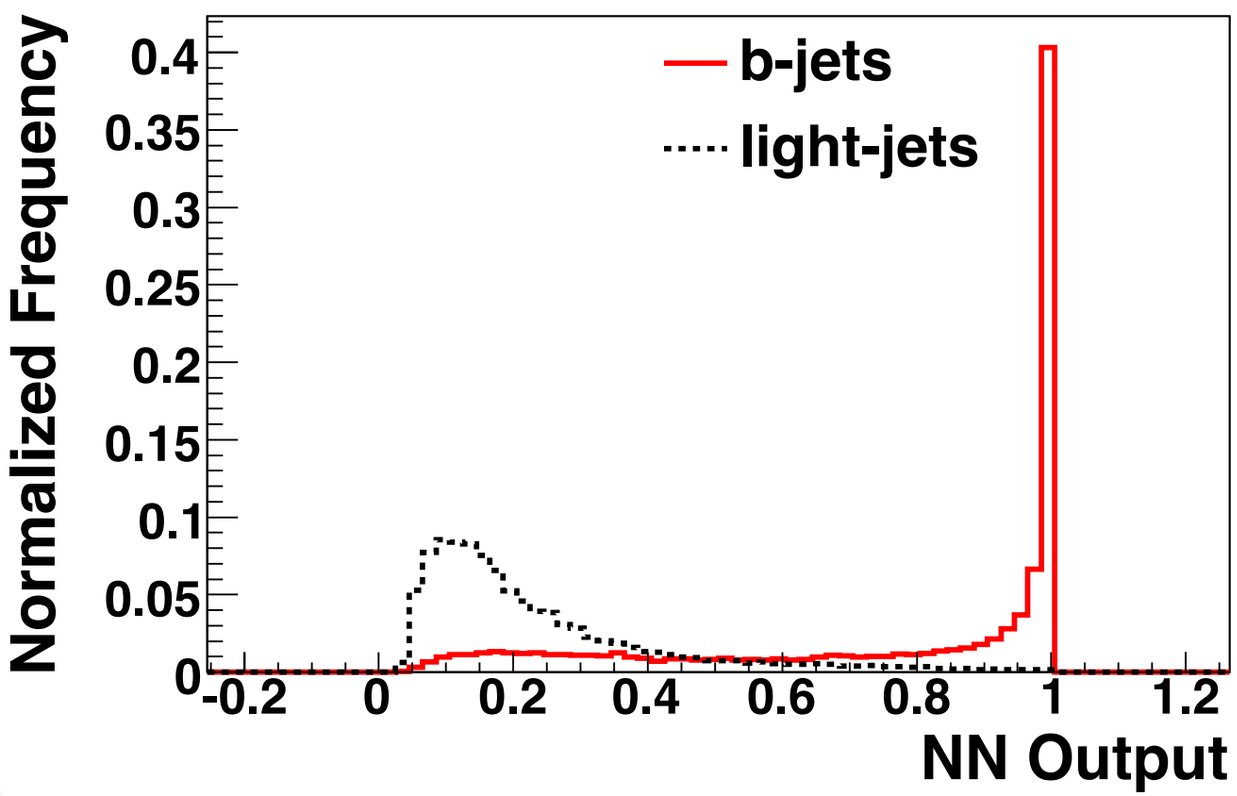
LHC/ATLAS

- $\sqrt{s} = 7$ TeV (14)
- Matter-Matter Collider
- ~2.5 fb-1 of data (rapidly rising)
- Working on ATLAS

DØ: b-ID

- b-quarks (heavy) often produced in processes involving 'new' or 'particularly interesting' physics
- b-quark decays before reaching innermost detector layer → reconstruction from decay products

