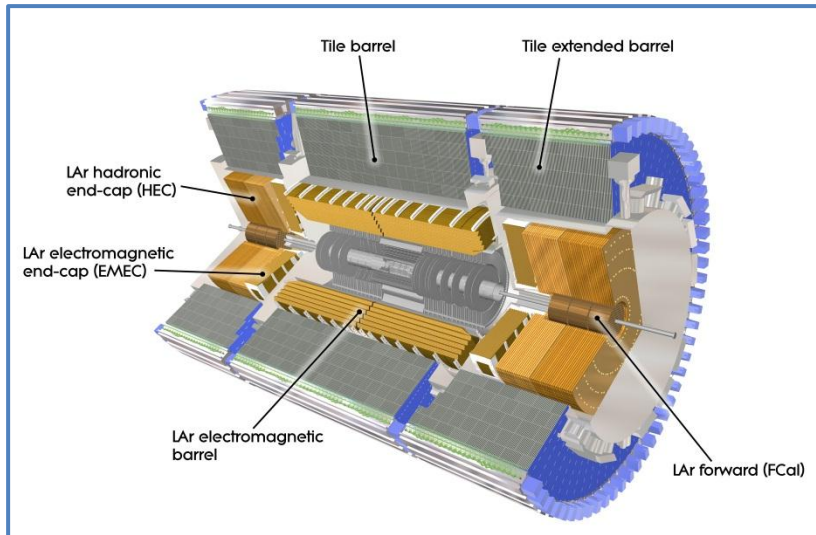


Determining the Jet Energy Scale uncertainty in ATLAS



The ATLAS calorimeter:

sampling, non-compensating detectors

Jets are reconstructed using the **Anti-Kt** algorithm:

Distance parameter 0.4 or 0.6

Calibration starts from **electromagnetic scale**:

Reconstructs energy of EM shower

The **Jet Energy Scale** corrects for:

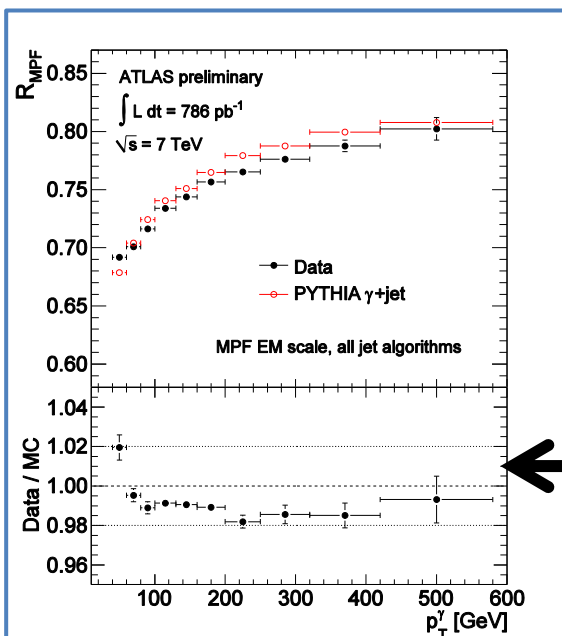
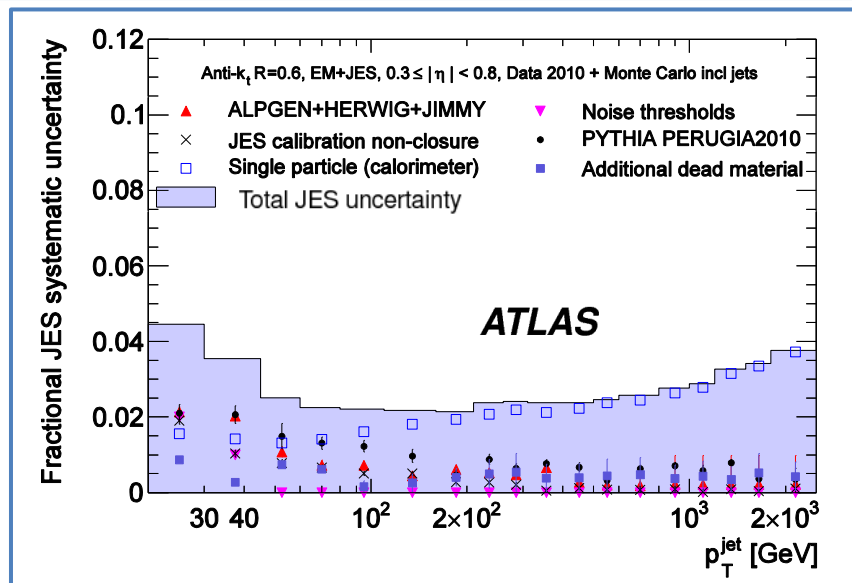
- Detector non-compensation
- Dead material
- Leakage of particles outside the calorimeters
- Particles outside of the reconstructed jet cone
- Noise thresholds & particle reconstruction efficiency

Determining the Jet Energy Scale uncertainty in ATLAS

Jet Energy Scale uncertainties are derived from:

- In-situ single hadron response measurements
- Systematic Monte Carlo variations

A Jet Energy Scale uncertainty of **2-4%** was achieved in 2010 data.



In-situ methods probe calibration of the jet:

- Z – Jet
- Photon – Jet
- Multi – Jet

← **In 2011 data 1-2% lower jet response is seen in data than in Monte Carlo simulation**

Confirms 2010 Jet Energy Scale uncertainty