Light Guide Cherenkov Limit from the Test Beam

Mike Skoby
University of Michigan

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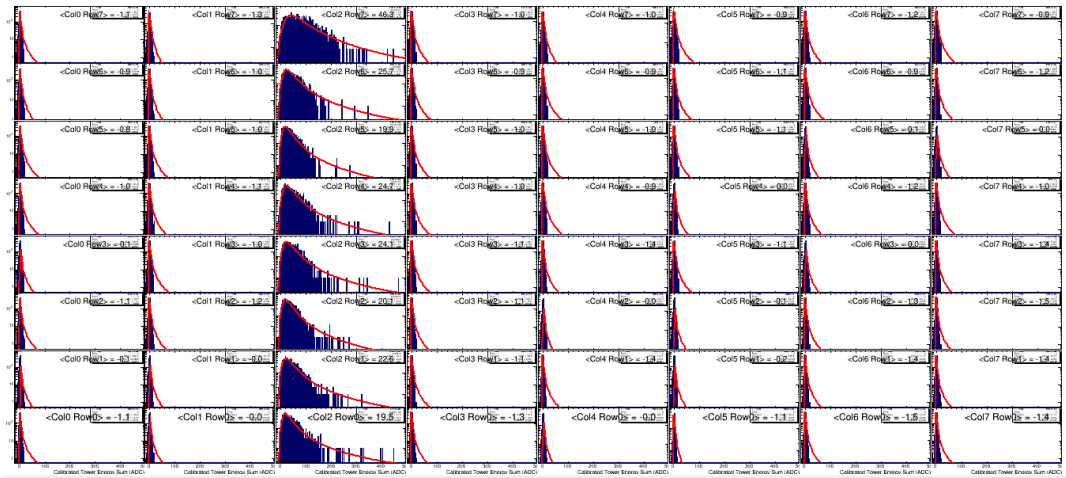
120 GeV Proton (centered on column 2)

- Runs: vertical position
  - 2143: 132 mm
  - 2188: 142 mm
  - 2189: 152 mm
  - 2144: 157 mm
  - 2166: 161 mm
  - 2165: 162 mm
  - 2161: 163 mm
  - 2162: 164 mm
  - 2164: 165 mm
  - 2192: 172 mm
  - 2146: 182 mm

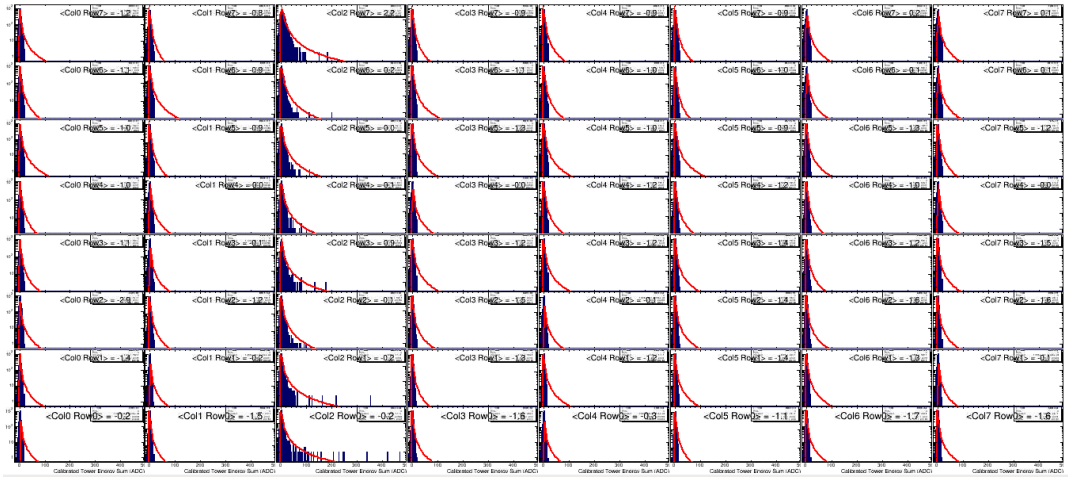
- Cuts
  - Vertical hodoscope finger #3 (highest statistics) energy > 30
  - No cuts on column 2
  - Require no counts in MIP region for all other columns
  - No trigger veto

