



## Scientific Secretary Summaries: BCM1F Lumi and Backend Electronics PLT

# Jessica Leonard, DESY-Zeuthen 24 Apr 2013



## BCM1F Lumi and Backend Electronics



- BCM1F Backend Requirements Overview Dave Stickland
  - Reminder of general backend requirements
  - Input from FE, double-hit distinguishability
  - Untangle inefficiencies: deadtime, fast polarization
- Review of VME Discriminators for BCM1F Jessica Leonard
  - Discriminators under consideration outlined
  - No obvious choice
  - Audience suggestions for further study
  - Alan: for two hits in quick succession, signal needs to come back down to threshold for both to be seen



### BCM1F Lumi and Backend Electronics



Recording Histogramming Unit (RHU) Hardware and Commissioning Results – Marek Penno

- Overview of hardware, interface software, commissioning results, future developments (lumi nibble signal)
- Various options for receiving TTC signal discussed (to be followed up on – in progress)

Luminosity Algorithms, Calibration System and Plans for Systematic Corrections – Roberval Walsh

- Lumi algorithms
- List of systematics to lumi calculation with BCM1F
- MC simulation results: backend, lumi



### BCM1F Lumi and Backend Electronics



Agilent ADC: Hardware Introduction and Performance – Sylvain Bruderer

- Several digitizer offerings from Agilent
- Examples for use within BPTX/BCM context
- ADC & Signal Processing Systems from CERN/CMS: Introduction, Options, Performance – Vladimir Ryjov
  - Trends in HEP vs BCM1F needs
  - Commercial Off-The-Shelf vs Custom, Open Hardware
  - Considerations for decision
  - (Should be studied in more detail in small-group setting)



## BCM1F Lumi and Backend Electronics/PLT



- Deconvolution Algorithms: Simulation Results Piotr Burtowy
  - Deconvolution vs Peak Subtraction algorithm: subtraction makes many peaks out of one
  - FPGA configuration
  - Future work: FFT algorithm; W. Lohmann knows of simple one, will pass along (done)
- PLT Pilot Run, Bench Measurements, Future Tests, and Installation Dean Hidas
  - Design of PLT
  - 2012 running results
  - Luminosity comparison with (uncorrected) HF good
  - Red light illumination improves efficiency (exact energy to free traps)