IFR Off-line Status

Riccardo de Sangro - LNF

IFR Off-line meeting

Genova - October 9, 1997

Reconstruction Milestones

- November 11: All reconstruction packages functional
  - perhaps not best performance, but all pieces present and functioning
- End 1997: Event Store functional
- November 97-June 98: focus on
  - **calibration & alignment**
  - coping with backgrounds
  - finalize reconstruction algorithms
- June 1998: MDC2

IFR related software efforts in the reconstruction

- Muon reconstruction
- Neutral Hadron reconstruction
- Track Swimmer
- Detector Model
- Event Display
- Calibration & Alignment

Muon ID (L. Lista)

New features since May

- RW persistency added to calibration files (this was needed for multi-platform compatibility)
- Improved clustering: 3DChargedComposite implemented
- Use #strips/layer instead of #clusters/layer in discriminating analysis
- Added full PID for IFR to BETA
- Output of full muon-ID from IFR to beast tapes, available in release 4.3.8

To meet November milestone

- Objectivity Persistence (not really...but would be nice)

Neutral Hadron ID (D. Falciai)

New features since May

- Newly redesigned NeutralHadron reconstruction implemented
  - IFR only: 3DNeutralComposite
    - on Beast tapes, in release 4.3.8
  - IFR-EMC match (reco module)
    - association table returns χ^2 based consistency
  - Neutral Hadron Direction finder module
  - 3DNeutralComposite & association table available to Beta
    - committed, not yet in a release

To meet November milestone

- Thorough test and fixes + Objectivity persistence

Track Swimmer (M. Pallavicini)

New features since May

- First tag available V00-01-00
  - Swims all reconstructed tracks w/chosen mass hypothesis (any of the existing)
  - for each hypothesis ↔ list in the Event containing a list of all corresponding SwmTracks
  - 5 Association maps between TrkRecoTrk and SwmTrack

To meet November milestone

- Use Detector/Material model for geometry/material description
- Improve cluster reconstruction using the swimmer

Detector Model (Z.Yu)

New features since May

- Work started, and good progress so far
  - Classes defined to describe active RPC layers almost complete (both barrel & end-caps)
  - Classes to describe the Iron in barrel and end-caps well advanced

To meet November milestone

- Completion of Iron description
- Migration from IfrDetector classes to IfrGeom classes
  - tricky…
- Add the material description for a complete material model

Event Display (Z. Yu, A. Vitelli)

New features since May

- All that's available in the IfrGeom package is/can be displayed within the general BaBar Event display framework
  - For now: Active detector layers (RPC)
    - barrel complete; new improved EC RPC geometry
    - Selectable: forward, backward, barrel
  - Soon: IFR Iron, both Barrel and End-Caps + various main features of the magnet iron
- RECO object displayed:
  - IfrGHits; Ifr3DCluster; Ifr3DComposites (groups of 3DClusters)
- DATA info:
  - able to pick & print of all displayed objects using printAll member function of the IfrData classes

Calibration & Alignment (C. Patrignani)

- Preliminary thoughts about requirements are being discussed within the IFR
  - alignment issues (within sectors & between sectors, data needed, etc.)
  - monitor RPC layers efficiency & multiplicity
- Short document exists that will be used as a base for further studies
- IFR meeting on the argument in the next couple of weeks

Manpower for reconstruction

- Donatella Falciai - postdoc - LNF 100%
- Luca Lista - Napoli - 80%
- Marco Pallavicini - postdoc - Genova 50%
- Claudia Patrignani - Genova 50%
- Zhitang Yu - postdoc - LNF 100%
- Riccardo de Sangro - LNF - 40%

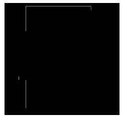
Expect improvement in near future: more people to cover more of the “Reconstruction-Physics interface” area

Simulation Milestones

- End 1997: G4/Bogus Fast Simulation complete
  - "substitute for Aslund"
    - Reco-like objects
    - fast digi's
- End 1998: Full Simulation Complete
  - full geometry
  - hit scoring

- Keep **`bbsim`** alive to compare G4 results with old GEANT3 simulation

IFR G4/Bogus Schedule



Microsoft Project 4.1

Project

G4 Bogus Simulation

- Presently available **(T.Wenaus)**:
  - Port of bbsim geometry to Bogus
    - but:
      - problem: uses G4Euclid, now EuclIntFce
      - “as is” crashes, need migration to new interface
  - IfrFastCylinder implemented
    - but:
      - barrel only, very simple cylinder
  - Fast Parametrization design in G4 (M. Verderi)
    - but:
      - to be committed to G4 repository momentarily

G4 Bogus Simulation

- bbsim geometry without MANY (M. Haire)
  - needed for to be able to exactly translate bbsim to G4 geometry in order to compare results
    - to be committed to repository soon

- Needed for the Fast Simulation:
  - Implement EC geometry
    - using now available G4Trap for both barrel and endcaps
  - implement actual parametrization
    - need also bbsim data for this (Luca muons, Riccardo K-longs)

Manpower for simulation

- Margaret Haire - Prairie View - 50%
  - gnmuon package coordinator
  - full simulation geometry
- Marco Pallavicini - postdoc - Genova 50%
  - Bogus fast simulation
- Riccardo de Sangro - LNF - 40%
  - Bogus fast simulation

Needs improvement soon

Magnetic Field (R. Contri)

- 2D field map of the magnetic field has been available and is being maintained
- 3D field map is being made using a SLAC computer with licensed software (S.Farinon)
  - need more CPU time, has been asked should be made available
- Accessor function:
  - OK for bbsim, in fortran
  - C++ wrapped fortran for reconstruction
    - need to incorporate B-Field access into the material model for reconstruction and map made available to G4 field classes (scheme already available)

Organization of the Off-line group

- Responsibilities
- Schedule & Milestones
- Meetings
- Mini-Workshops
- Documentation

what's been missing?