

# T988: AIRFLY at the Meson Test Beam

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- **Two test beam runs to study feasibility**  
**Dec. 2008 and March 2009**
  - **Run June 2009**

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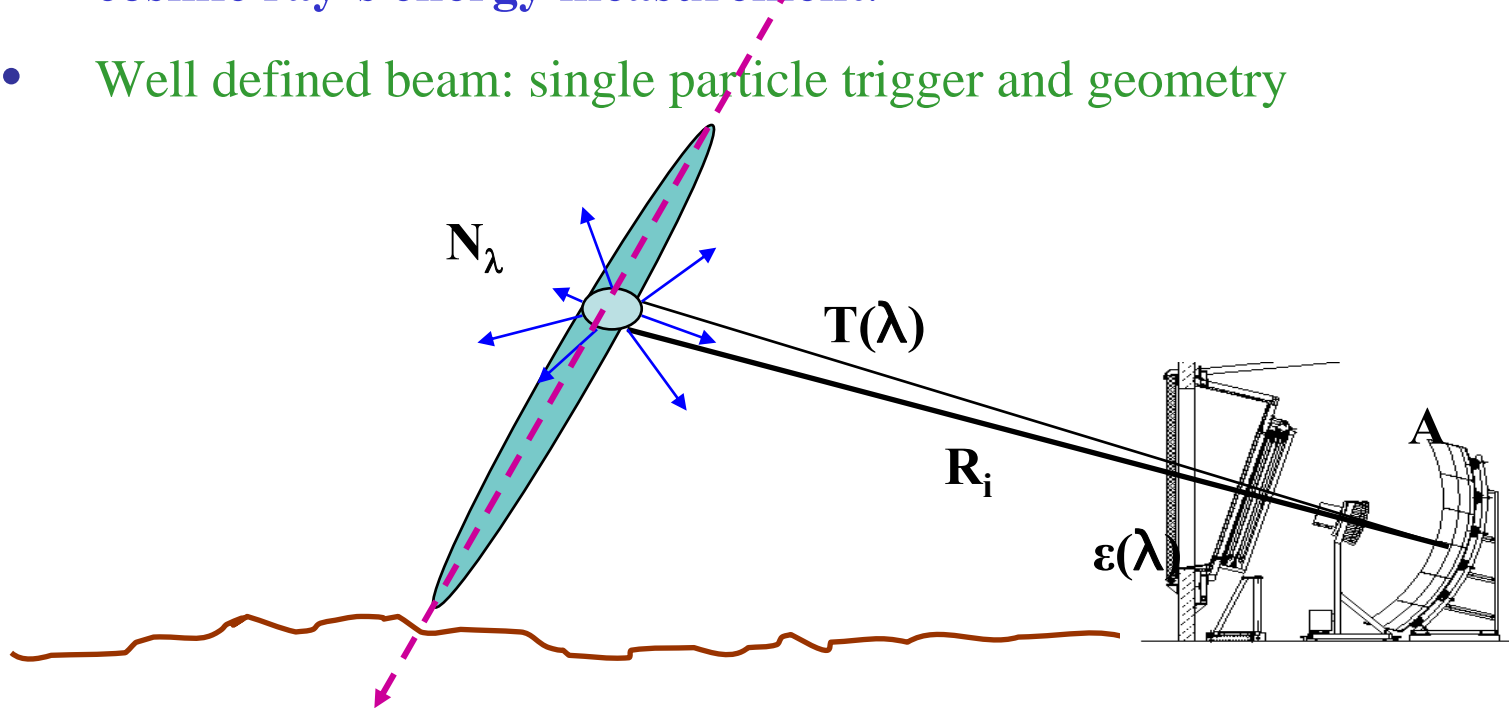
<sup>k</sup> *Forschungszentrum Karlsruhe, Institut für Prozessdatenverarbeitung und Elektronik, Postfach 3640, D - 76021 Karlsruhe, Germany*

