HMS Detector Stack status and plans

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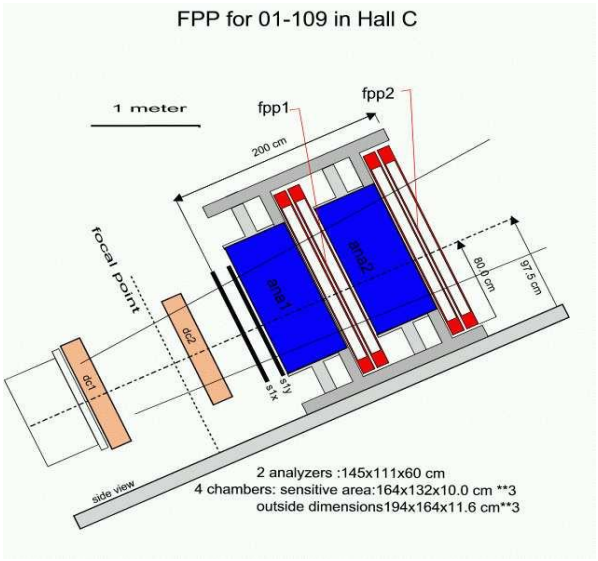
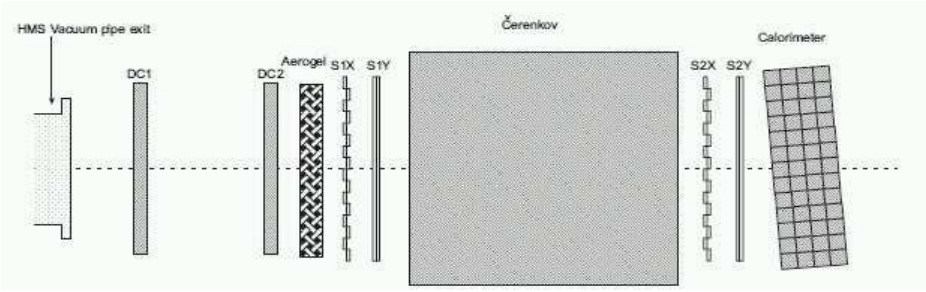
Detector Stack Restoration



