T-1044
sPHENIX Calorimeter Beam Test

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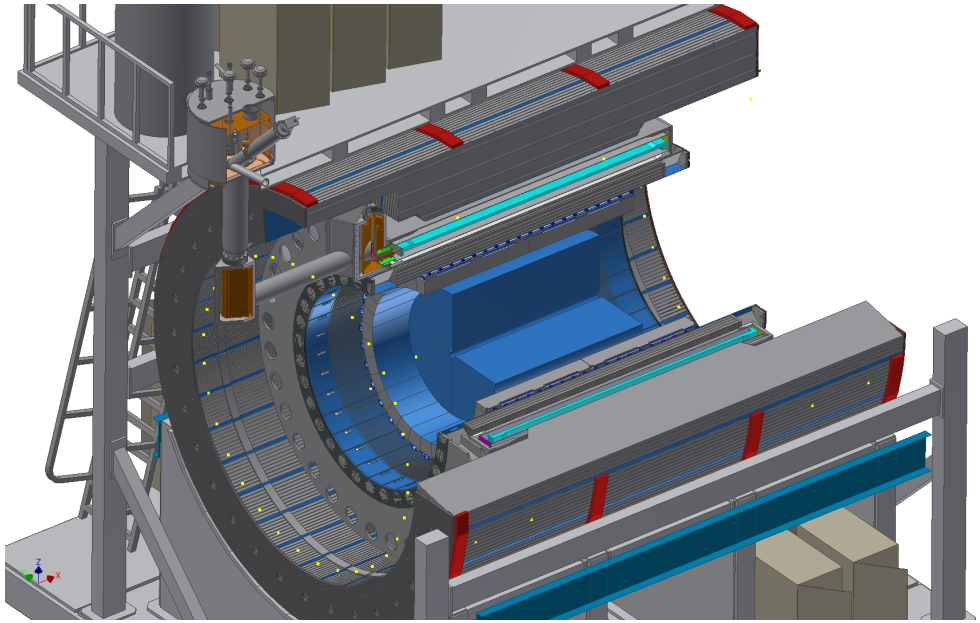
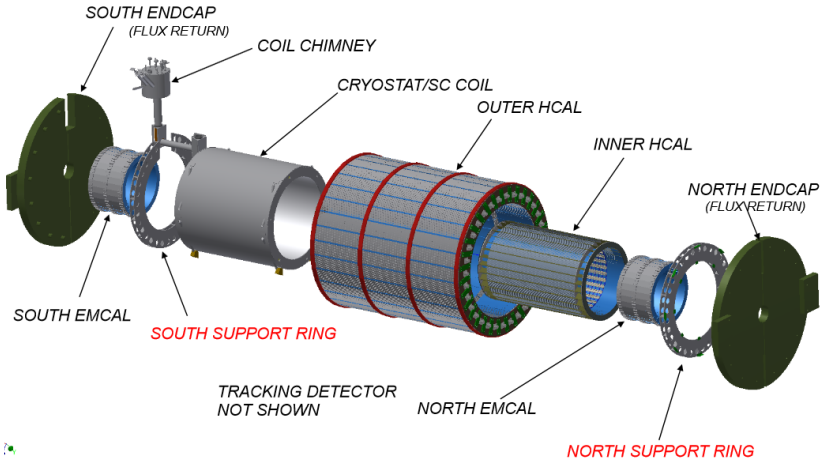
sPHENIX

- A concept for a second generation detector at RHIC to measure jets, jet suppression in heavy ion collisions, and separate the Upsilon states in a large acceptance, high rate detector