ADC Distributions

MIP distribution in block
Vertical position 132 mm

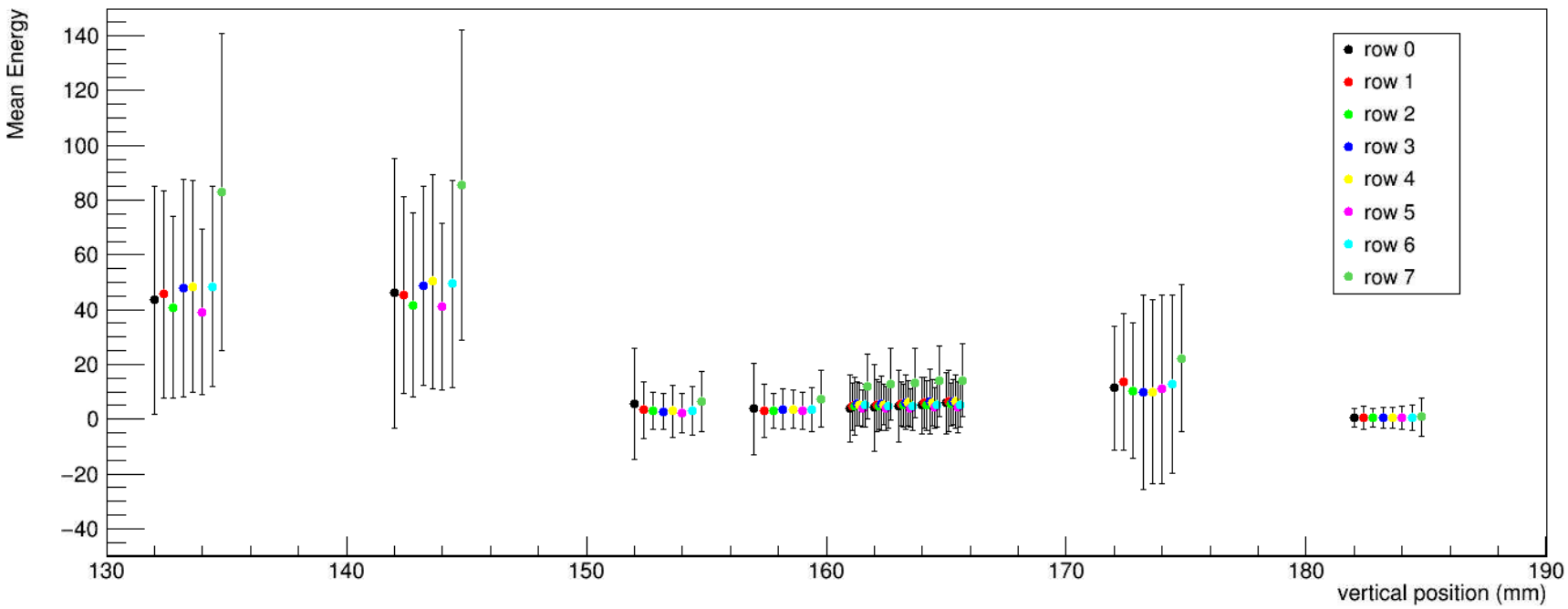


Cherenkov background
Vertical position 157 mm



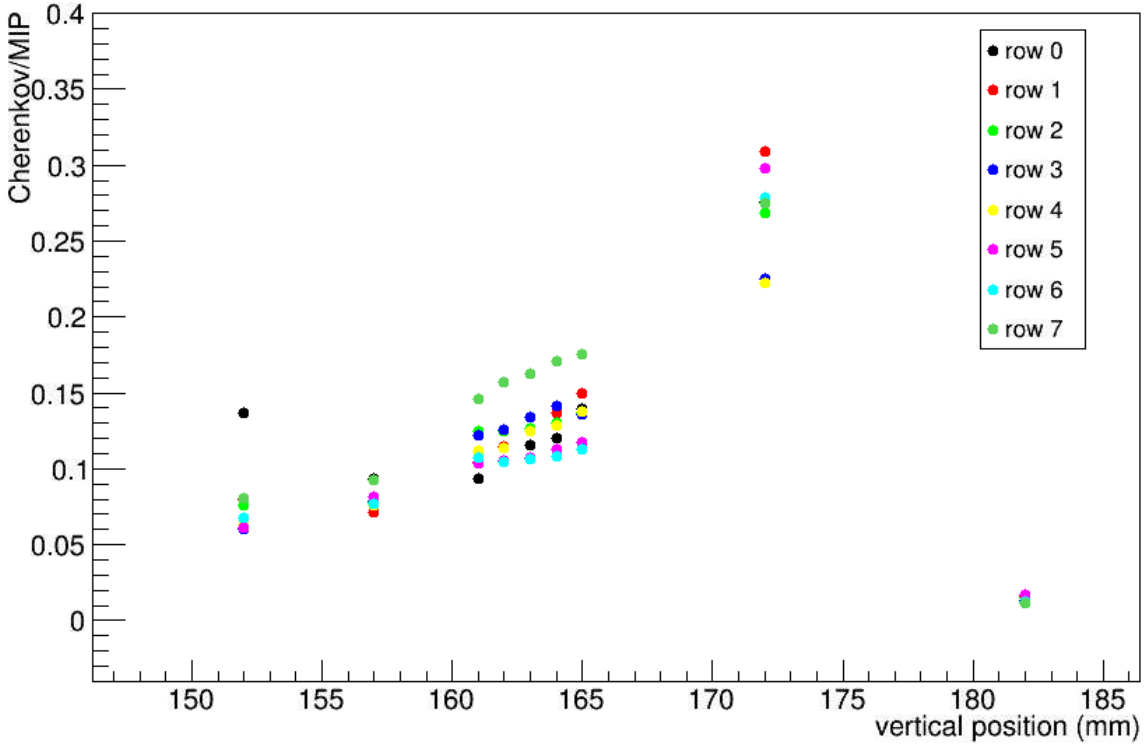
- Get the mean and RMS for each row in column 2 (3rd from left)

Mean Energy vs Vertical Position



- Rows offset horizontally for comparison
- Error bars are the rms

Cherenkov Limit



- Cherenkov = <E> + 1.281*rms/sqrt(events) for the upper limit of Cherenkov light at 90% C.L.
- MIP = <E> for MIP in the block (vertical position 132 mm)
- **<Cherenkov/MIP>** ~ **11%** (152 <= vertical position <= 165 mm)