

# Coin H2 Analysis for $d_2^n$

BB Čerenkov Efficiency

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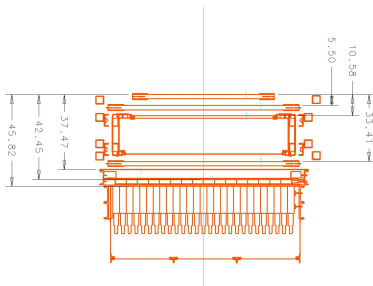
6/17/10

# Outline

- 1 BigBite Energy
- 2 H2 BigBite Čerenkov Efficiencies
  - A One Sided Approach (RHRS Side)
  - A Mirror Selection
- 3 What's Next

# PreShower Location

- Last meeting add distribution in the BigBite total energy vs preshower plot
- Looked into and preshower location differed from transversity
- Using the survey report and the image below found at <http://hallaweb.jlab.org/experiment/transversity/wikifile/BBedetectorSide.jpg> verified transversity preshower position of 0.97m



# Energy Distribution

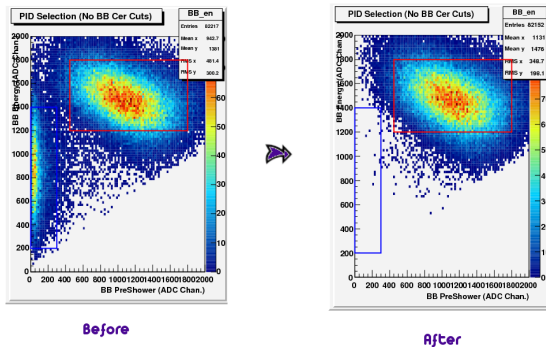


Figure: Total Energy vs preshower before(left) and after(right) preshower location fix.

# H2 RHRS Čerenkov Efficiency (1)

- For H2 elastic runs, beam line (small angle) side had some problems
  - **Threshold** set too low
  - **v792** ADCs just can't handle the high rates
- Select just **RHRS** (large angle) side

# ADC problem and RHRS Side Selection

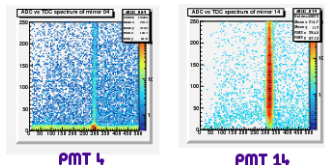


Figure: ADC (y-axis) vs TDC (x-axis) for PMTs 4 and 14

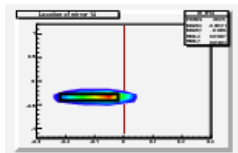


Figure: Mirror location of PMT 14. RHRS side  $x < 0$

# H2 RHRS Čerenkov Efficiency (2)

- Using the same protons cuts described last meeting and a ...
- and the RHRS side cut and selecting a sample of 2D energy plot an  $e^-$  Čerenkov efficiency is  $85.9 \pm 1.19\%$

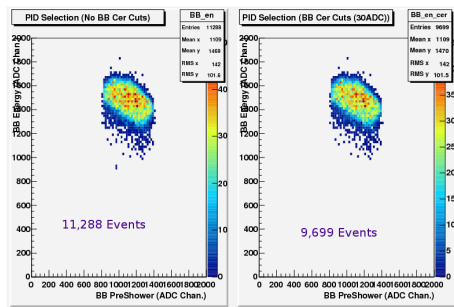


Figure: Total Energy vs preshower

# Selecting Mirror 14

- Efficiency may not be as good as can be because of sample selection
- To select a better sample a cut was made on the mirror location of PMT 14 in the Čerenkov plane and shower plane

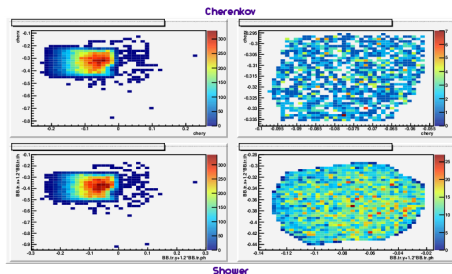


Figure: Geometry selection in Čerenkov and Shower



# H2 Mirror Čerenkov Efficiency

- The electron efficiency is now  $\frac{1638}{1797} = 91.15 \pm 3.11\%$
- Could make the geometrical selection tighter, but start to lose too many events
- Will compare to 4-pass running for next meeting

# What's Next

- Try to finish THaCherenkov TDC mod for next week
- Look at 4-pass Čerenkov efficiencies for H2 comparisons