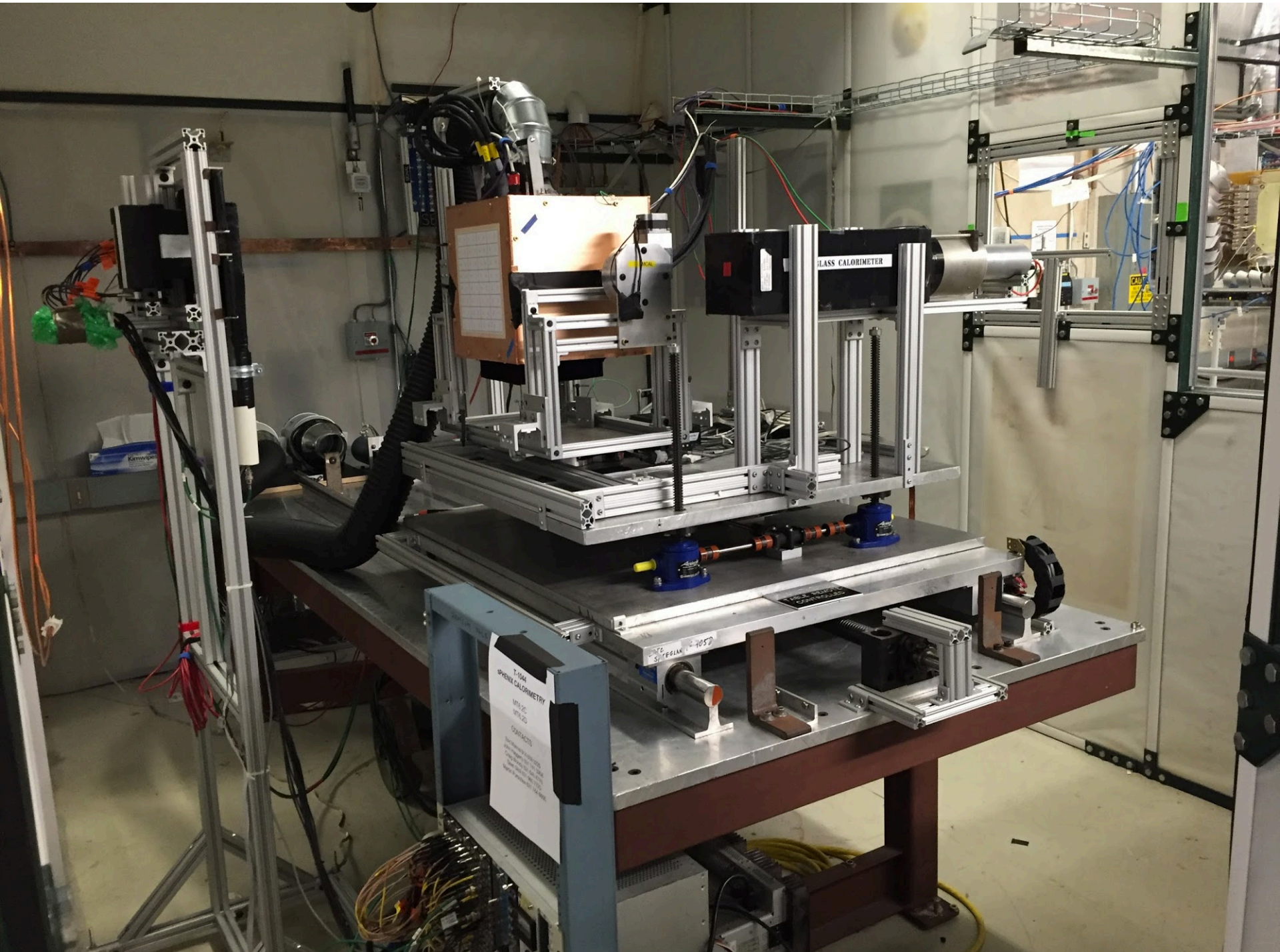
sPHENIX history and future

- T-1044 February 2014 initial calorimeter test
- BaBar magnet arrives at BNL January 2015
- Positive April 2015 DOE science review
- February 2016 low field test of solenoid at BNL
- **T-1044 April 2016 second calorimeter test**
- CD-0 expected “soon”
- CD-1 expected mid-2017

Calorimeters in T-1044

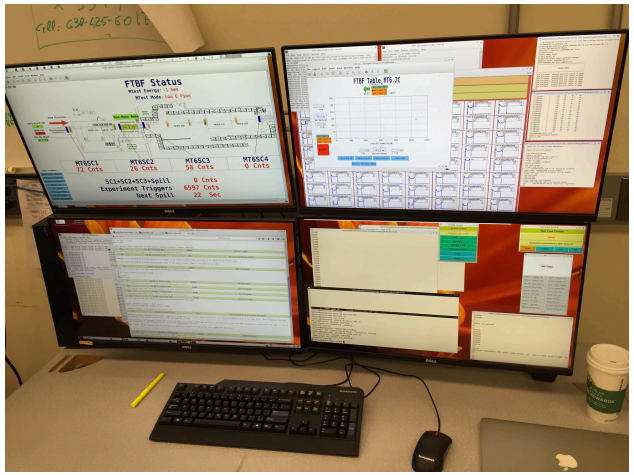
- 8x8 tungsten-fiber EMCAL
- “Inner” 4x4 tile HCAL
- “Outer” 4x4 tile HCAL
- All detectors read out with SiPM’s
- All digitization with 60 MHz waveform digitizers
- Amplifiers and control system

