

Status of ATLAS activities and upgrade plans

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December 12, 2008

CERN-KEK Committee, 3rd meeting

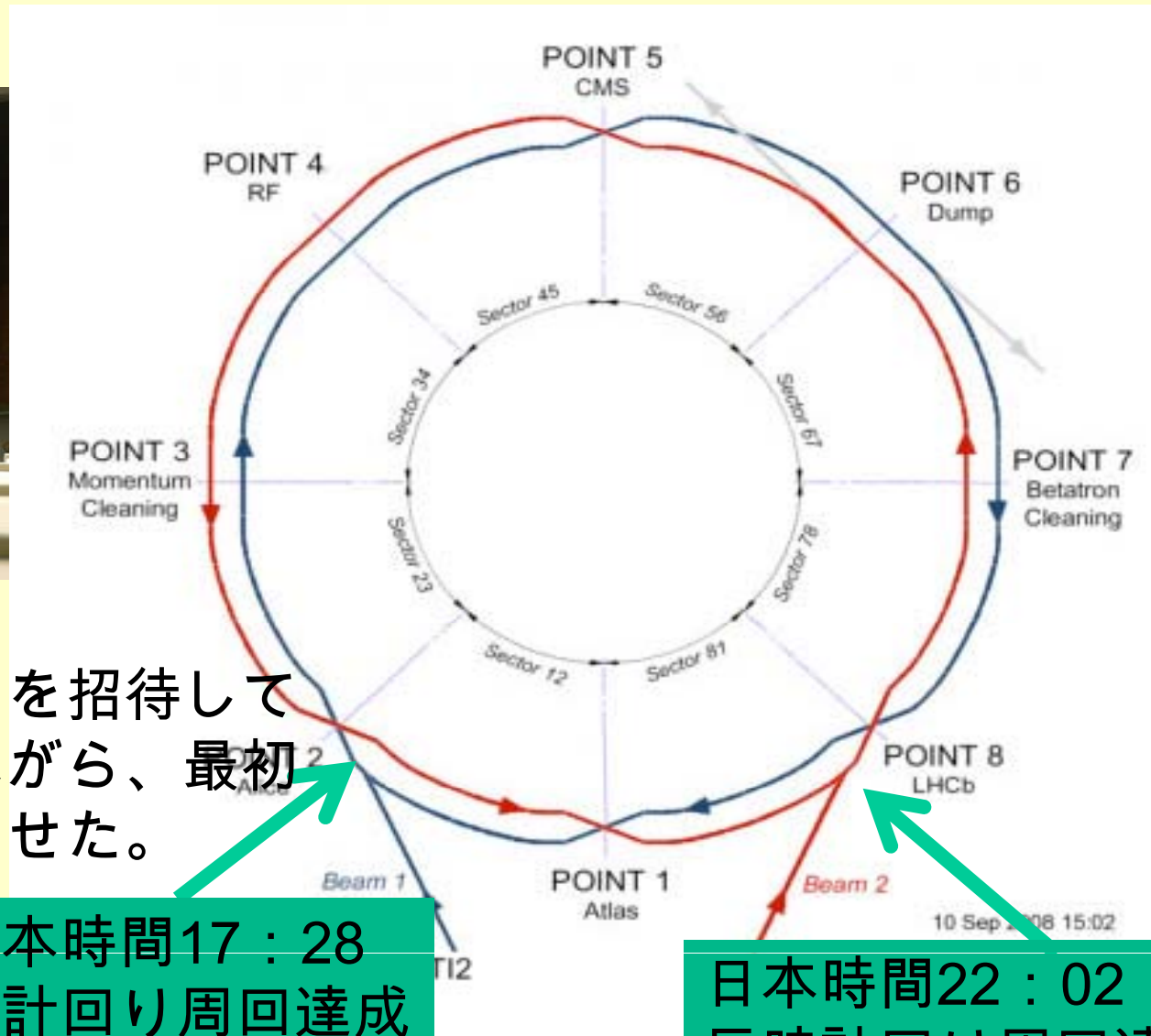
2008年9月10日 LHC始動!



