



**North Carolina A&T  
State University**

Research University  
High Research Activity

# Lucite Hodoscope for SANE

## Status Report

A. Ahmidouch, S. Danagoulian

Undergraduate Students, Martin, Pawlos, Julia

**NC A&T State University**

# LUCITE Hodoscope

Status of the detector

Test Plans

Prototype

Construction

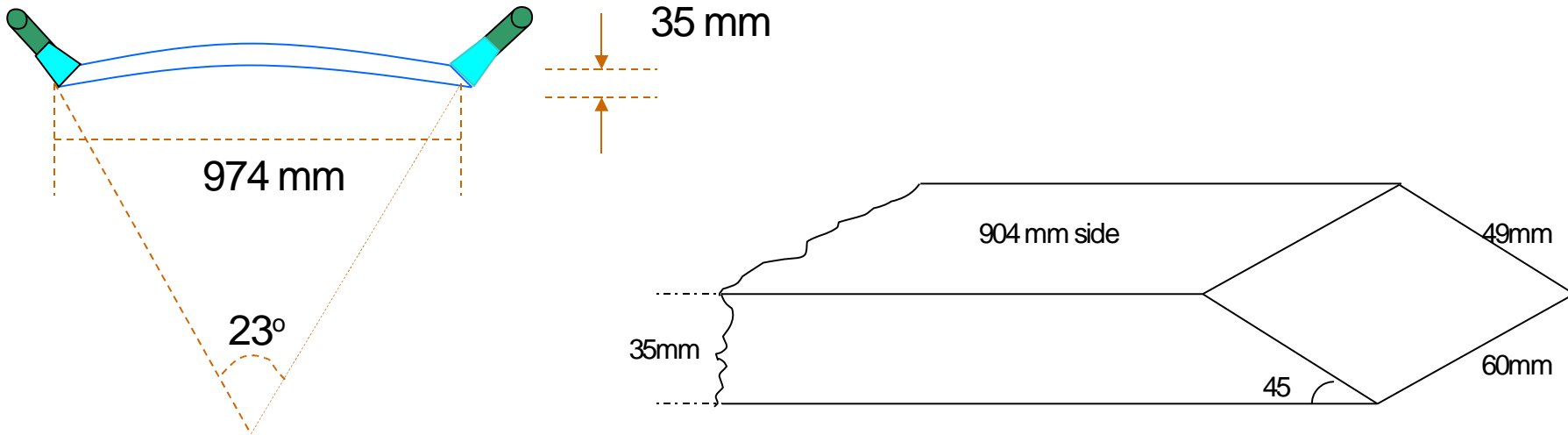
# LUCITE Hodoscope status

- Purchase order has been submitted on February 23. Delivery time is 3- 4 months.
- The engineering drawing of the bent bar has been sent to us on March 15.
- We expect the first prototype to be shipped by May 2007.

# Status

- We hope to get parts in June.
- We ordered 28 bars and 56 light guides.
- The design work of the frame is in progress (Mark, Bert). This afternoon we will discuss some details