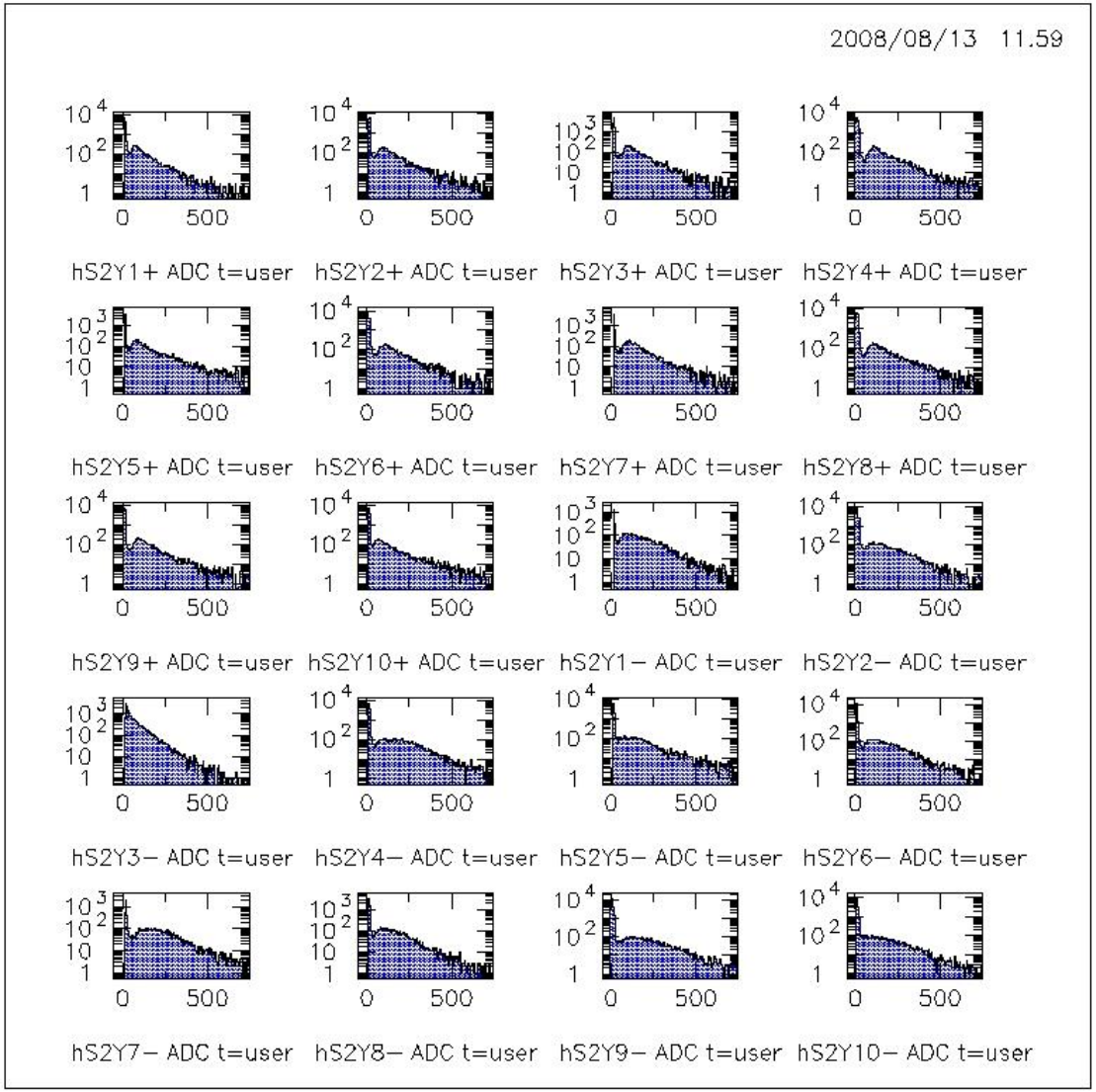
HMS Detector package for Gep



HMS Detector package for SANE