世界中のジャーナリストを招待して世界中に映像を発信しながら、最初のビームの周回を成功させた。

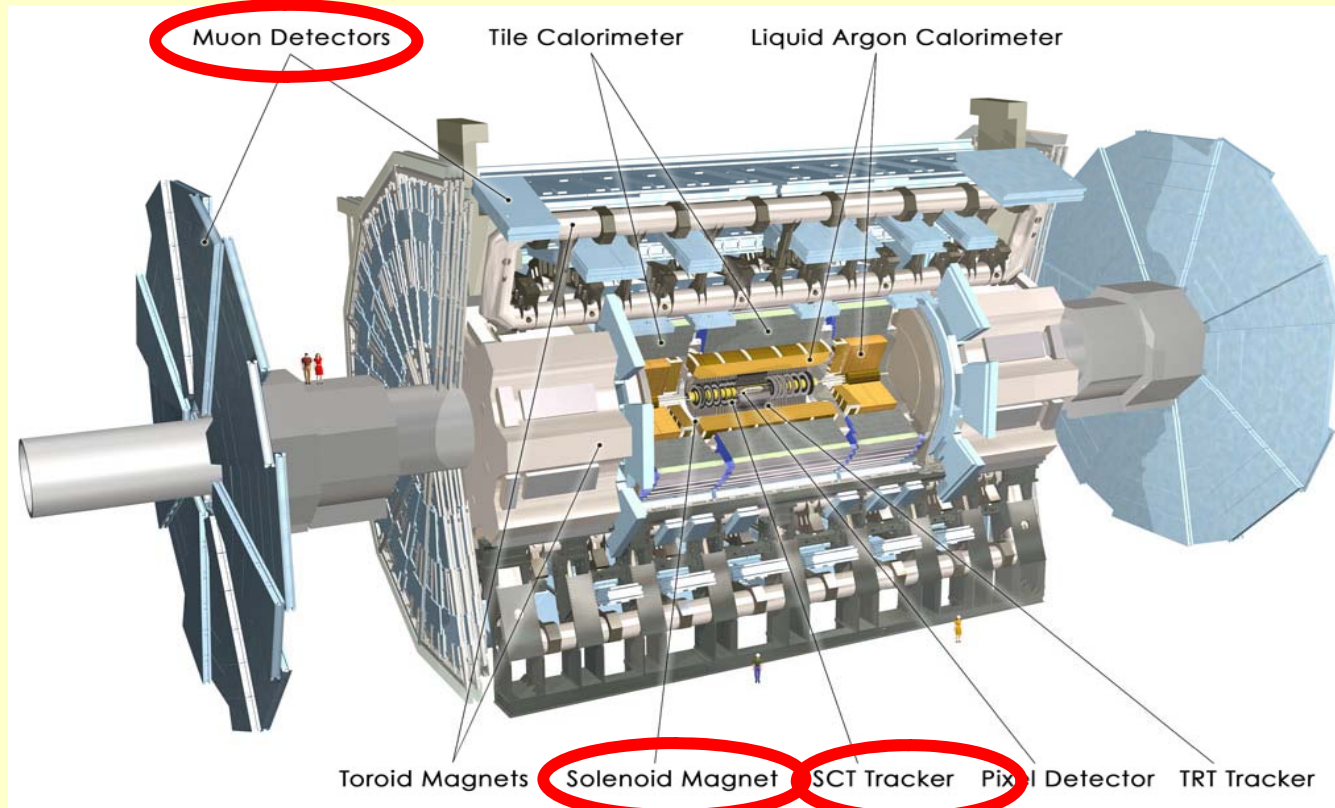
日本時間17:28
時計回り周回達成

2008/12/12

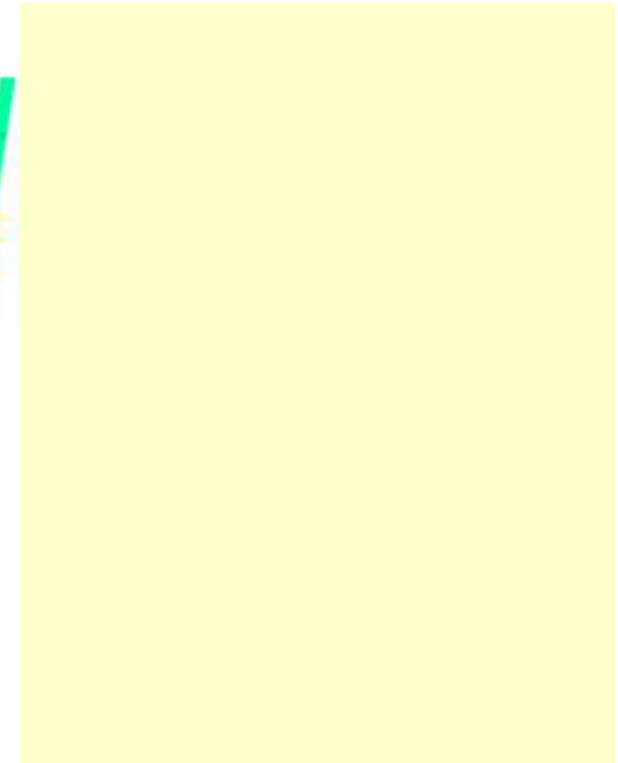
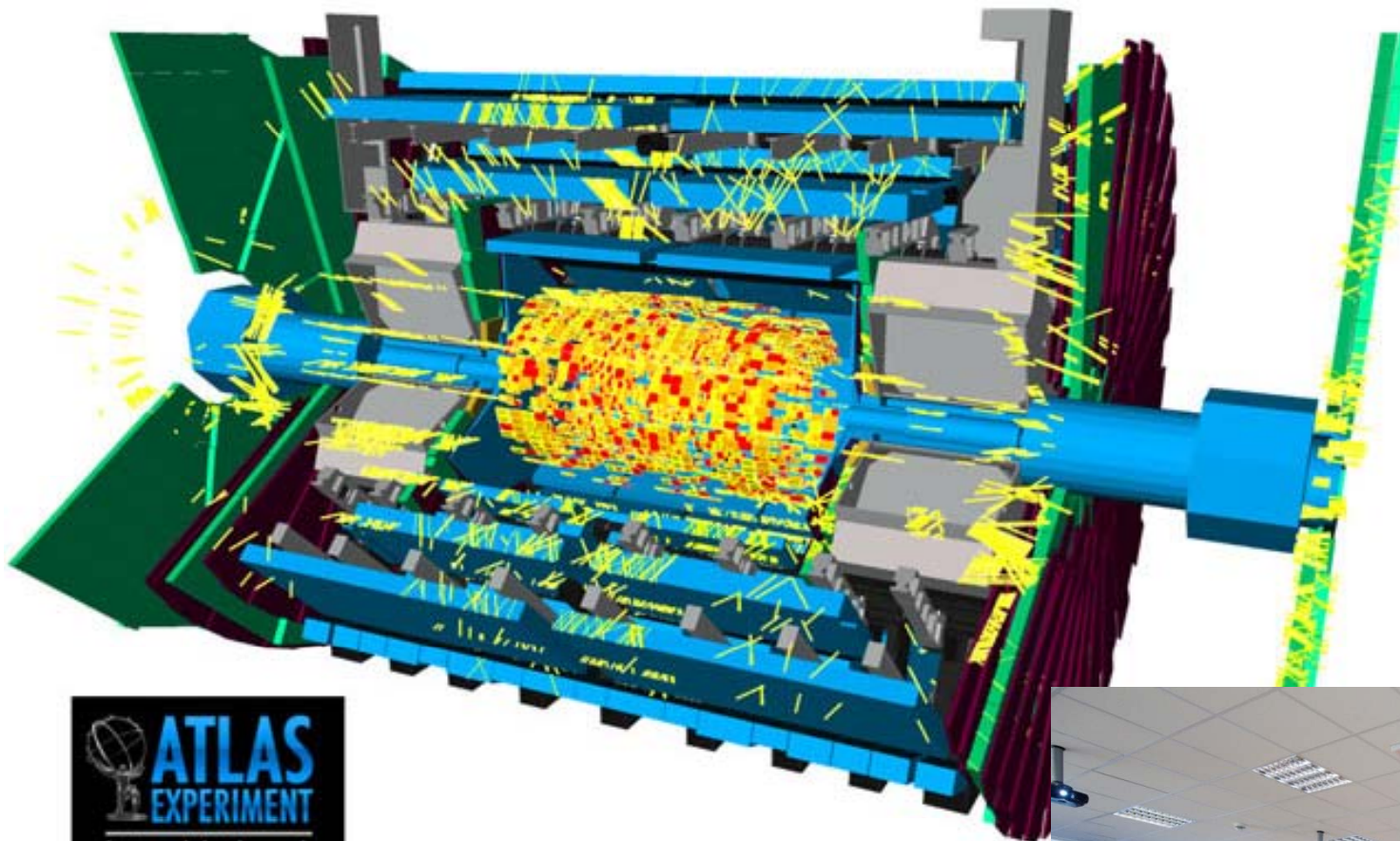


日本時間22:02
反時計回り周回達成

ATLAS Detector: construction and commissioning



- Superconducting Central Solenoid (Japanese contribution:100%)
- Time-to-digital conversion chips for muon drift tubes (100%)
- End-cap muon triggering system (TGC) (~50%)
- Silicon microstrip tracking system (SCT) (~20%)