# Lucite bar and light guide



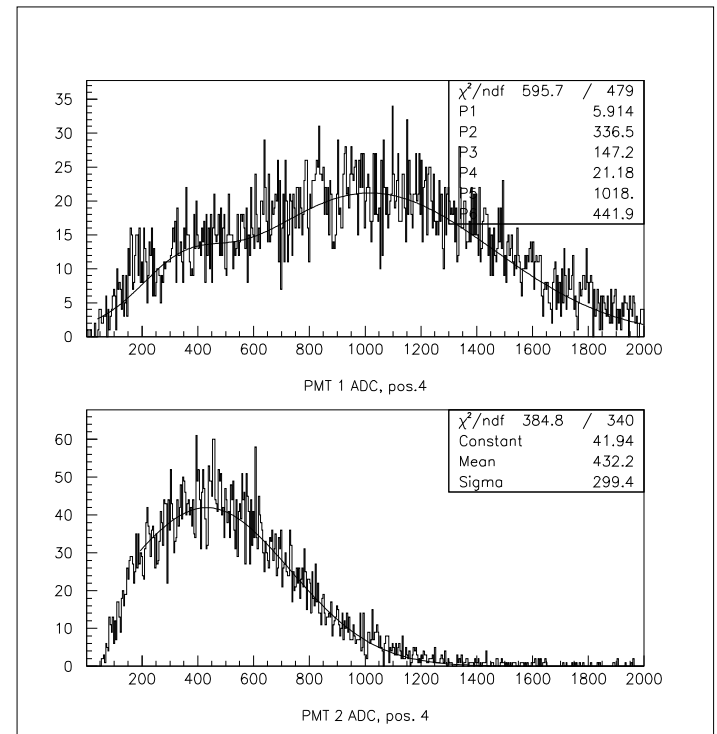
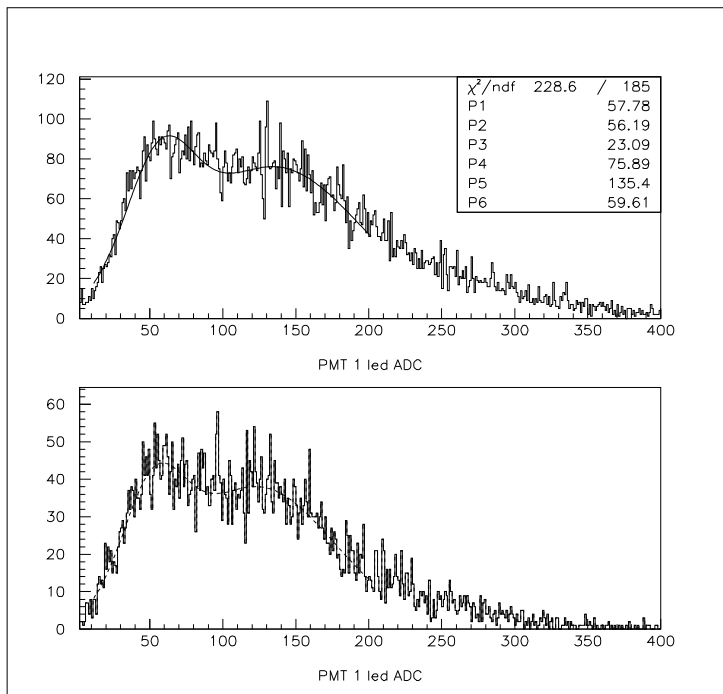
Light guide:  $50 \times 60 \times 100 \text{ mm}^3$

# Glue test

- We tested two types of glue, ShinEtsu SES 403 and SES 406. Both glues have been tested at SLAC for DIRC detector in 2000 on the subject of transparency and radiation damage. SES is UV transparent (250 nm). SES 403 is soft glue (hardness 20), while SES 406 is harder (55). When it is cured, it has a consistency of the cookie.

# Cosmic Test with new PMT

- Number of photoelectrons: 12 per 31 mm of Lucite



# Test Plans

April- May beam test:

- dedicated beam time (May 15- 16- 17?)  
open floor, trigger with 3 scintillators and Lucite bar in between
- parasitic run with the experiment E05- 017, SOS (or HMS?) detector hut



# Test Plan

We will test (in the detector hut):

- Angular dependence of the detector efficiency
- Beta dependence
- Coordinate resolution, dependence on the signal ADC
- Number of photoelectrons.

For this test we need SOS drift chamber information. We need to measure ADC and TDC (2 channels).

# Test Plan

On the floor:

- Detector efficiency and coordinate resolution at different beam currents. Target: C12

For the test we need three narrow scintillators (Donal Day, Bogdan Wojtkowski).

# Construction

We have three students working with us now and during the summer.

We will assemble the detector bars at NC A&T, test with cosmic and ship to JLAB.

At JLAB we will assemble in the frame and test with cosmic.

# Conclusion

We are within our schedule. We hope to be ready for the beam by November 2007