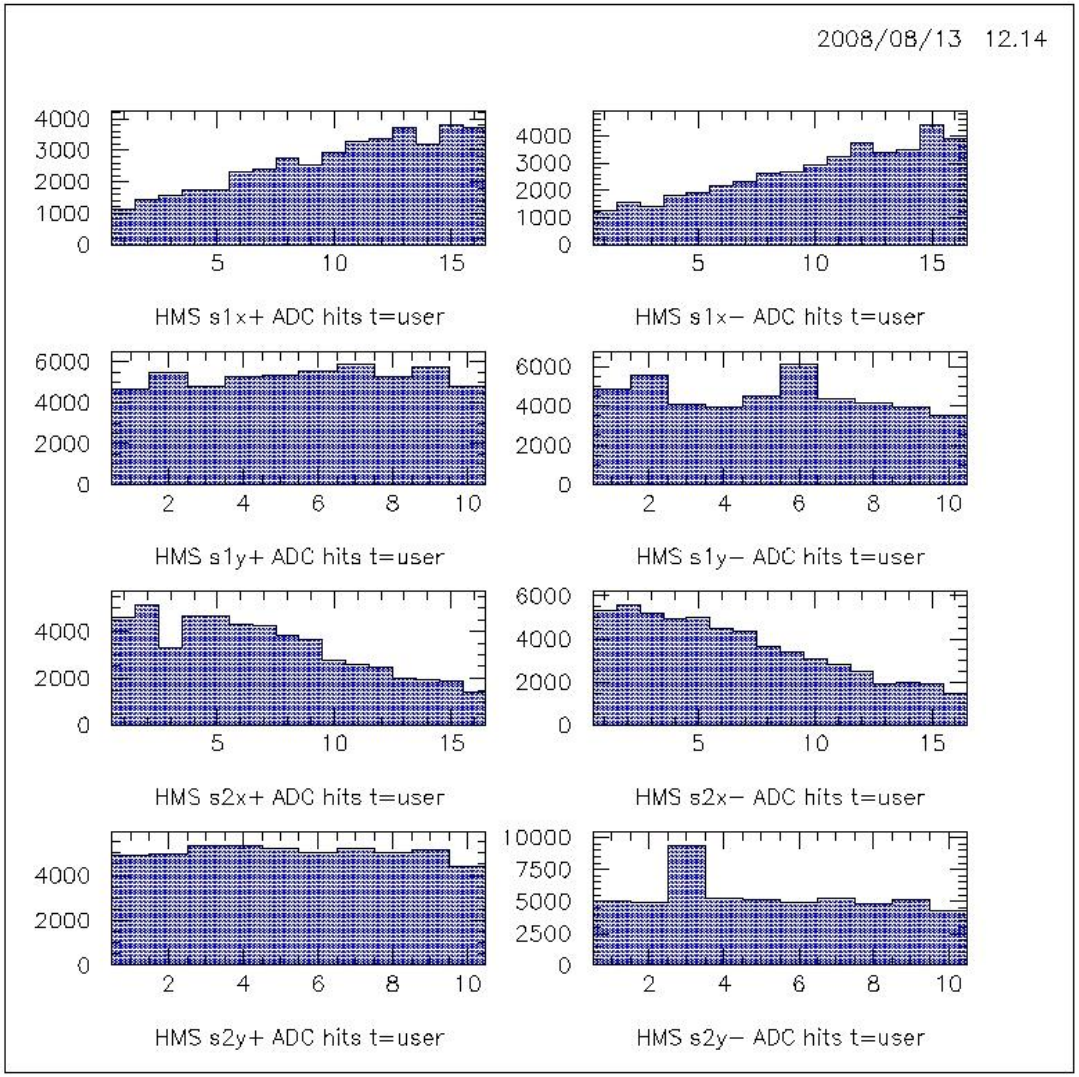
- HMS standard detector stack restored
- Electronics and cabling in counting house restored

