



# ATLAS

The collaboration has 1700 members from 144 institutions and 33 countries.

ATLAS is a general-purpose detector that will exploit the full potential of the LHC p-p collision programme. The basic design concept includes :

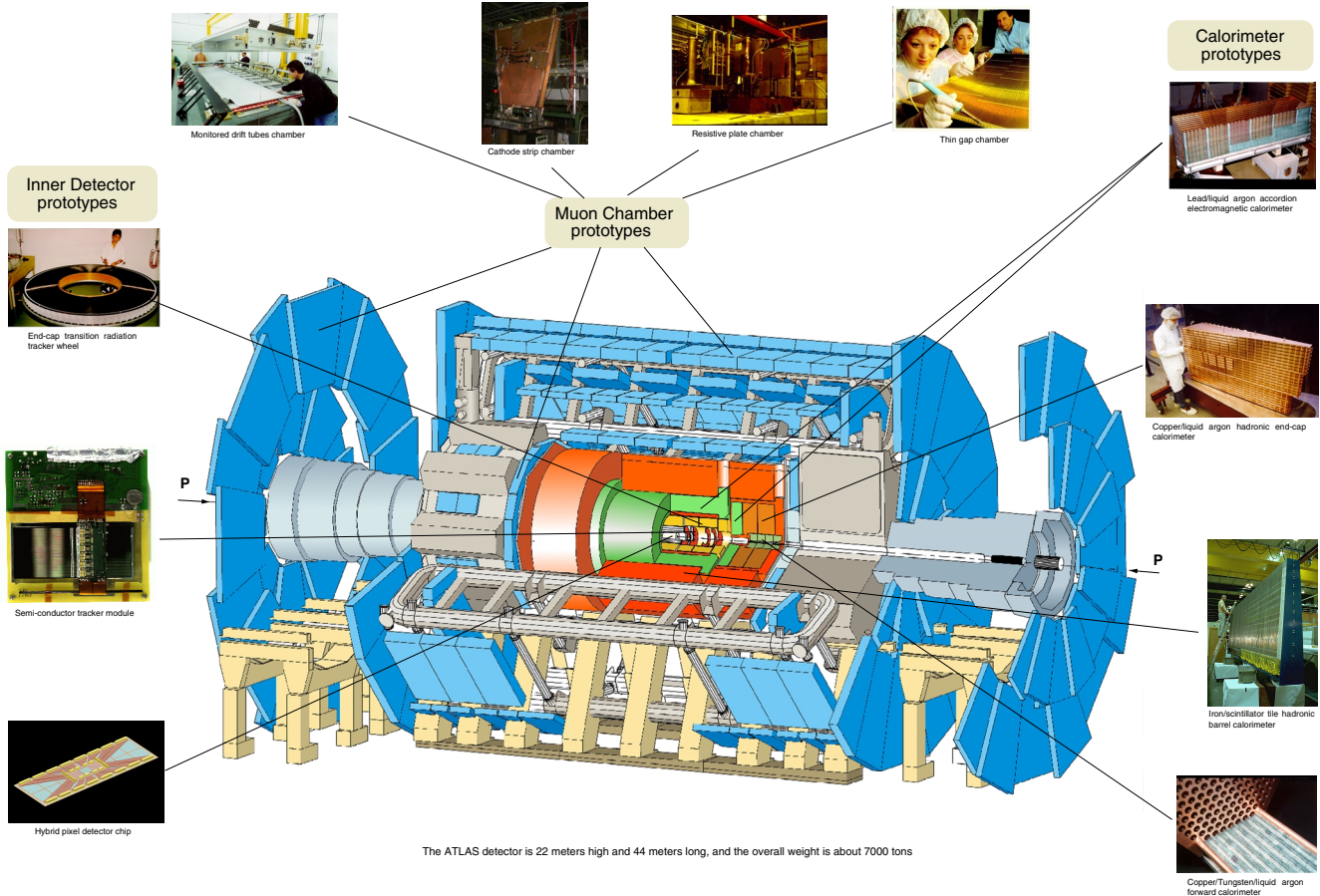
- An **inner detector** with semi-conductor pixel and strip detectors for accurate measurements of the charged particle trajectories, followed by a straw-tube detector giving many hits per track and independent electron identification using transition radiation. A thin superconducting solenoid coil provides a 2 T magnetic field for the inner detector.
- A **calorimeter** with an inner cylinder in lead-LAr technology with its high resolution, calibration precision and stability, followed at large radius by an iron-scintillator tile calorimeter providing good jet energy resolution and complete coverage for  $E_T^{\text{miss}}$  measurement.