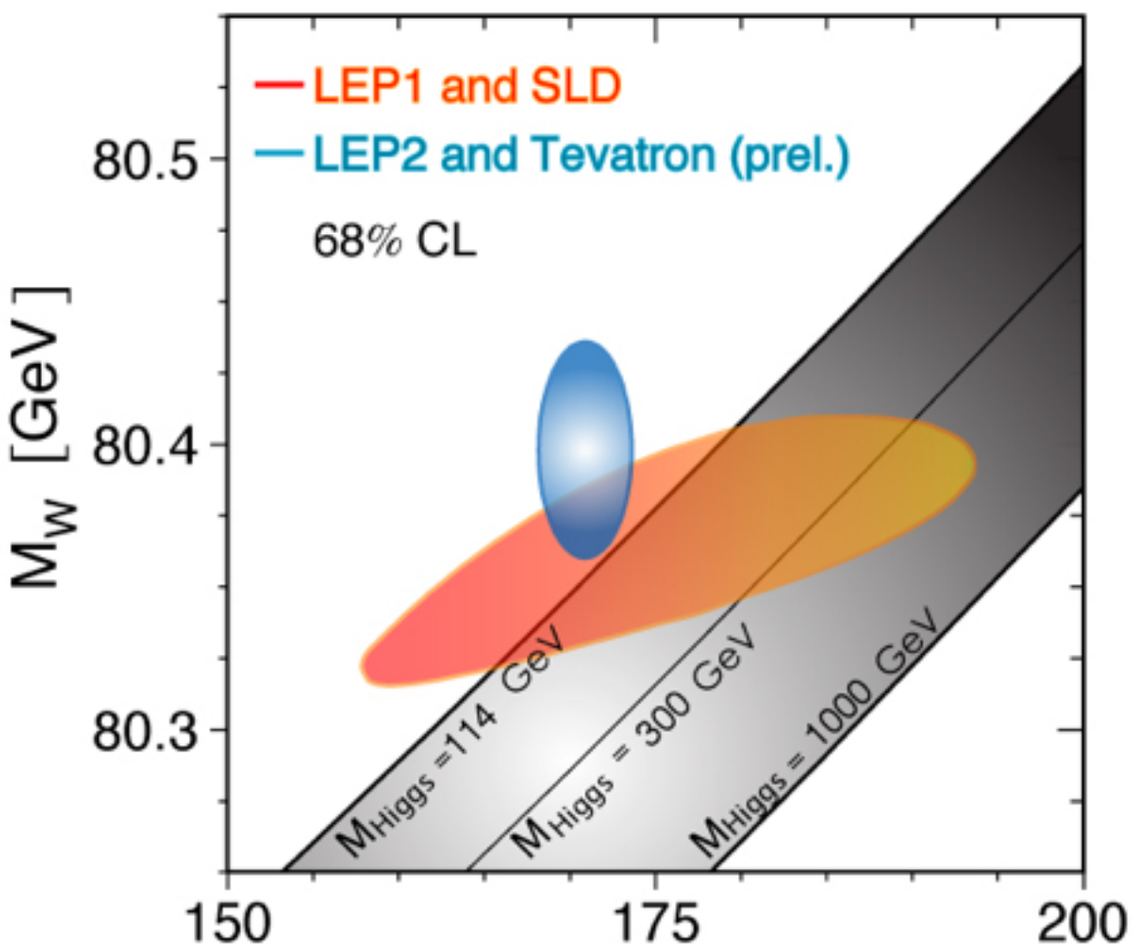


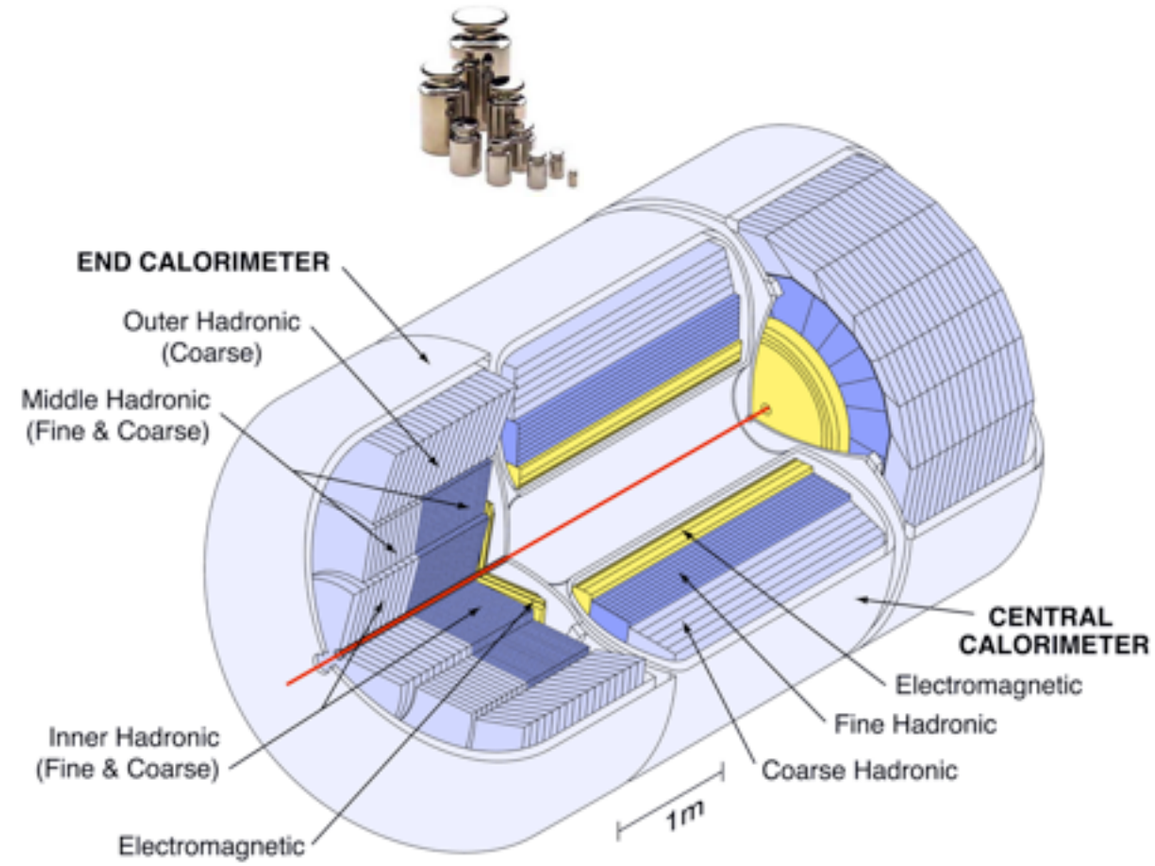


- We developed one of the best performing b-ID algorithm
- Ba of similar algorithms at LHC detectors
- Head of b-ID group at DØ

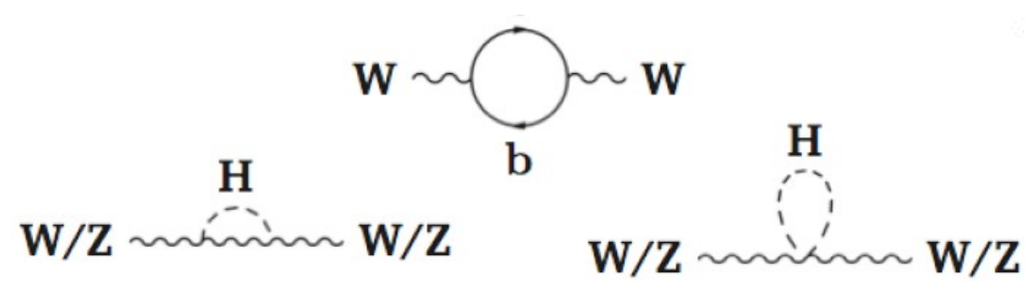
DØ: Calibration

- Calorimeter is strength of the DØ detector
- Some of our measurements are and will be the world's most precise for a long time → 'End of Run Calibration'