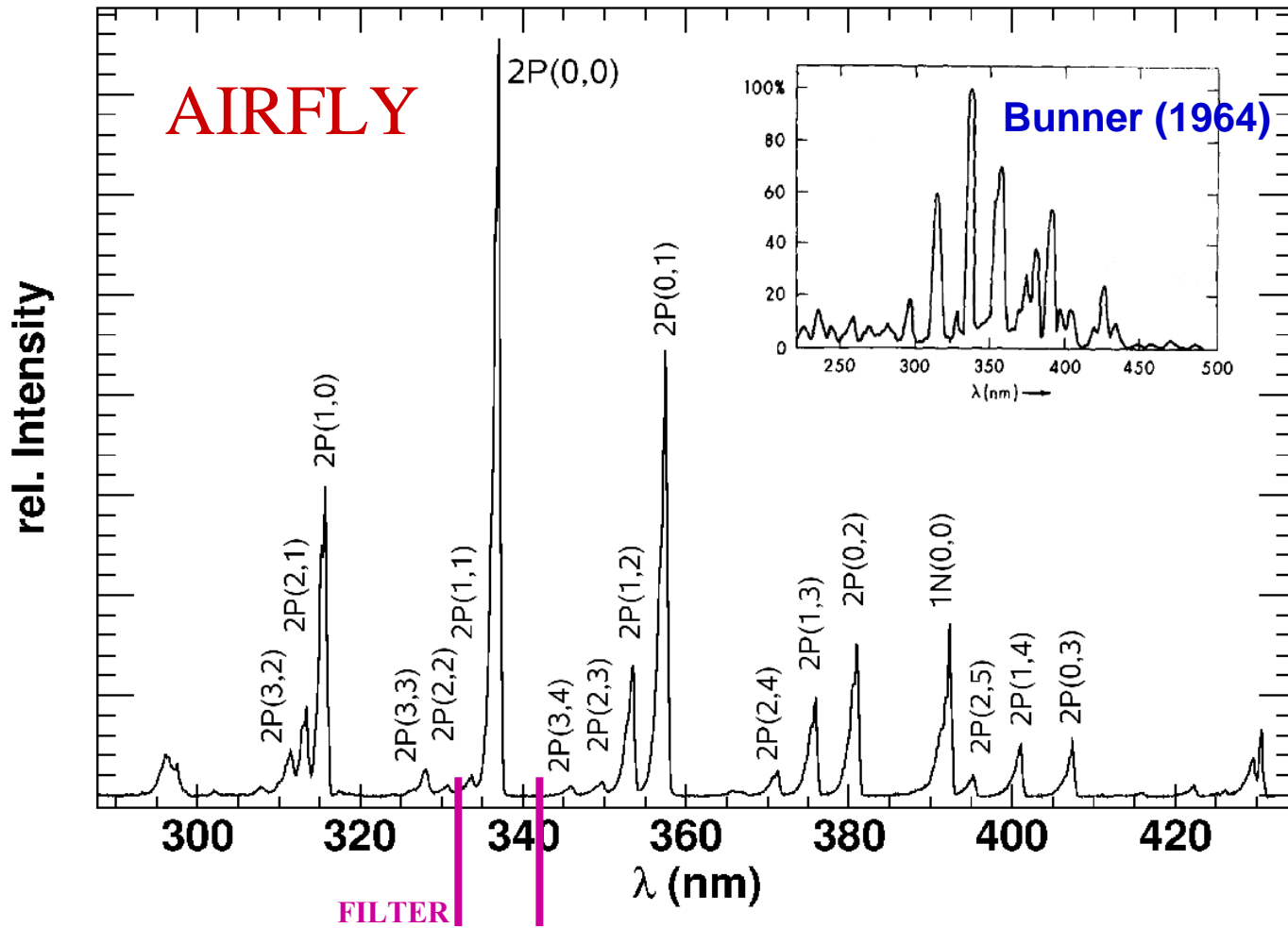
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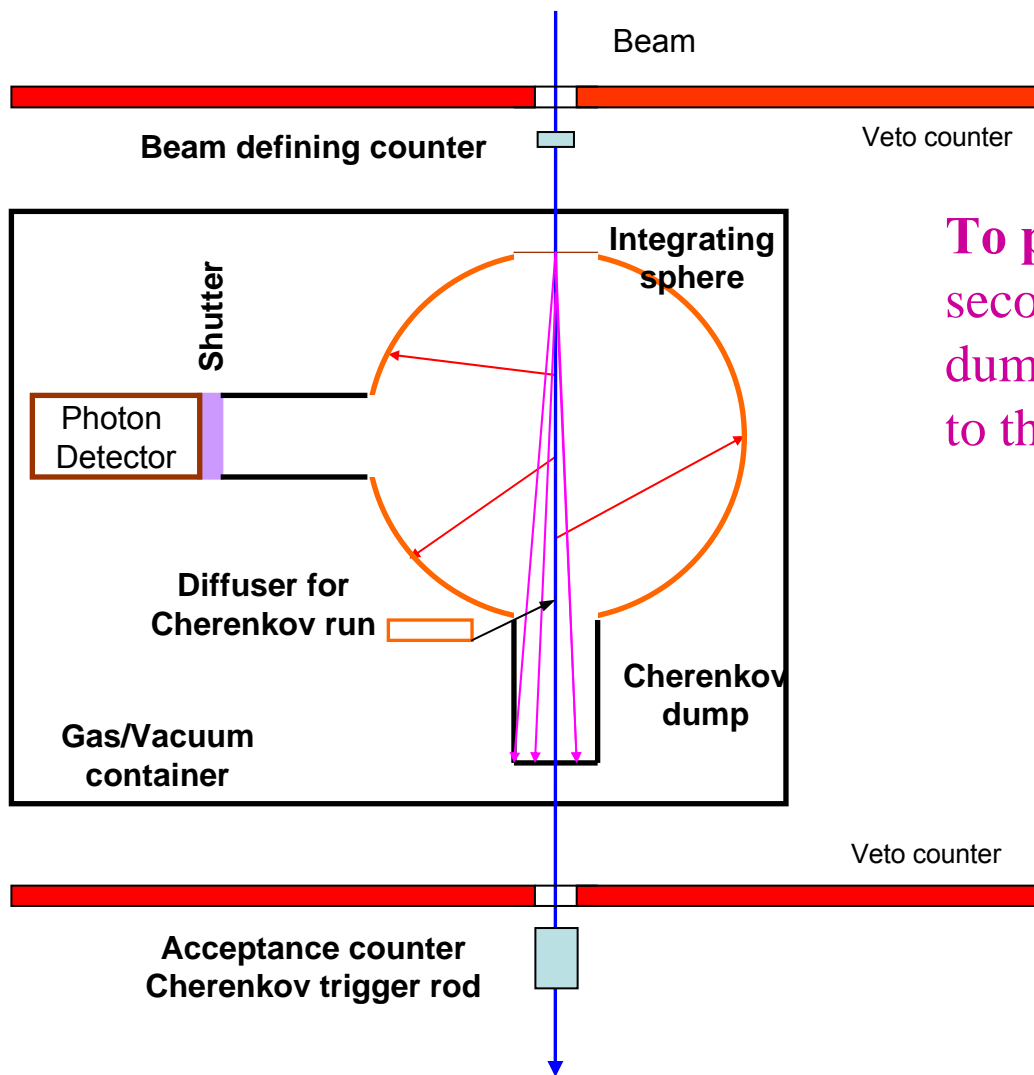
- Absolute measurement of air fluorescence from energy deposition by charged particles.
- Absolute relative to Cerenkov radiation and laser calibration
- Application: **Absolute calibration of the Auger Observatory cosmic ray's energy measurement.**
- Well defined beam: single particle trigger and geometry



