
Minutes: SBS Meeting November 11, 2015

Agenda: Andrew - Update on the GEANT4 analysis of GEP trigger
Dasuni - Update on Module Flipping Test

Attendees: Brian Quinn, Gregg Franklin, John Annand, Andrew Puckett,
Mark Jones, Mitra Shabestari, Dasuni Adikaram, Seamus Riordan,
Simona Malace, Kieran Hamilton, Alexandre Camsonne,
Alexa Johnson, Nilanga Liyanage, Bogdan Wojtsekhowski.

Andrew - Update on the GEANT4 analysis of GEP trigger

- Reviews layout of GEP experiment in g4sbs
 - Target and Detectors
 - Magnetic field
 - Beam-line and shielding
- Event generators—elastic ep scattering and PYTHIA 6.4
- Reviews the GEP trigger logic (ECAL & HCAL triggers)
- Analysis of elastic ep simulation
 - Parametrized photo-electron response of ECAL and HCAL
 - Single-arm and coincidence trigger efficiencies vs. threshold
 - Selection of events of interest for polarimetry
 - Implementation of ep kinematic correlation in the coincidence trigger logic
- Analysis of PYTHIA 6.4 simulation
 - Background singles trigger rates vs. threshold, ECAL and HCAL
 - Real coincidence rates vs. threshold
 - Accidental coincidence rates
- Believe that PYTHIA 6.4 contains most of the physics relevant to GEP trigger rate
- Explains the case for $W < 2$ GeV Photoproduction
- Reviews Freddy's work on ECAL model and discusses results for HCAL elastic events on various GEM planes
- Discussing parametrized photoelectron response of ECAL/HCAL vs. energy deposition in Lead-glass/scintillator
- Discusses the results of:
 - ECAL and HCAL trigger efficiencies vs. threshold
 - Coincidence trigger efficiencies
 - FPP1 and FPP2 angular distributions
- Next step for simulation is to work on SBS optics and spin transport

Dasuni - Update on module flipping test

- Explains the work on dead-time reduction
- They used:
 - single crate and buffer level=4
 - module flipping (2 rates) and buffer level=4
- Presents various results of single crate vs. module flipping and explains the fast-bus dead-time model and continues with the comparison of the data vs. model.