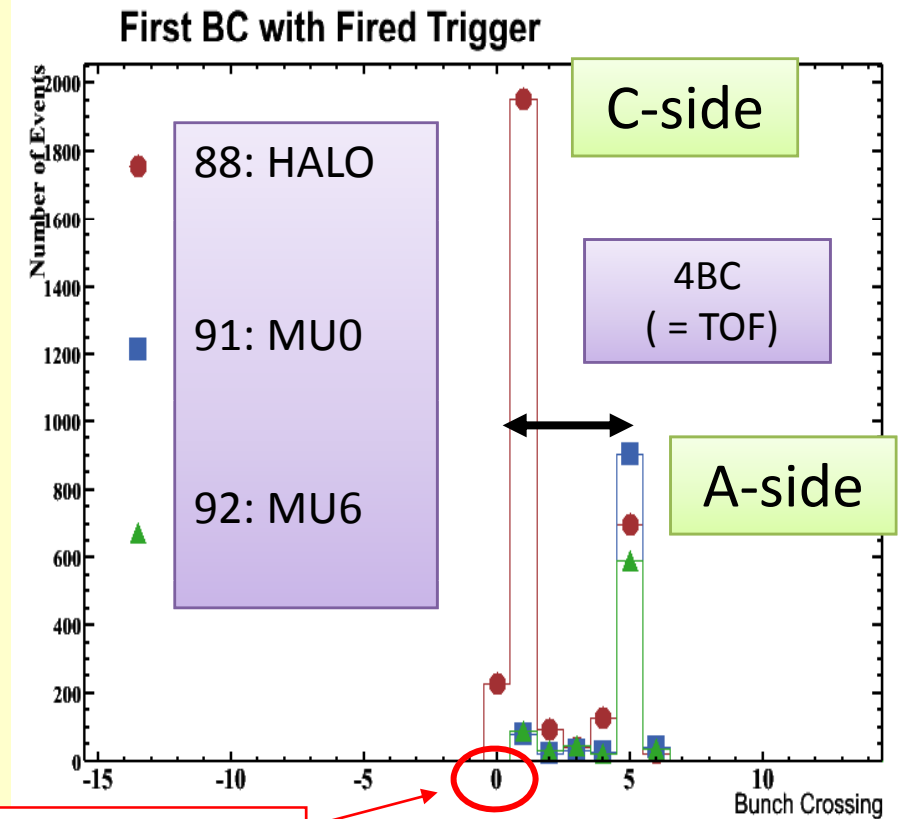
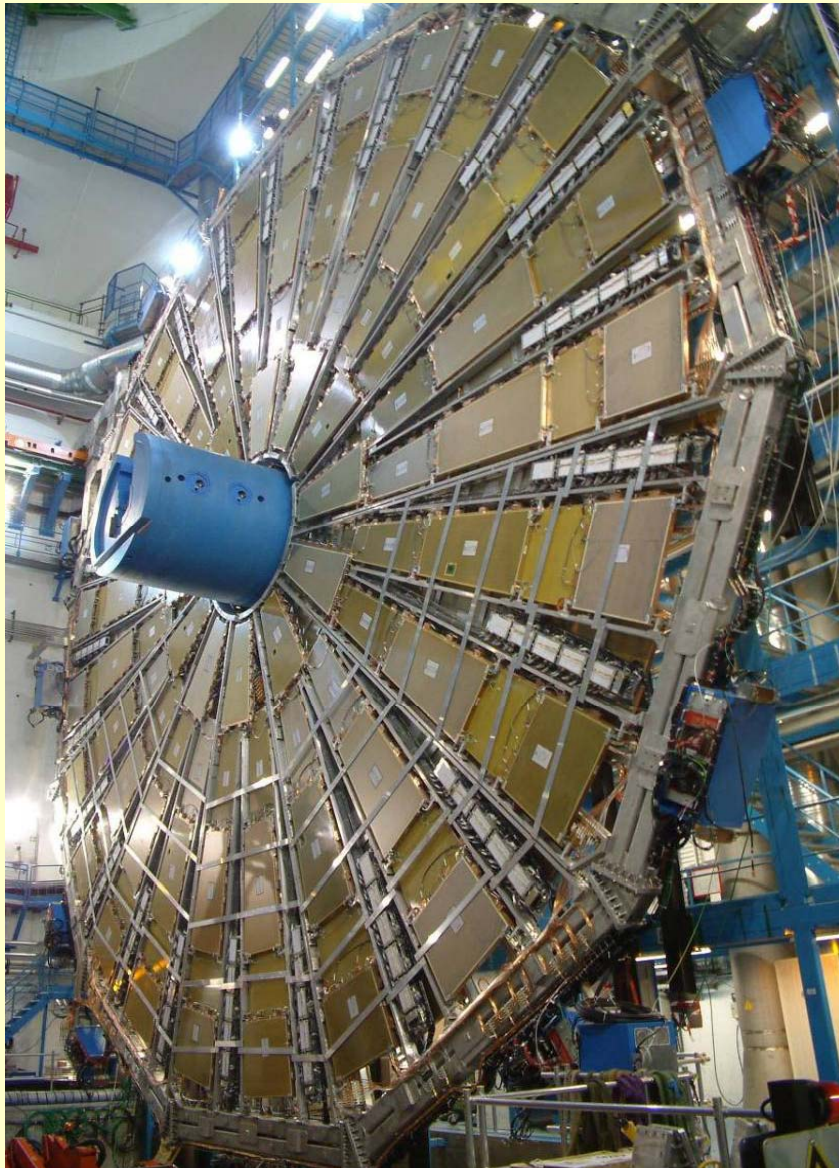