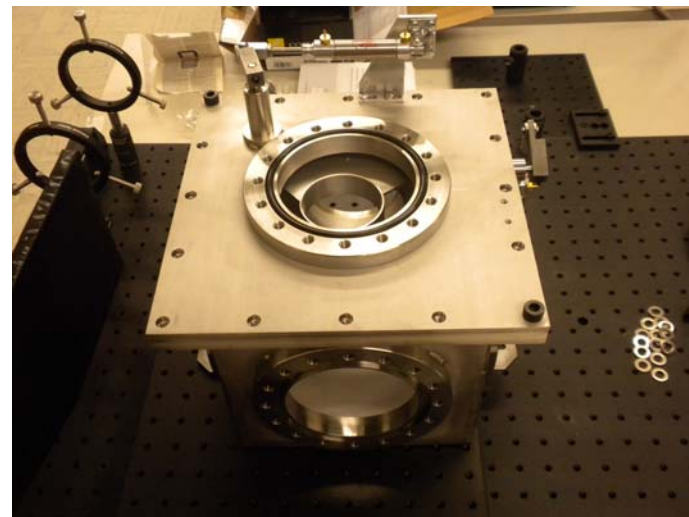


34 band intensities measured (relative to the 337 nm line)

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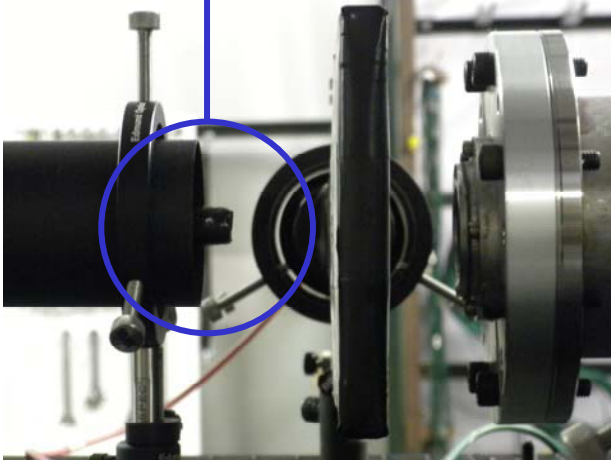
To preserve the optical geometry a second diffuser opens and closes a dummy Cherenkov dump perpendicular to the beam