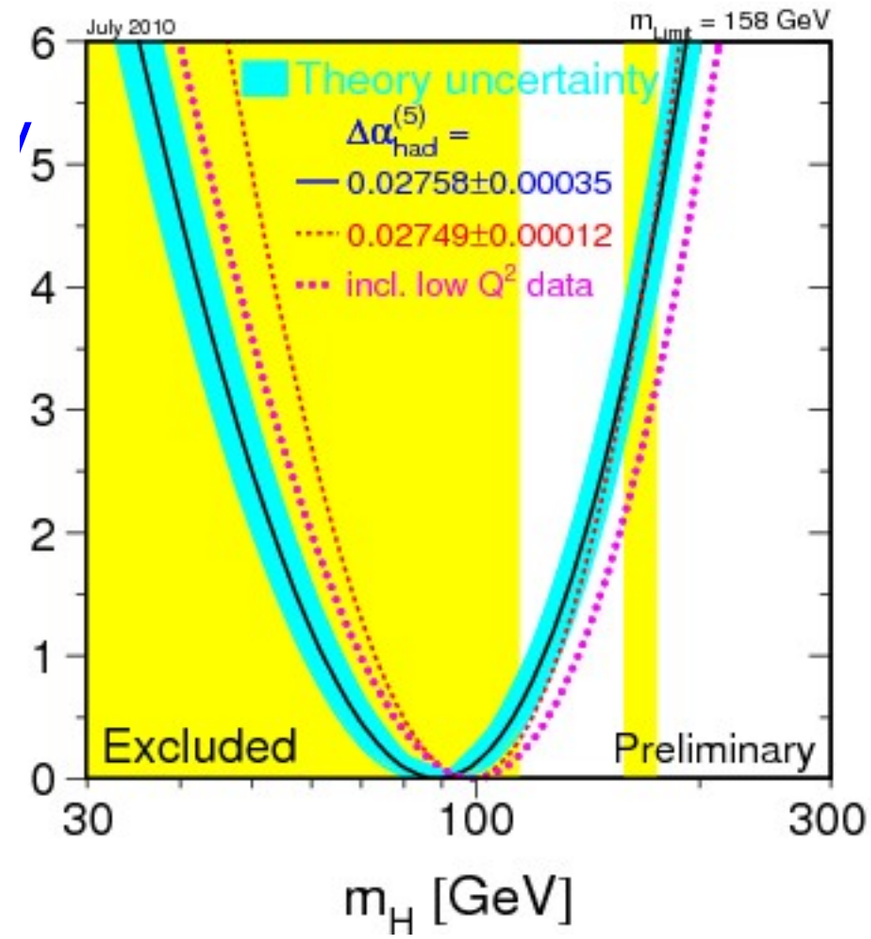


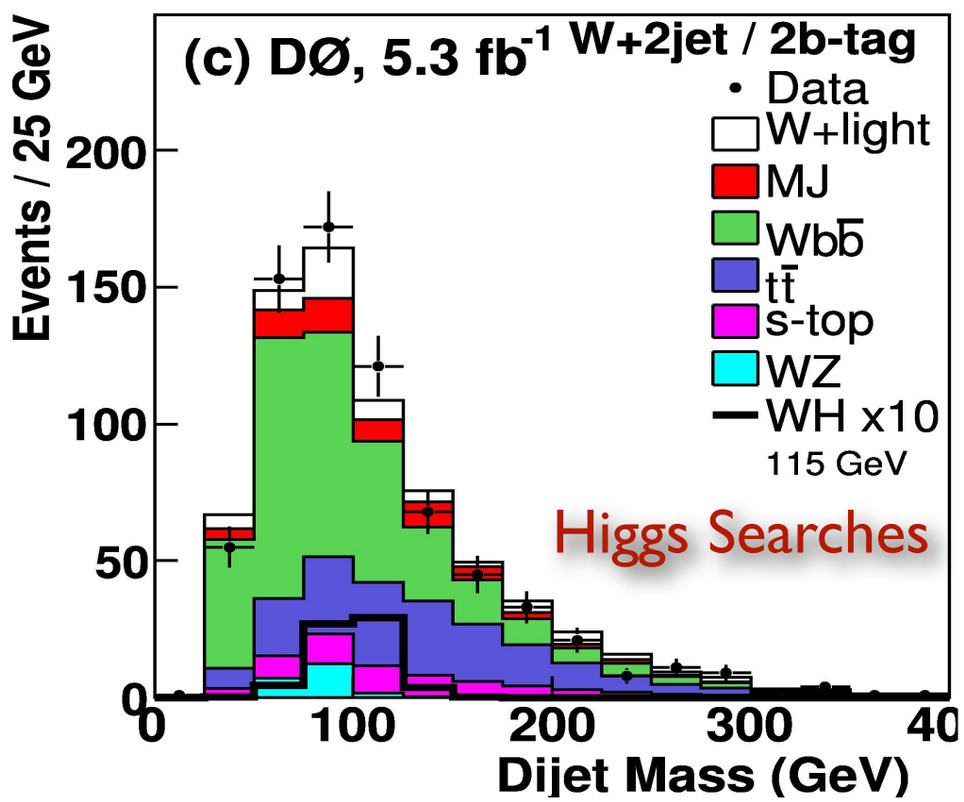
- Calibration of calorimeter affects virtually any measurement



DØ: Measurements

- Higgs Searches in the Low Mass Channel (WH)
  - Most sensitive for Low Mass Higgs Boson
- Remains very promising even in the LHC era

