Summary

ATLAS Reconstruction meeting

17 March 1999

ATLAS Reconstruction meeting, 17 March 1999

- Introduction
- ATRECON
  - calorimetry
  - Pattern recognition & reconstruction
  - combined reconstruction
    - mu-id with GEANE
    - mu-id with iPatRec, MuonIdentification
- Development, status & plans
  - Calorimetry
  - Inner Detector
    - iPatRec, xKalman++
    - clustering, space points
    - Track classes
  - Muon Spectrometer
- AOB

Introduction

- not a good time for this meeting
- too much involvement with Physics TDR
- more discussion than presentations, specially for new developments

Muon reconstruction

- combined reconstruction
  - COBRA (Geane)
  - statistical combination
    - inner-detector (xKalMan) and muonbox
- muonbox
  - version 5.02/02
  - event display (persint)
    - live presentation
    - written in F90

COmBined Reconstruction for Atlas

(W. Lavrijsen)

- Status
  - Fit of muon spectrometer from tracks of muonbox works now
  - ‘uncertainties’ on the hits added (hard-wired numbers)
  - simple code for combined fit, no statistics yet
  - simple XML interface to graphics package
  - documentation in progress
- Plans
  - add use of calorimeter energy measurements
  - use of TRT information
  - finalise documentation
  - visualisation in Atlantis (on-going)

Statistical combination

(I. Gavrilenko)

- Goal :
  - improve rejection against K decays into muon
- efficiencies:
  - Pt > 4.2 Gev/c

    0.93 muon

    0.91 good Inner Track

    0.85 good combination
- improved momentum, impact parameter, azimuthal angle

Calorimetry

(J. Schwindling)

- Bugs (correction in next release)
  - digitization samp. 3 EM-barrel
    - no energy in EMCL in samp.3 for -1.5<eta<0.
    - Temporary fix in atrecon
    - to be fixed in dice
  - error on z-vertex from ‘calo pointing’
- improvements
  - cell to cell calibration for barrel-endcap transition
  - better corrections for phi modulations in Endcap
  - better depths in Endcap
  - proper correction of offset in phi for eta >2.

Development, status & plans

- Recall what was said in last meeting (December 11th)
  - Plans & Milestones
    - Inner Detector
    - Muon spectrometer
    - OO reconstruction end -99
  - First discussions for Lar new software

Plans & Milestones

- Inner Detector
  - xKalMan ++
    - ‘minimum’ documentation required
    - added to repository
    - June ‘99 implementation in Arve
    - new clustering, track classes, etc ... will be considered (consolidation)
  - iPatRec
    - priority is Physics Combined Performance TDR
    - new clustering will be considered after TDR
    - June ‘99 implementation in Arve
    - for “mu-id” needs “muonbox” (++)

Plans & Milestones
Muon spectrometer reconstruction

- new Muon reconstruction code (Patrick Hendriks)
  - in Arve in April 99

- Muonbox (++) ?
  - amdb++, Hit++ (not discussed at the meeting)
    - in Arve in April 99
  - magnetic field
    - in Arve in April 99

Plans
Lar Calorimetry

- Triggered by milestone (1st OO reconstruction end ‘99)
- User Requirement Document
  - being drafted
  - public availability sometime around next Lar week
- design issues being addressed starting with Lassi’s prototype
- need people
- discussion
  - calorec++ ??

Lar Calorimetry

(RD Schaffer)

- URD at first round (exchange information)
- Prototype work :
  - reading of Lar digits, released
  - Lassi's prototype is working on HP & DEC platforms
  - other approach will be considered
- people involvement in new software
  - first : look for the new organisation
  - better view by May Lar-week

iPatRec
(R. Clifft)

- New code developed for Physics TDR is pure C++
  - MuonboxInterface, MuonIdentification

- design review completed
  - ~ 300 comments
  - document being updated

xKalMan ++

(I. Gavrilenko)

- Work delayed by Physics TDR
- version exists since long time with non-uniform B-field
- try to use common classes (track, clusters, …)
- June milestone still possible

PixlRec ++

(A. Rozanov)

- can be considered since wrapping is authorized
- interfaces should be well defined first

Inner detector future plans

(D. Barberis)

- Into ARVE :
  - data preparation (clustering, calibration, alignment, …)
  - packages (iPatRec, xKalMan++, Astra, PixlRec++?)
- split programs into logical & interchangeable components
  - Track Start Finder
    - histogramming algorithm of xKalMan, ASTRA
    - Combinatorial algorithm of iPatRec, PixlRec
  - Track Follower
    - Kalman filter (xKalMan, PixlRec)
    - track extrapolation (iPatRec, ASTRA)
  - Track fitter
  - Interface between the components is the Track Class

Inner detector future plans

- Spring 1999 :
  - detector description
  - data available in Arve
- Summer
  - existing PR programs in ARve
  - First version of Geant-4 simulation (geometry & digitisation))
- Winter
  - full OO/C++ chain operational
  - comparison with Geant-3
- Man power ?
  - Not much

Muon Reconstruction

- AMBER (P. Hendriks)
  - still missing RPC data
  - working on fit procedure
  - difficult to match first release by April 1st
  - May (end of) milestone could still be possible

- Muonbox (M. Virchaux)
  - moving to C++ is a ‘possibility’

Conclusions

- OO reconstruction end ‘99 ?
  - Inner Detector
    - clustering
    - xKalMan ++
    - iPatRec
    - PixlRec (?)
  - Calorimetry
    - ?
    - better view at the next Software week
  - muon
    - AMBER
    - muonbox ++ (?)