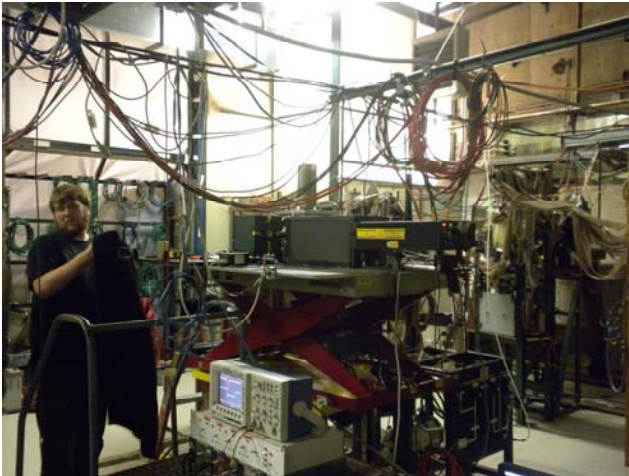
Diffuser actuator

# T988: AIRFLY Setup

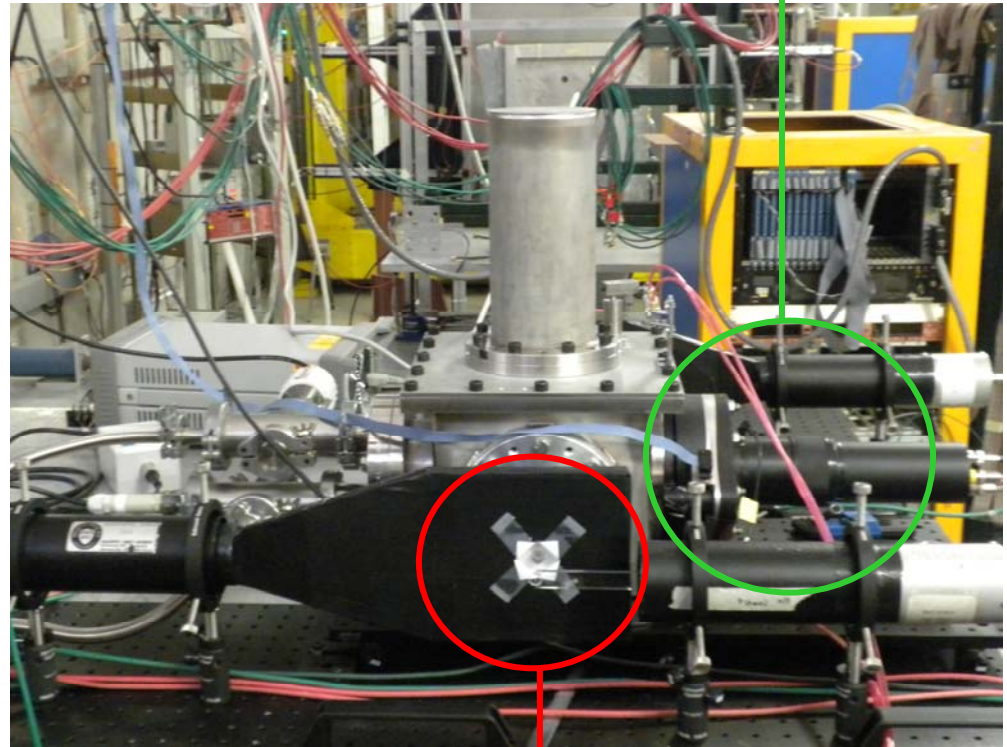
Beam Cherenkov counter



Laser calibration setup