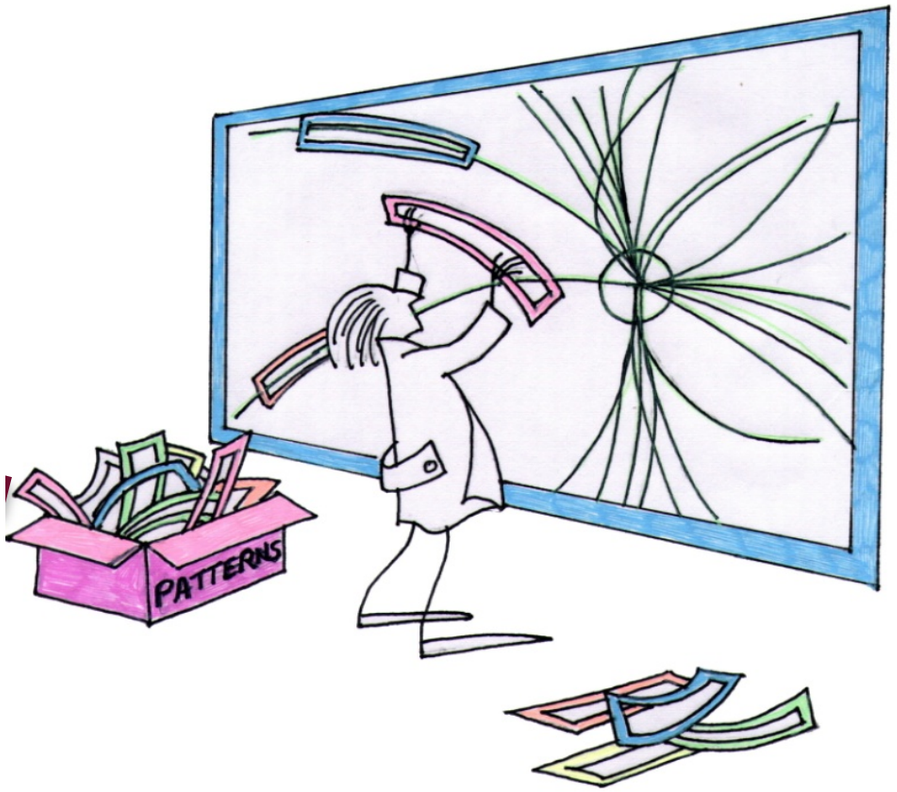


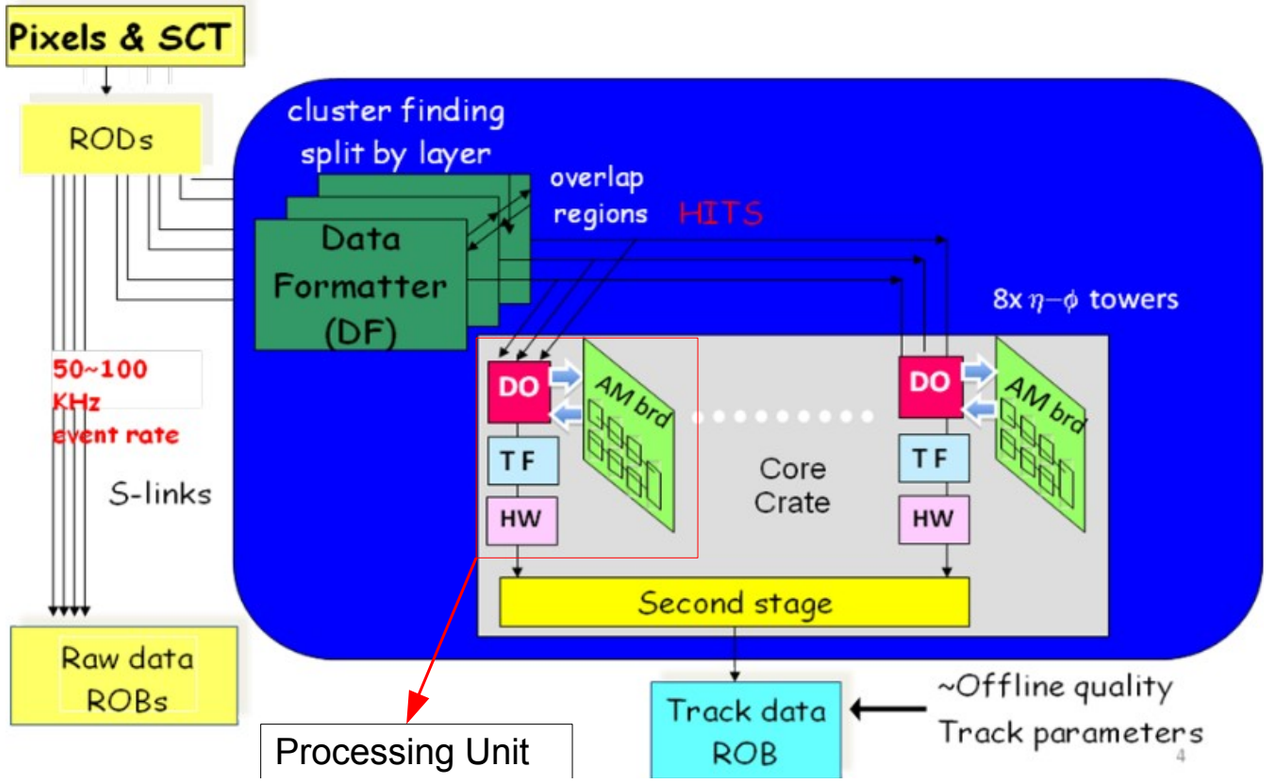


- Measurement of σ(W+b)
  - Tests NLO calculations, theoretical input and important background for Higgs, Susy and other processes

Atlas: Upgrade

- Trigger: Filter interesting events out of a flood of background, pileups and no so interesting stuff
- No trivial task, requires a lot of computing (e.g. time & cpu-power)





- Building upgrade for track identification (2014 Shutdown)
- Focusing on
  - Actual hardware to cluster and route data
  - Simulations to specify predefined patterns and design

Atlas: Operations

- L2 Framework
  - Working on trigger chain in actual data taking
  - Preparing integration of future FTK project
- Trigger-Online Expert:
  - Going to be expert for Control Room Operations

Questions?