first beam event seen in ATLAS

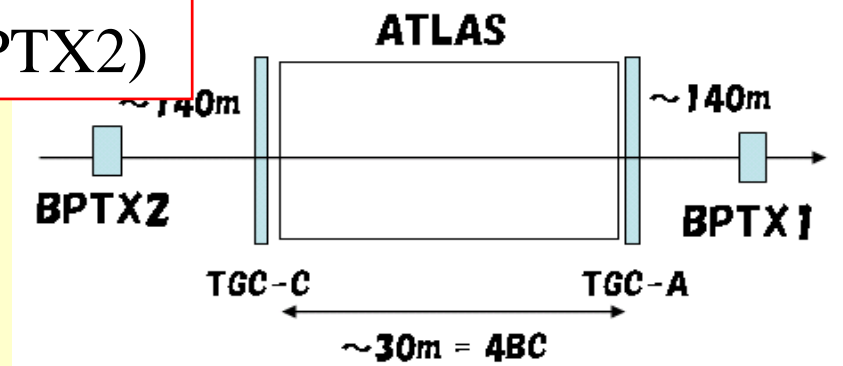


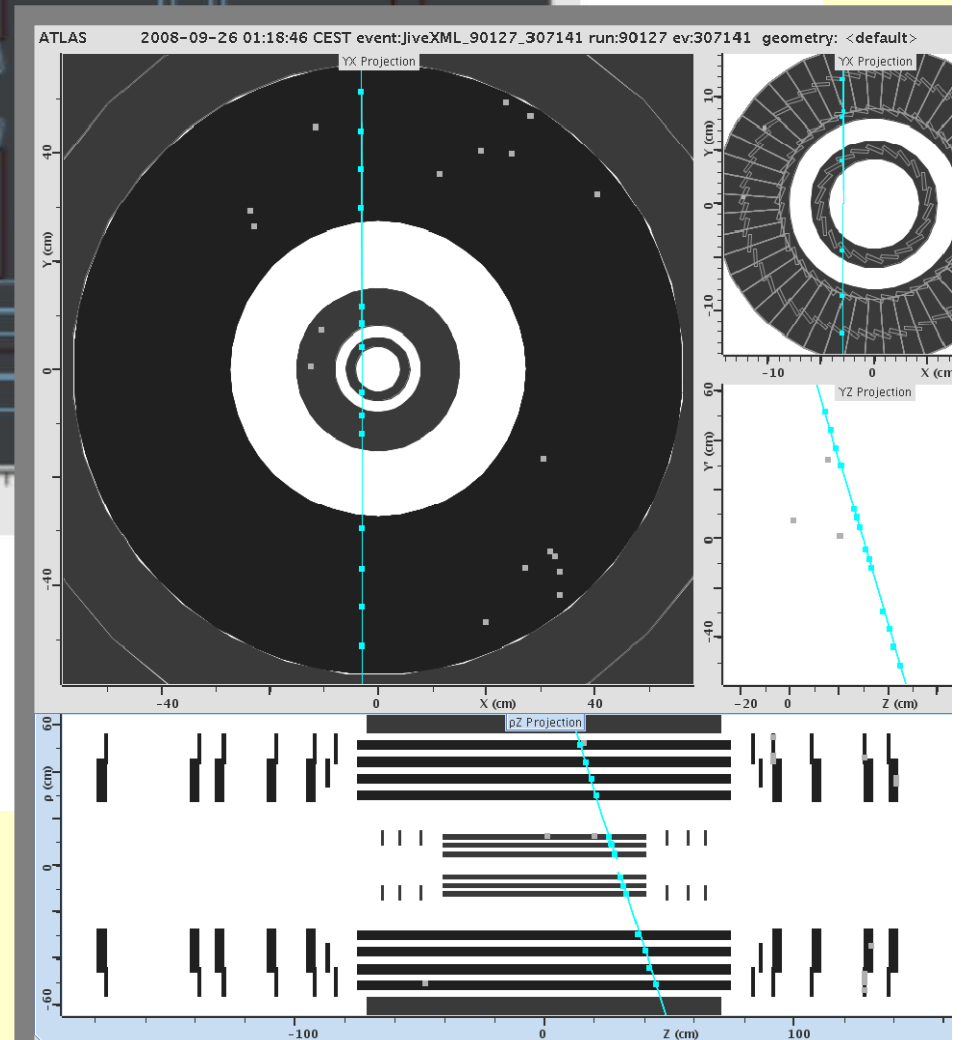
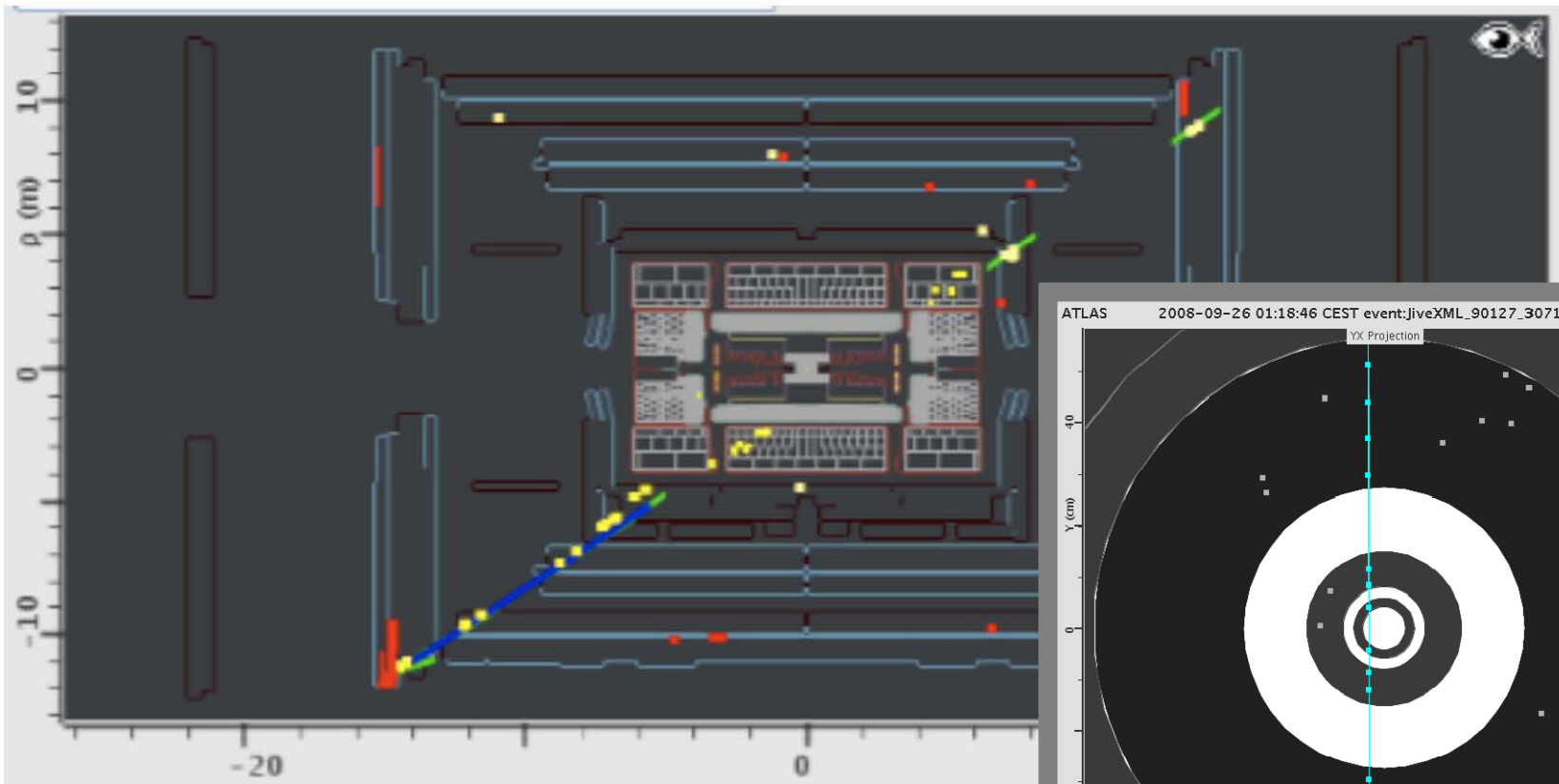
2008/12/12