Cosmic Tests



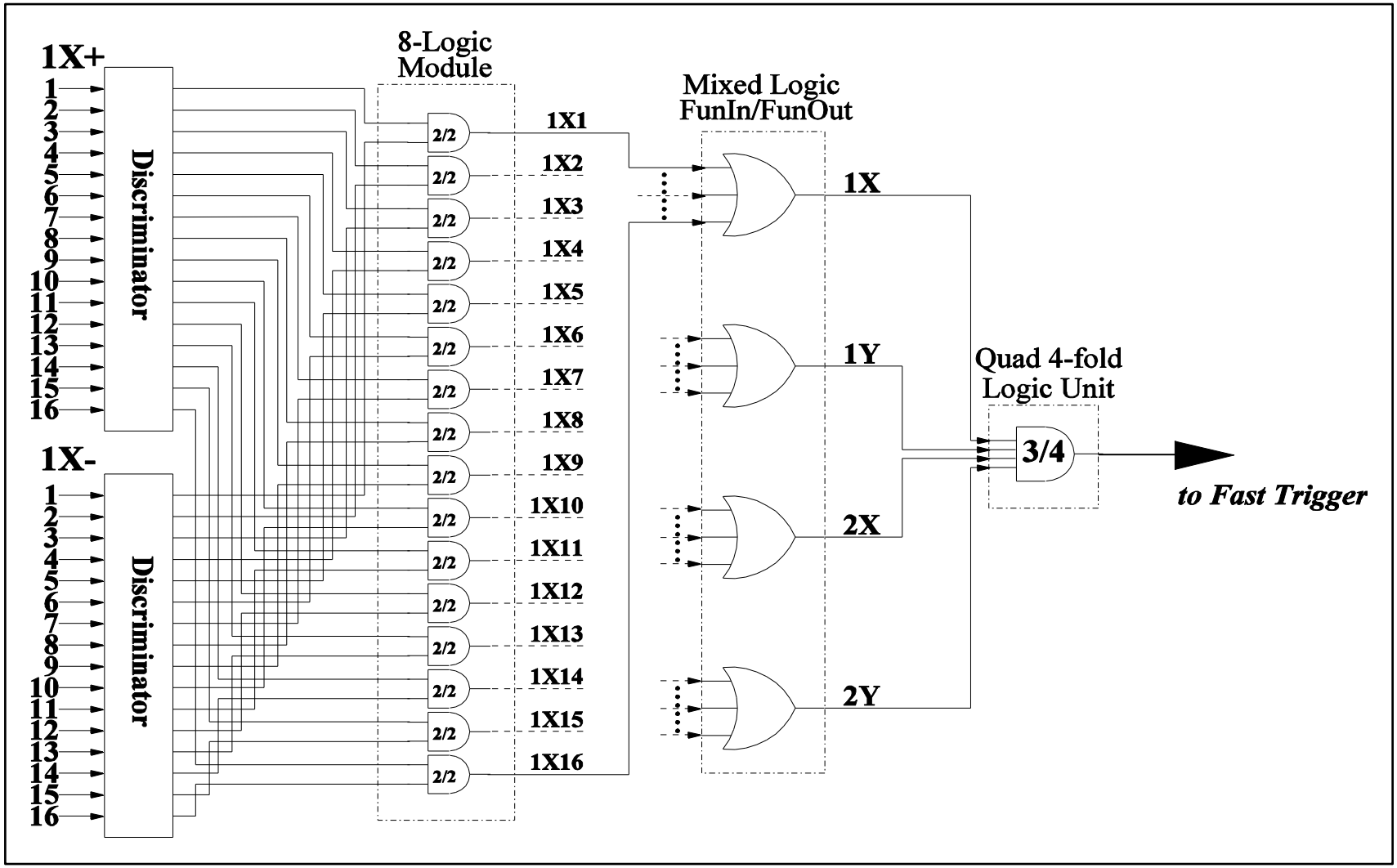
ADC signals from HMS hodoscope 2Y plane

Cosmic Tests cont'ed



HMS hodoscope hits

HMS Trigger Electronics



- A dedicated electronic rack in HMS detector hut
- **Gas Čerenkov signals available for trigger formation**

HMS use in SANE

- BigCal calibration via elastic scattering ($e \rightarrow e'\boldsymbol{p}$)
- Charge symmetric background tracking (e^+/e^-)
- Target packing fraction measurements (e^-)
- Beam halo monitor (Y_{target} reconstruction)

HMS Re-commissioning Plan

A very preliminary version. Based on how HMS will be used, on Rolf's Checkout plan for RSS. Time restrictions should be considered also.

With low beam current, Carbon target:

1. Initial Checkout

- Beam raster on, HMS at some angle & momentum (to be decided)
  - ➢ Check detector channels are working

2. Reestablish Standard HMS Tune

- Beam raster off, HMS sieve slit in
  - ➢ Check "spider" at the focal plane, figure out X, Y, Z offsets at the target

3. Electronics Checkout

- Beam raster on, HMS large collimator in
  - ➢ Check electronic timing
  - ➢ Determine thresholds
  - ➢ Check-off the Detector Checkout Plan, check all the detectors are operational

4. Detectors' Calibration

- Same conditions
  - ➢ Take large run (250K events)
  - ➢ Check wire chamber time to distance maps, align WC software positions
  - ➢ Check detector positions
  - ➢ Calibrate Hodoscopes (TOF calibration), Aerogel (?), Gas Čerenkov, Calorimeter)
  - ➢ Optimize tracking

5. Checkout of Dipole Setting

- Beam raster off, HMS sieve slit in
  - ➢ With quads and dipole settings from *field00*, take 10K run
  - ➢ With settings from *field02*, take another run, compare with the previous run

6. X and Y Target Checkout with holding field

- Same conditions, adjust HMS settings for count rate
  - ➢ Scan beam position over 2x2 grid in X and Y, take 10K runs
  - ➢ Reconstruct the sieve spectrum, check optics against beam position
    - ❖ *HMS reconstruction map + tracking through the target field is needed!*

Summary

- HMS detector stack restored in standard configuration
- Electronics and cabling in counting house restored
- Cosmic test runs underway
- HMS trigger electronics assembled, tested
- A preliminary plan for HMS re-commissioning is compiled, needs to be concretized.