Italy work – Test Beam Analysis

• Simulation
  ✔ Description of beam
    ✔ Check of composition T9, H4? Cf HARP/G4 hadronic study
    ✔ Tagging system simulation (positioning of detectors, dump...)
  ✔ G4 simulation validation – independent check

To do:
  ➢ Check relevant distribution vs AGILE
  ➢ PID/TRD simulation ?
  ➢ More G4 physical processes tests (specifically on hadronic side)
Data analysis areas of interest

- G4 validation (MCS work started, ...)
- Tracker Performance
- ToT calibration
- PSF
- Background rejection
- EM/hadronic shower separation
- Trigger and timing studies

WS on Data Analysis at the end of January (mostly on bkg rejection … focal point of many studies)
Beam Simulation Update

- Simulation of T9 beam
  - cf H4 G3 simulation (http://nahandbook.web.cern.ch/nahandbook/default/)
  - Check with HARP team in progress
  - T9 primary target
    - Table of Targets (http://ps-div.web.cern.ch/ps-div/Reports/PA9321/Tables/Table3.html)
    - G4 Simulation of Al 3*5*100 + W Ø 10 * 3
    - 24 GeV primary protons
    - Preliminary Analysis of pi vs e- content
    - Independent check of G3 vs G4?
    - Need check of hadronic processes
    - Cuts on beam divergence and beam momentum spread
    - Statistic issue
      - In progress
T9 Beam Simulation

G3 T9 simulation (N. Mazziotta)
Beam Simulation update

![Beam Simulation Image]

- W box
- Al box
Beam Simulation update

\[\text{pi- spectrum}\]

\[\text{e- spectrum}\]

Preliminary
Beam Simulation update

Different Hadronic Physics
Beam Simulation update

Bertini model?
Beam Simulation Update

• Simulation of Tagging system
  – Si detector dimensions
  – Position of Si tagger on beam line and tagging system
  – Magnet dimensions
  – Beam dump presence

• To be done
  – Beam spread simulation
  – Analysis of Tagging Algorithm
  – Definition of Tagging Ntuple structure
  – Beam simulation on CU
Beam Simulation update

T9 AGILE measurements
To be included in G4 sim
Beam Simulation update

T9 AGILE measurements
To be included in G4 sim
Beam Simulation update
Beam Simulation Update

• Issues
  – Use and update of beamtest06 package both for PS/SPS
  – Full chain beamtest06/Gleam in place
  – Need definition of MC/Digi structure of Ancillary detectors
  – Possible Memory Leak in chain?
Beam Simulation Update

- H4 beam simulation and MCS check (with M. Brigida)
  - Beam full chain affected by memory leak
  - 10 GeV mu- and e- on CU
  - Measurements of MCS relevant quantities (e.g. Tkr1KalThetaMCS)
Check for Muons

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![Histogram of dm_32](image1)

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![Histogram of dm_native](image2)

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January 10 2006

GLAST LAT

Test Beam Sim

The Gamma Ray Large Area Space Telescope
Check for e-
Beam Simulation update

H4 beam on CU