TGC Trigger Timing Distribution for beam



target timing
(= BPTX2)

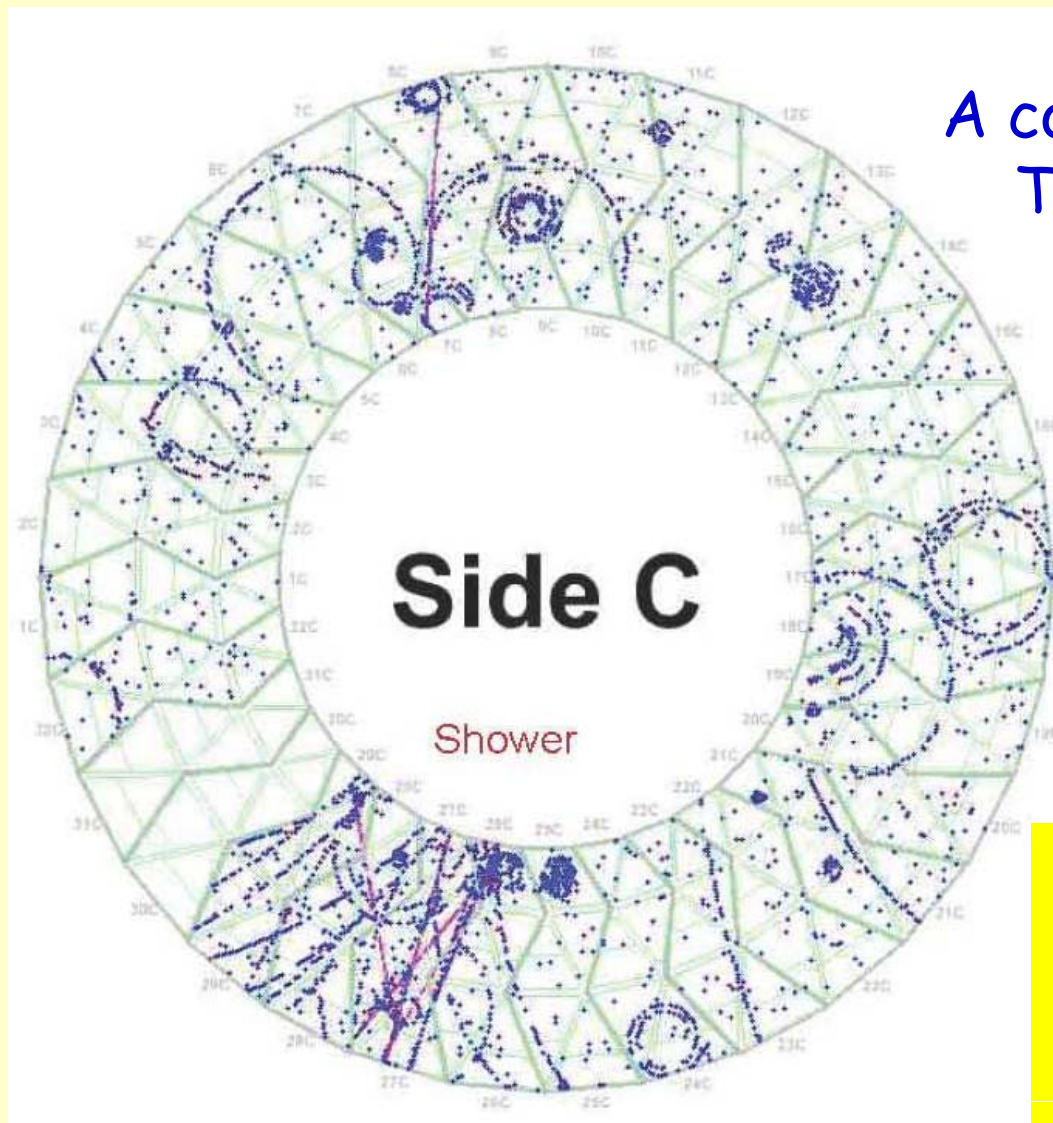




TGC is working well to catch cosmic muons.
SCT has been commissioned with Cosmics in Oct-Nov