- A high-precision stand-alone **muon spectrometer** optimised for the requirements and environment at LHC, surrounding the calorimeter. A superconducting air-core toroidal magnet system provides the magnetic field for the muon spectrometer.

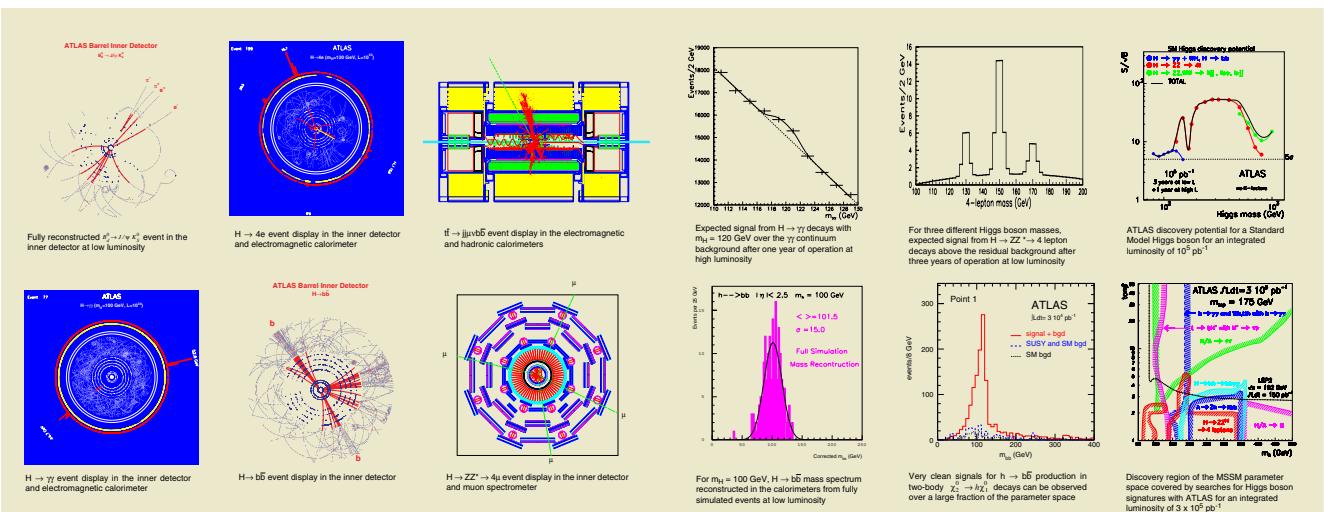
All systems have a large solid-angle coverage. In particular, precision measurements will be performed down to  $\eta = 2.5$  and calorimeter measurements down to  $\eta = 5$ .

The initial information flow from the ATLAS detectors is reduced by a dedicated selection system, the **trigger**, based on hierarchical decision-making. A **data-acquisition** system merges the information from the different systems and stores it for further processing and analysis.

An object-oriented **software** system will reconstruct the stored detector signals, so as to access the physical properties of the produced particles. It will also simulate ATLAS in all relevant details.



The ATLAS detector is 22 meters high and 44 meters long, and the overall weight is about 7000 tons



## Large Hadron Collider