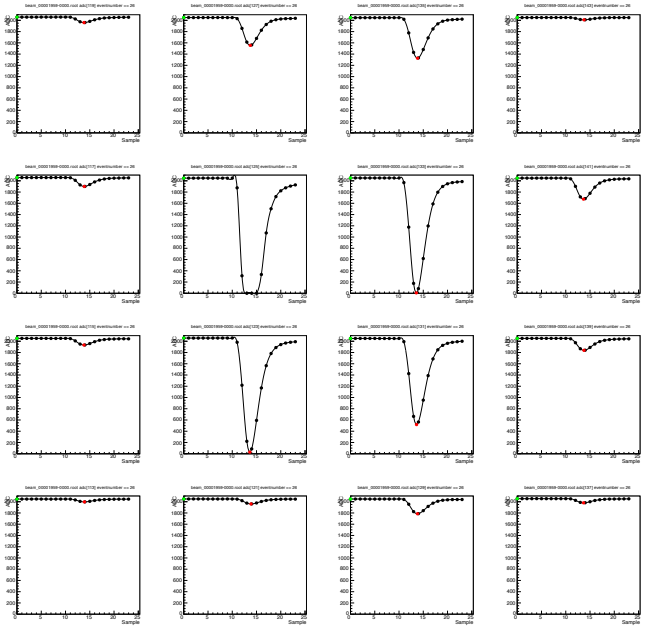

SECTION 2D


LASS CALORIMETER
T-1044
sPHENIX CALORIMETRY

Data taking

- Started running with beam on Friday, April 8
- Timed-in, triggering, and seeing the beam on Saturday
- Since then, scanned EMCAL with 120 GeV p several times and did two energy scans

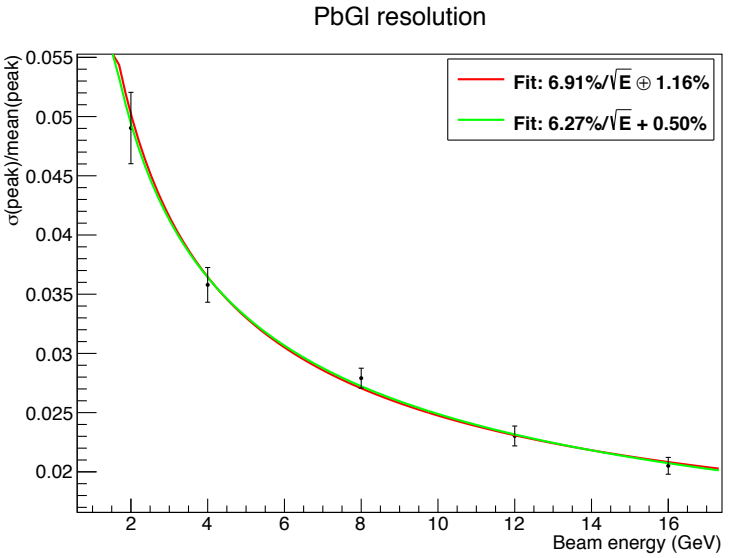


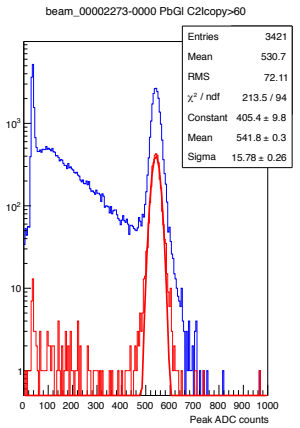


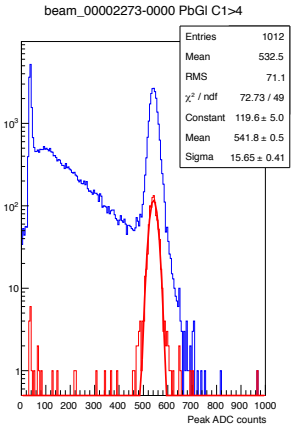
Data looks like this in the inner 4x4 HCAL
24 samples of 60 MHz 12 bit flash ADC