2008/12/12

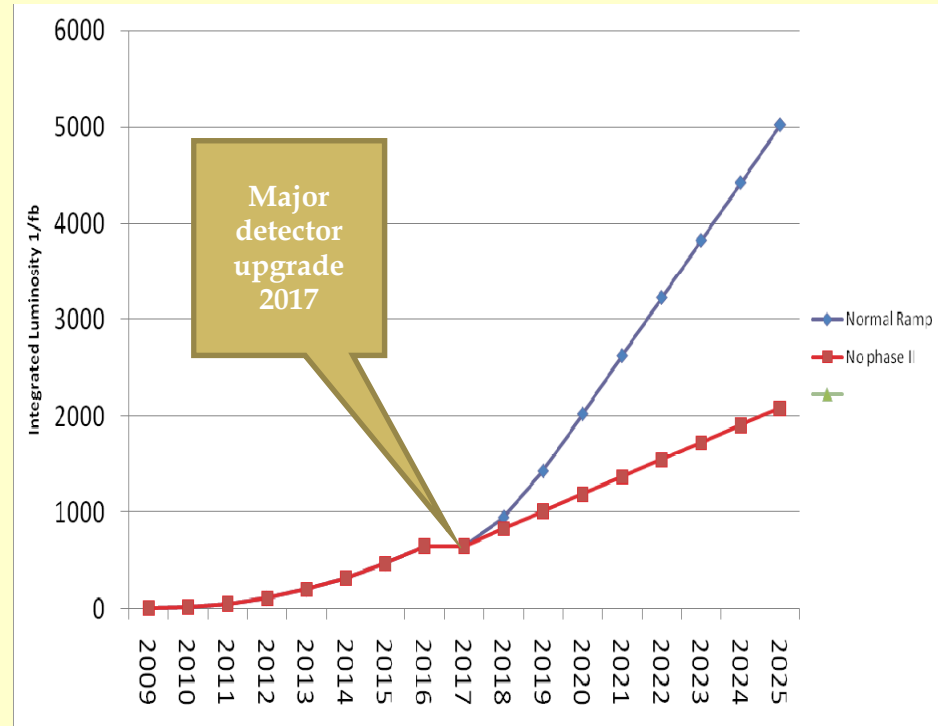
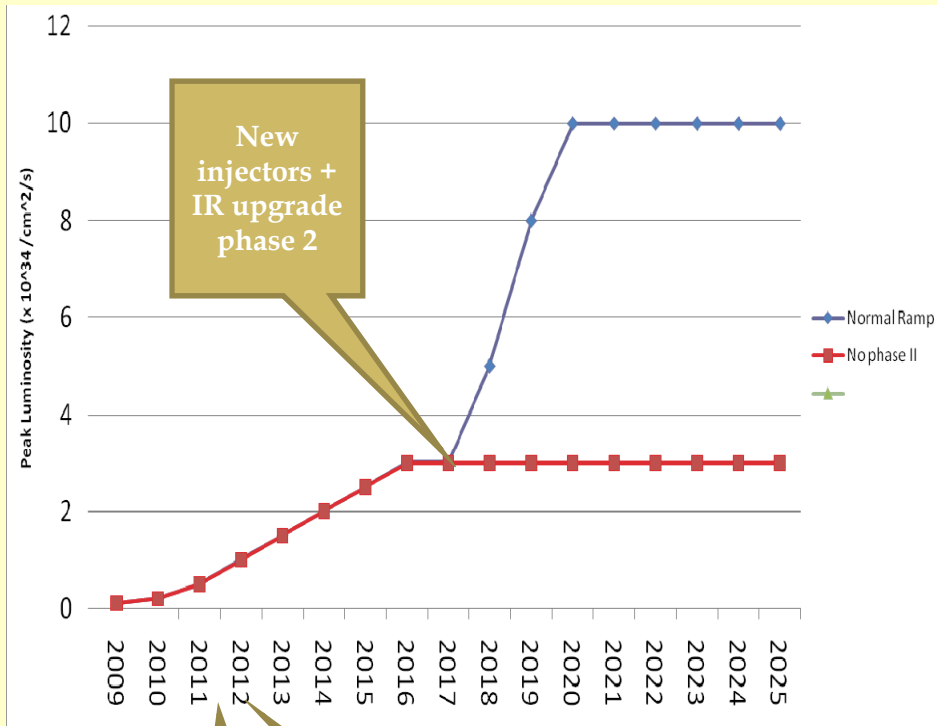
... and Solenoid



A cosmic shower event in TRT

All initial detectors are working well and ready for pp collisions.