Photon detector and shutter



Beam defining counter and ups. veto

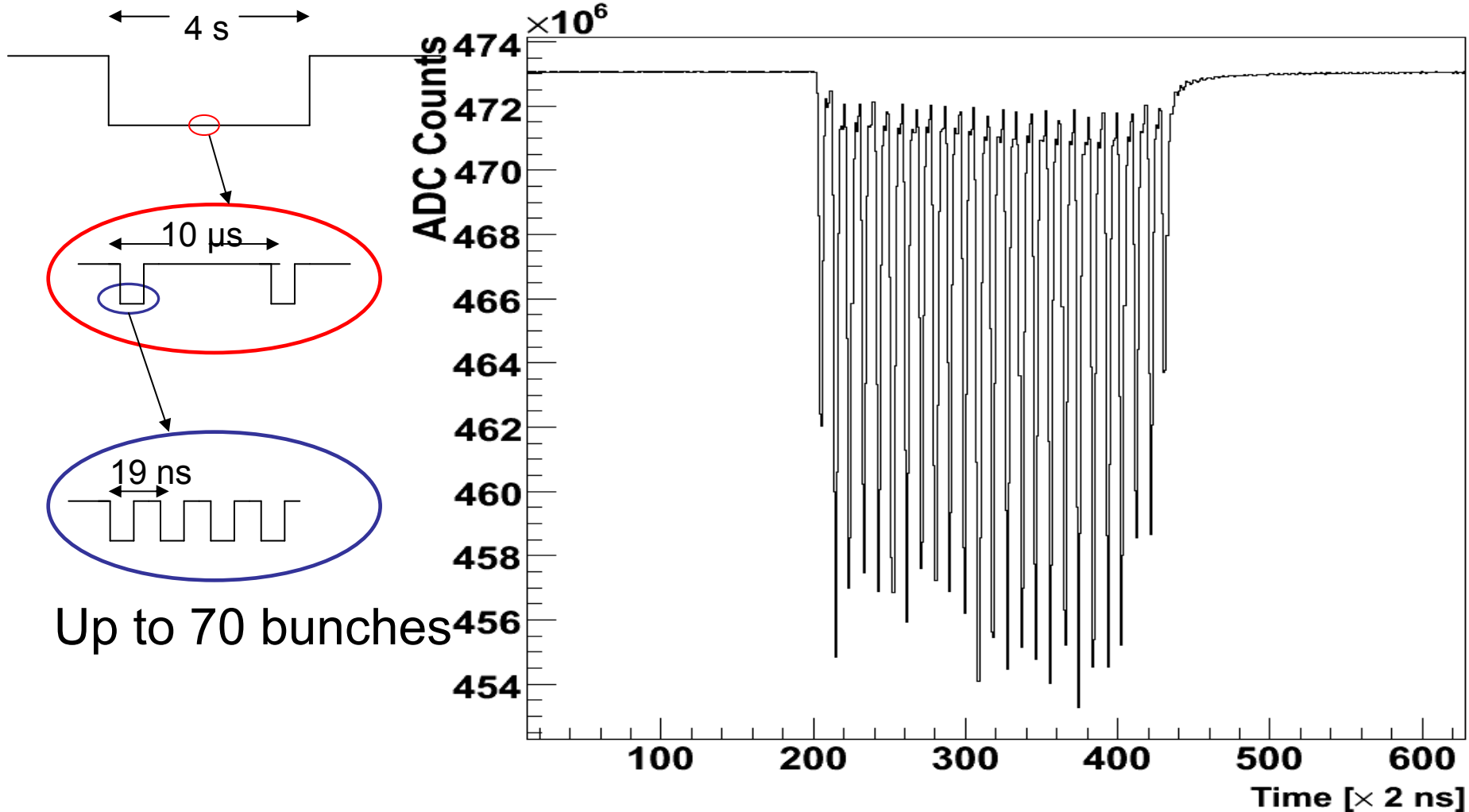
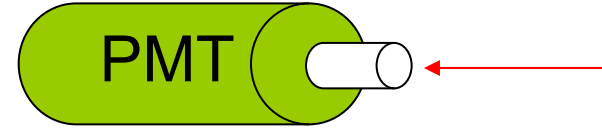
## Data acquisition:

- 500 MHz ADCs, 2 ns bins
- NO event trigger
- Spill trigger for ADCs

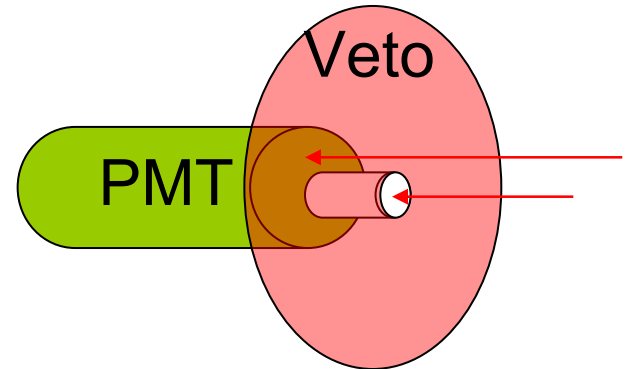
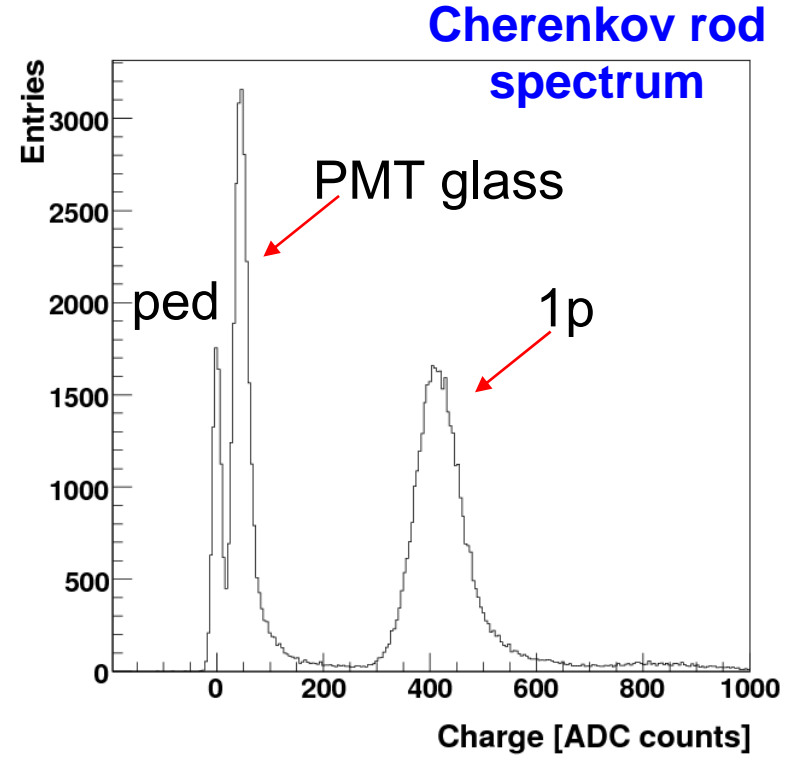
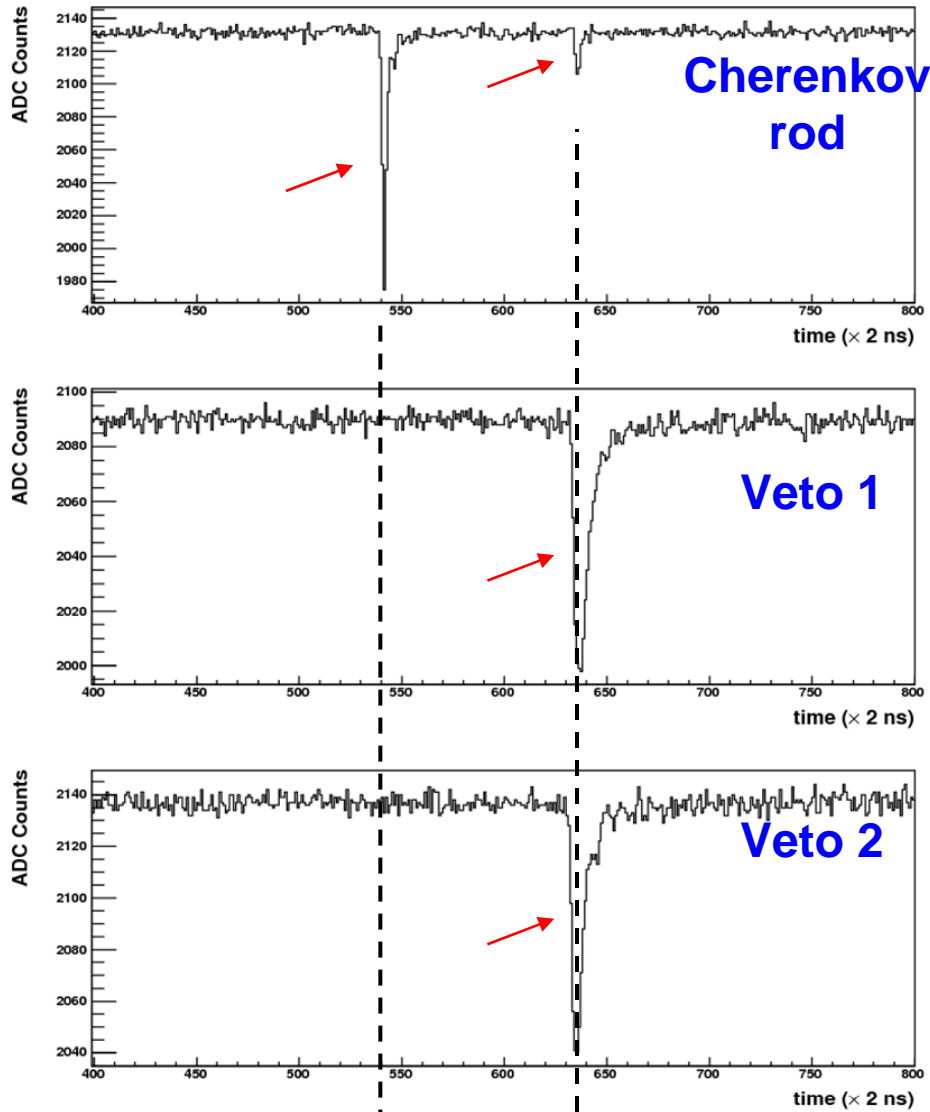
UV transparent acrylic rod