Analysis

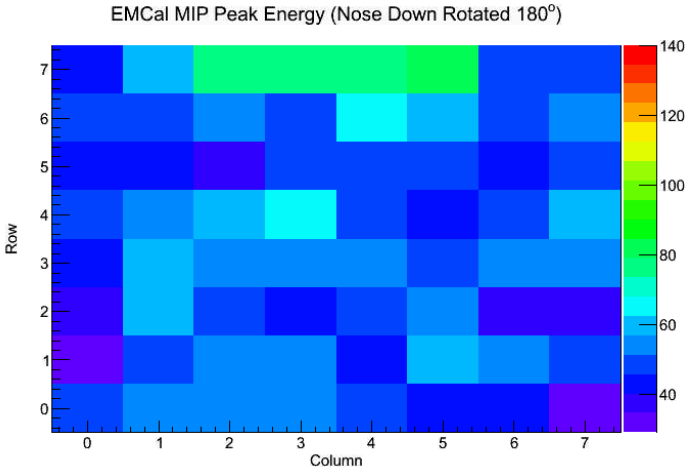
- Analysis is being done back at BNL at the RACF
- Results are very preliminary and haven't been seen by the collaboration, but so far so good
- Reading out FTBF PbGl and Cerenkov counters with our data as well as our trigger hodoscope

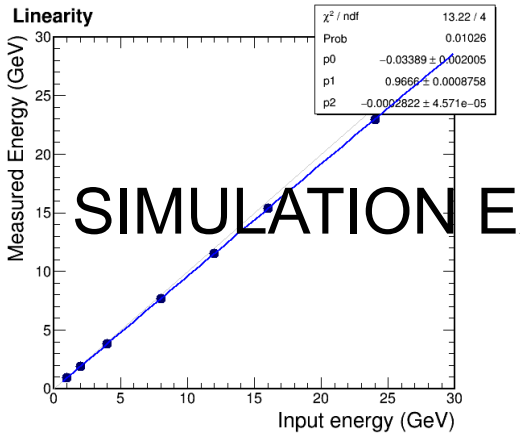


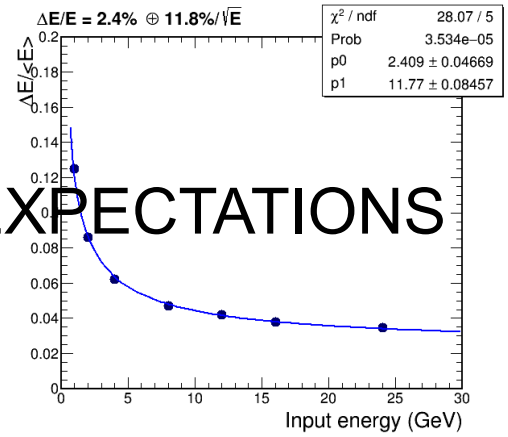




Results

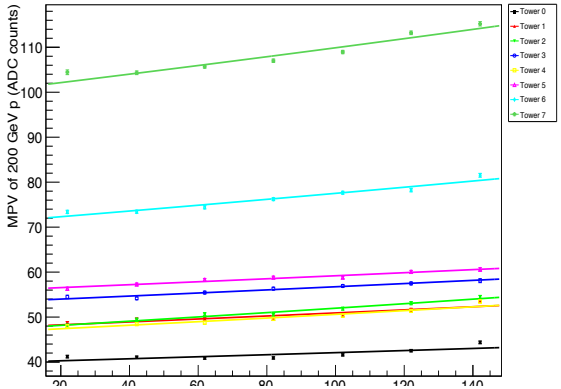






SIMULATION EXPECTATIONS

Calibration of EMCAL towers



Measured attenuation in depth

Game plan

- We have two more weeks in the beam with the detector working well
- We are today moving the EMCAL into its final data-taking position in front of the HCAL
- DST production and analysis is taking place at BNL
- We'll switch this week from concentrating on EMCAL to concentrating on HCAL
- Thanks to Mandy, Todd, Ewa, JJ and all who make the FTBF experience so great