Luminosity Upgrade



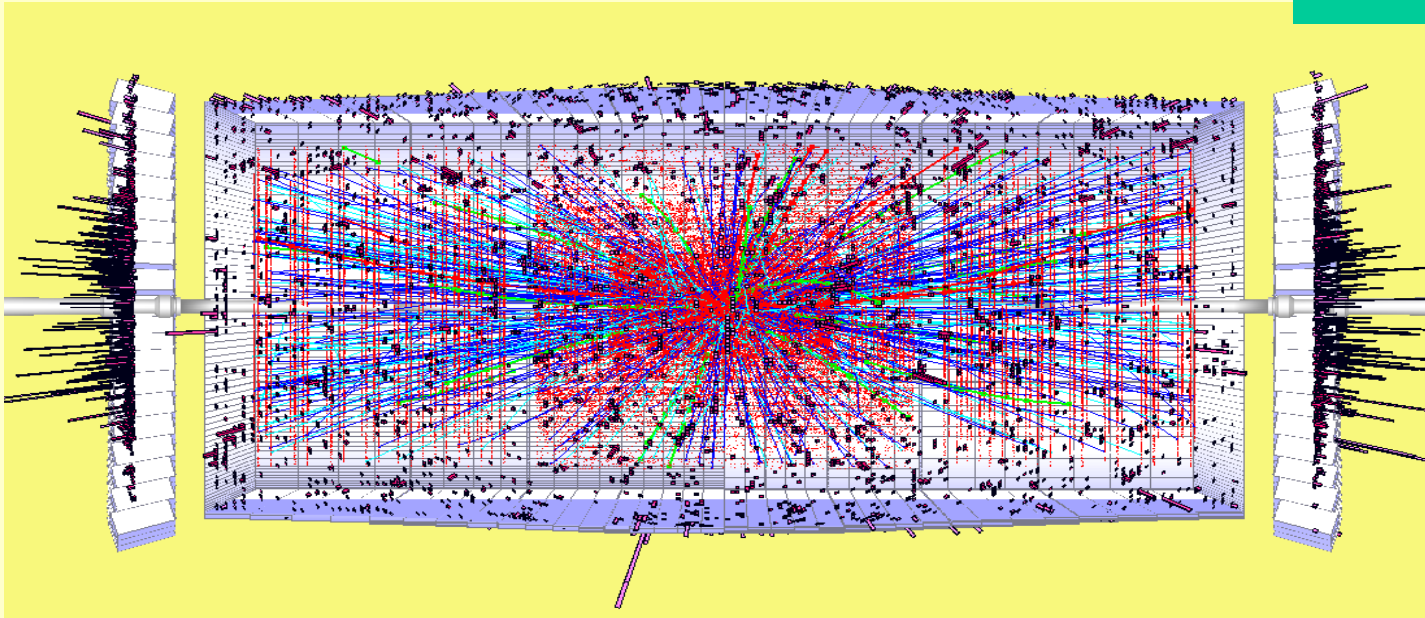
Collimation phase 2

Linac4 + IR upgrade phase 1

Goal for ATLAS Upgrade:
 3000 fb⁻¹ recorded
 cope with ~400 pile-up events each BC

Detector Upgrade for SLHC

10^{35}



CMS

It is very difficult to handle high luminosity:
We need a good detector performance
and a good trigger performance

Schedule

- 2009 - Letter of Intent, ATLAS changes for sLHC
- TDR – IBL (Phase I)
- 2010 – Technical Proposal, may have options, ATLAS changes for sLHC
- 2011 (When options finalised) Technical Design Reports
- End 2012: Phase I changes e.g. IBL
- End 2016: Phase II changes
- We have to adapt:
 - Need to see detector performance
 - Need physics results
 - Machine schedule may get refined

Not so much time for
preparation

ATLAS-J wide discussion has started

- Where to contribute ? (Inner Detector, Muon, Trigger, as we have been doing for initial detectors?)
- Any further R&D development?

Upgrade meetings are organized:

- "Kick-off" joint meeting on 29/July with Accelerator/Magnet groups
- Regular ATLAS-J meeting (~every 3 week) since Oct.
 - ◆ 3 meetings so far, discussing on Muon/ID/Trigger
 - ◆ the next one on 16/Dec

Summary

- Japanese group has been taking major roles in the detector construction. (Solenoid, TGC, SCT, MDT frontend)
- The detectors were working and commissioning with beams and cosmics were well progressed.
- R&D studies on silicon detectors for LHC upgrade has already started.
- ATLAS-J wide discussion on the upgrade has started.