1 spill / min

Several  $10^5$  particles/spill



# Single particle triggering

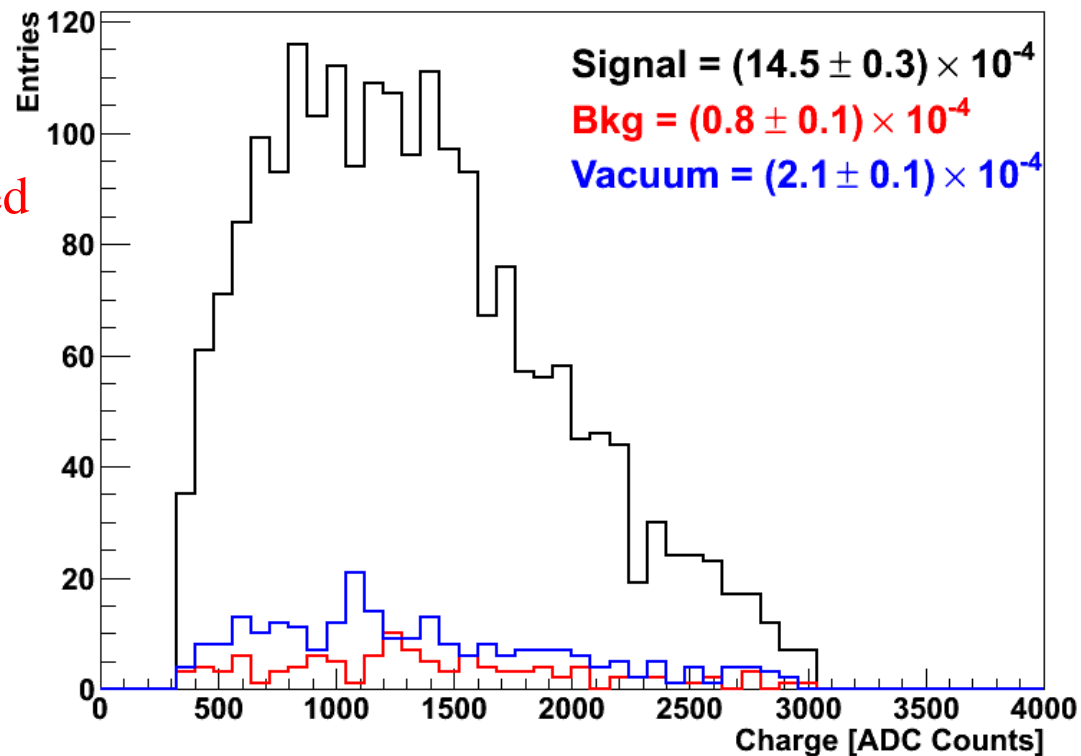


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Signal: Nitrogen

Bkg.: Photon counter shutter closed

Vacuum: No gas, shutter open



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## SUMMARY

- Estimate that at the moment we have data for a 10% measurement. Goal 5%.
- Background from Cherenkov radiation in the integrating sphere material MORE THAN expected.
- Designing new thinner integrating sphere with new UV reflective materials.
- Will request further running for early December.
- Collaborative program has renewed funding for another year.

# Alignment

