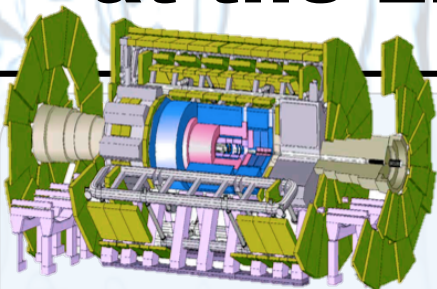
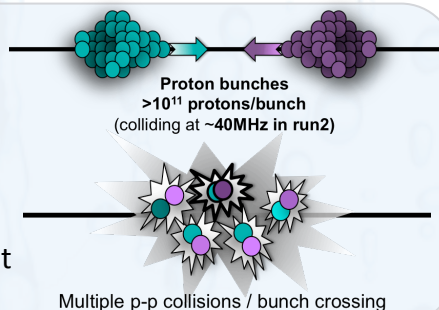


# Particle Flow for hadronic reconstruction at the LHC ATLAS

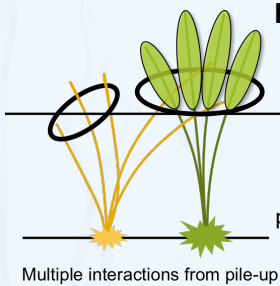
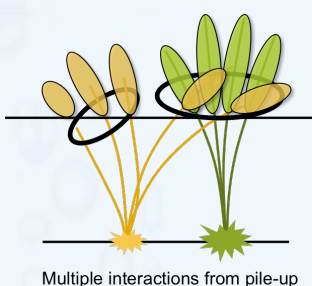
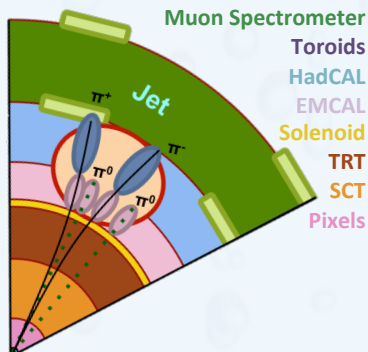


Challenging running conditions make particle reconstruction difficult. Bright ideas deployed to face the challenge!



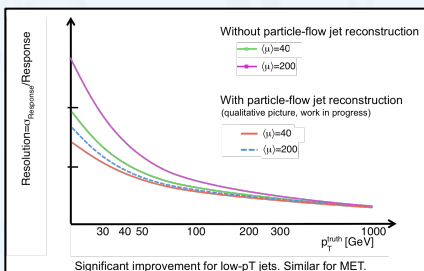
- Particle flow: "Flow of particles" through the detector.
- Reconstruct and identify all particles, photons, electrons, pions, ...
- Use best combination of all sub-detectors for measuring the properties of the particles.
- First used at LEP (ALEPH) and then at the LHC (CMS).

## Simplified Detector Transverse View



## Particle flow and pile-up

Calorimeter  
 Tracker  
 Requirement that particles originate from the primary vertex.



## Impact of particle flow to resolution

Significant improvement for low- $p_T$  jets. Similar for Missing Transverse Momentum. These are objects essential in searches for new physics.

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